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Belize, Factor 4: Animal Health

### **Belize: Implementing an Ameliorated Approach to Animal Health**

In the words of former Nebraska State Senator Mike Johanns, “Science is the international language, so when we are able to convince countries that good decision-making for human health and animal health is based upon science, that’s a real success story for us.” Although exceptional animal health science programs are essential to any nation, it is especially vital to developing nations such as Belize. Without proper care for livestock and poultry, the country faces a variety of complications such as food shortages or zoonotic diseases.

Located north of Honduras and bordered by Mexico and Guatemala, Belize is a small Central American country defined by a sub-tropical climate and temperatures ranging from an average of 50-94 degrees fahrenheit year-round. Marked by periodic seasons of both drought and heavy rainfall, Belize’s climate greatly affects both the nation’s agricultural emanation as well as the residents of whom rely upon the husbandry of the environment surrounding them.

Defined by a diverse variety of over ten different cultures amongst its 331,900 inhabitants, Belize is noted to be rich with a broad array of customs and beliefs. However, despite these differences, typical Belizean families are relatively similar to one another. Parents do not often consent to any type of agreement to form a domestic unit following the birth of the first and even second child. Most families rely on “cognatic kinship” (Every Culture), a system in which extended family lives and cooperates with the parents in order to assist with child rearing. Aside from aiding the parents in raising their children, a larger family is beneficial to Belizeans in the sense that there is a higher labor force within the home to assist with agricultural chores and responsibilities.

Due to the wide diversity of culture among Belizeans, they are known to retain diets consisting of an assortment of many different dishes and cuisines. Belizeans are highly dependent upon the resources available to them, their diets consisting solely on cultivated crops and a range of meats, including pig, cattle, fish, and poultry products. This produce is incorporated into nearly every meal, essential to a proper diet. The reliance on these staple products proves vital for the residents to obtain key nutrients and thrive within their surroundings.

Belize’s dependency upon the surrounding environment greatly affects the quality of meat produced within the country. Since grain is typically not imported, chickens feed upon locally grown food. Fish is also relatively abundant due to Belize’s coastal location. Belizeans are described as having relatively little knowledge on the adequate raising of important meat-producing animals such as cattle and pigs, and struggle to regulate levels of malnutrition and the spread of parasites between large groups of these animals. Thus, cattle and pigs are less commonly consumed than chickens, fish, and cultivated crops.

Education within Belize is encouraged, yet many do not comply with standard educational procedures. The Belizean government requires all children between the ages of 6-14 years attend school, and will fine the families of those who do not adhere to the mandatory law. However, most children drop out of school due to a variety of complications, the most common being that parents cannot afford the cost of annual tuition and children are often needed at home to assist with labor. Those who do complete the eight years

of education within primary schools may move on to four years of secondary or vocational schooling, although these education systems can only accommodate half of the students who have completed primary schooling.

Healthcare within Belize has greatly improved since complications proved futile until the year 2008, when Prime Minister Dean Barrow was elected, and focused primarily on improving Belize's access to healthcare. Although the system pales in comparison to nearby countries such as México and Guatemala, Belizean healthcare allows for minor ailments to be treated in both private clinics and public hospitals. The cost of care is affordable for most residents and the treatment is of "great quality" (International Living). Pharmacies are notably well stocked with prices of medication noted to be easily affordable. However, Belize does lack proper treatment facilities for those who suffer more serious conditions. Thus, most residents leave to receive more complex treatment procedures in neighboring countries if needed.

Belize is known for being a country rich with suitable agricultural land; approximately 38% of its total land sufficient for either growing crops or raising livestock and its agricultural sector proving to be the most vital to the nation's economy (accounting for 68% of total export earnings). However, of these 800,000 acres of cultivable land, only 9.7% is used for agricultural practices (Martin D. & Manzano O.). Half of this utilized land is used for cultivating crops, while the remaining half is utilized for pasteurizing livestock. The most common reasons for the lack of utilizing this abundance of arable land relates to the residents of Belize struggling to afford the costs of developing the land as well as being unable to construct irrigation systems to provide potable water for such farming practices. Due to this, Belizeans rely heavily on importing products from other nations.

A typical farm within Belize can range in size, although most are small, between 20-50 acres. Subsistence farming is sometimes practiced to provide support within families, these even smaller farms often ranging between 5-20 acres. Belizean agriculture is described as being divided into three sectors, the first being an export sector for bananas, citrus fruits, sugar, and marine products, the principal products that are exported from the country. This sector is notably the largest, providing the main source of income for Belize's foreign exchange. The second sector is described as being a small-scale farm sector, where farmers produce goods to be consumed locally. These goods are traded among the people, often in local markets. The third sector includes large-scale commercial farms, where farmers do not participate in a traditional export system such as those within the first sector, but do export some food products.

Aside from the staple products produced within the first sector, Belize farms produce a rather limited array of goods. Principal grains include rice, corn, and sorghum. Root crops, beans, and vegetables such as tomatoes, onions, and sweet peppers are essential to the local market as described in sector two. Smaller farms typically produce corn and beans. Aside from these crops, the most common animals raised for their products are poultry as well as few cattle and pig farms.

Typical farming practices within Belize include traditional slash-and-burn type methods. Much of Belize's rainforests are destroyed, the trees cut down and the grounds burned in an effort to develop more land for sustainable agriculture. Another common method utilized includes a form of monocrop farming. Monocrop farming involves putting all of the resources within a single yield, damaging the soil as fertilizers and pesticides runoff and erode the Earth's surface.

A fairly modernized farming practice, known as agroforestry, has recently begun to be utilized amongst farmers in an effort to incorporate better farming practices within the country. Agroforestry is defined as being "an intensive land management system that optimizes the benefits from the biological interactions

created when trees are deliberately combined with crops and livestock” (Association for Temperate Agroforestry). Belizeans have begun to plant crops and raise livestock within the forests of the country, resulting in huge environmental and economic benefits. Amongst the trees, crops and livestock are sheltered from the damaging effects of wind, therefore resulting in more produce. Agroforestry also results in controlling soil erosion and alleviate non-point source pollution. However, due to the fact that this method of farming is new to the country, few farmers have begun to utilize agroforestry.

Of the issues within Belize, one of the most disconcerting is that of animal health within the country. Belize hosts a total of 22 veterinarians within the country, about six veterinarians per 100,000 people contained within the population. Compared to the US, which hosts 31 veterinarians per 100,000 people, this number is miniscule. The lack of veterinary care and resources needed to provide animals with adequate care and nutrition, has resulted in detrimental effects to the availability and quality of food. There have been outbreaks of diseases such as Hog Cholera (a virus highly contagious amongst swine) in the past, resulting in death of the majority of Belizean pigs, a meat source of which is already scarce in the country. The nation is under constant threat from neighboring countries such as México and Guatemala, both known for poor animal health and hosting highly contagious diseases amongst their livestock. In addition, Belize notably is host to exotic diseases such as rabies, Blackleg, Vesicular Stomatitis, and sporadic outbreaks of avian diseases. Rabies is a zoonotic disease, meaning humans are at risk of contracting the disease themselves. This range of diseases severely impacts food availability, as outbreaks often result in mass numbers of deceased livestock. The quality of meat may also be impacted, as produce is spoiled following the contraction of diseases.

Aside from a broad array of diseases and lack of veterinary care, animal health is also impacted by two of the most prominent issues: malnutrition and parasitism. Malnutrition is extrusive; cattle are often overstocked on available land space, resulting in overgrazed pastures. They also receive inadequate amounts of supplemental food during Belize’s dry season, as grain is not imported and available foodstuffs grow poorly due to the lack of rain. Ticks, beefworms, and a variety of internal parasites are also common and result in large quantities of loss in meat production.

Animal health has a severe impact on families within Belize. Farmers who lose their livestock to outbreaks of diseases face substantial financial losses and become unable to support their families. The food shortage results in economical losses in turn, residents of Belize plunging into poverty as the government is unable to rely on the profitable exports of the meat industry within the country. The health of Belizeans is also impacted as they are unable to obtain nutrients found in meat products. The prevention of zoonotic diseases will allow residents to sustain a healthy lifestyle as well.

Belize has noticed the subject of animal health and is currently attempting to combat the issue with a variety of methods. In 2003, the country established the Belize Agricultural Health Authority (BAHA) under the “Belize Agricultural Health Authority Act of the Substantive Laws of Belize”. BAHA works to combat agricultural issues within the nation, including that of animal health. They have established a mandatory disease risk and food safety risk assessment, requiring that, upon a disease entry, veterinarians must assess an array of concerns such as likelihood of entry, biological concerns, and effects on both humans and animals from the presence of contaminants, toxins, and pathogenic agents. BAHA offers disease surveillance to prevent and control zoonotic, terrestrial, and aquatic disease, conducting these procedures according to the import of meat from different countries that are known to be linked to poor animal health. They conduct laboratory experiments to study diseases they are unfamiliar with treating. They supervise slaughterhouses to ensure the quality of meat produced. BAHA also regulates the use of

veterinary drugs and animal feed within the country. Due to BAHA's efforts, animal health conditions have improved slightly within Belize since its establishment.

By improving animal health within Belize, the country will have the potential to prosper both economically and environmentally. Preventing the spread of diseases amongst animals will have a tremendous impact on the economy and overall health of the residents of the country. Without losses in meat production connected to diseases, malnutrition, and parasites, the economy will flourish as the abundant produce can be exported. Belizeans will have a significant improvement in health as the abundance of quality meat becomes more feasible. The demand for meat products will reduce considerably as animal health conditions improve.

Another major issue within the Belize (due to its coastal location) is climate volatility. This affects animal health severely, as unpredictable weather patterns such as torrential rains, hurricanes, and dry spells impact the resources needed to utilize a significant production of meat products. Hurricanes have occurred in the past within Belize, destroying the earth and foodstuffs that livestock rely on to thrive. Dry spells further contribute to levels of malnutrition amongst animals, as food becomes less readily available for livestock to feed upon.

Despite efforts to improve animal health within Belize such as the organization of BAHA, there are many options available to Belize to further progress their development and food security. The main focus should primarily rely upon developing a better education system. The government of Belize should mandate the law already in place more extensively by imposing harsher punishment and steeper fines for the families who do not send their children to school. The government should also financially support families of lower income by providing schools with academic materials such as textbooks. This would encourage students who cannot afford annual tuition fees to attend school, as the cost is reduced. An improvement in secondary and vocational schools would be beneficial as well. By expanding these schools and stressing the significance of agricultural food security within the nation, the schools would be able to accommodate more students as well as encouraging them to proceed with studies more directly related to veterinary science. With an increase of veterinarians in the country, Belize would be able to further control the spread of diseases and aid farmers with the knowledge of proper care for their livestock.

Another possible method to improve veterinary practices within the country aside from enhancing the fundamentals of education would be to establish a system in which veterinarians from less impoverished countries could allocate their knowledge and experience to the veterinarians of Belize. By broadening the veterinarians' insight to potential diseases, treatments, and technology, animal health within Belize can only improve. Introducing veterinarians from more economically-developed economies may also help raise awareness to the issues surrounding countries such as Belize. This will inspire such countries to possibly aid the improvement of animal health, considering the fact that these nations rely on exports of meat products from developing countries such as Belize.

In addition, yet another primary focus should be focused on the development of land within Belize. The significant amounts of arable land that are not utilized severely impacts the economy, as the wasted space sits stagnant, unable to provide products used for exports. In order to develop the land, Belizeans would need to target a key factor, that being to reduce current farming methods of slash-and burn and monocrop farming. In order to even further reduce effects of the farming practices utilized within Belize, farmers should begin to work towards what they have already begun to do: agroforestry farming. By practicing agroforestry, it will help the land to prosper and eliminate the effects of the current farming practices.

The prosperity of Belize relies upon the improvement of the country's animal health system. Without healthy animals, Belize will be unable to provide substantial quantities of exports to further improve the economy. The prevention of diseases is crucial to ensuring the health and safety of both the residents of Belize as well as the livestock raised within the country. By improving the fundamentals of their education system and developing arable land in an effective manner, Belizeans can achieve improvements in the factor of animal health within their country.

The biggest obstacle Belize will be faced with is the cost towards the development of the country and improvements mentioned. The most essential factor will be educating citizens of the significant benefits that will result from improving the current issues within the country. As residents become more aware of the affairs within Belize, they will be more voluntary towards aiding the government with funds. The residents will be open to the idea of paying higher taxes or developing programs and fundraisers to assist the costs of improving the country. With an added understanding of issues within the country, the people of Belize will be more supportive towards aiding the financial issues surrounding the development of their country.

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