AGR1110 Canadian Agrifood Exports Project

Final Report

"Hormone Implants to Maximize Beef Production in Cattle"

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Part 1: Product Information

Product Summary

Hormone implants for cattle will be a beneficial agricultural product for Nepalese Farmers.

Hormone implants are small pellet like injections that slowly release hormones which work within the animal's body to maximize the animal's efficiency for producing meat (Brown, personal communication, 2015). The natural hormones in the implant enhance the animal's production by directing the animal's growth towards muscle opposed to fat (Beef Farmers of Ontario, 2015). The hormones increase the animal's growth rate which results in the animal requiring less feed to gain weight (Beef Farmers of Ontario, 2015). The brand of implant that would be the best option for Nepalese farmers would be Compudose hormone implants (Elanco, 2015). Compudose is manufactured by Elanco Animal Health, which is a division of Eli Lilly and Company (Elanco, 2015). Compudose would be the best product because it is a long acting hormone which means the hormone only needs to be administered once to each animal to get the desired outcome (Elanco, 2015). Compudose implants are coated with oxytetracycline which is an antibiotic that helps to reduce the risk of post-implantation infection (Elanco, 2015). The goal for farmers using hormone implants is to achieve the maximum meat production while minimizing the feed required (Brown, personal communication, 2015). The hormone implant slowly releases the hormone estrogen (estradiol) into the animal's system which improves the animals feeding efficiency, weight gain and average daily gain (Elanco, 2015). One Compudose

implant will last 400 days, which is ideal for farmers because then only one dose should be needed for each animal (Elanco, 2015).

Hormone implants work with the animal's bodies to maximize the beef production from the feed that they consume (Brown, personal communication, 2015). Cattle that receive hormone implants grow and produce meat faster than cattle that have not been implanted, and are being fed the same amount of feed (Brown, personal communication, 2015). This has numerous benefits for the farmer. The cattle will take less time to reach market weight, and the amount of feed that beef animal needs to consume to reach market weight is significantly less (Beef Farmers of Ontario, 2015).

Product Use

Compudose hormone implants are injected directly under the skin on the back of the animal's ear (Elanco, 2015). Implanting cattle is a very fast process (Brown, personal communication, 2015). The needle needs to be kept clean to avoid the animals ear becoming infected (Elanco, 2015). When implanting, safety is very important (Brown, personal communication, 2015). The person implanting needs to be very cautious of the animal, and the surroundings in case the animal becomes frightened (Brown, personal communication, 2015). When implanting, the person implanting needs to be aware of the animal's safety as well. Inserting the implants into the livestock is a fairly simply process (Brown, personal communication, 2015). Any farmer who understands animal behaviour and can work safely around livestock should be successful with the implanting process (Brown, personal communication, 2015).

Equipment

Some equipment is required to implant cattle, and some equipment is recommended (Elanco, 2015).

The Compudose hormone implants require a hormone implant gun that is specific to the implants (Canadian Co-operative Wool Growers Limited, 2014). The implant gun is valued at $30 but is often included for free with the bulk purchase of hormone implants (Canadian Co-operative Wool Growers Limited, 2014). Specific needles are also required for implanting, they are included with the purchase of the implant gun, and are often included for free with the bulk purchasing if Compudose hormone implants (Canadian Co-operative Wool Growers Limited, 2014).

The implant gun can be reused until it is worn and can no longer serve its purpose (Brown, personal communication, 2015). The Needles can also be reused if the farmer decides that it is safe to do so with his herd (does not have a contagious blood born disease) (Brown, personal communication, 2015). The farmer might not know the details of his herd health because Nepal does not have the same veterinary technology that Canada has, so precautions can be taken (The Knowledge Academy, 2015). If the same needle is used on more than one animal, it is recommended, for the health of the herd that the needle is dipped in sanitizer or alcohol and then wiped with a sponge saturated with either a sanitizing solution or alcohol (Brown, personal communication, 2015). The needle can be used until it is dull, then it should be replaced (Brown, personal communication, 2015). The farmer will know the needle is dull when it becomes difficult to push under the skin (Brown, personal communication, 2015).

A handling system is highly recommended for implanting the hormones. The reason behind a handling system is to minimize the risk of injury to the person implanting the cattle and the animal (Grandin, 2015). Head gates are an ideal method of restraint for implanting (Grandin, 2015). They can be purchased, but the best option for Nepalese farmers who don't have head gates would be to make one out of wood (Brown, personal communication, 2015). If making a head gate is also not possible for the farmer, placing the animal in a small pen and restraint with a secured gate could also be sufficient (The Knowledge Academy, 2015).

Cost of Compudose

The price of Compudose hormone implants vary by retailer (Canadian Co-operative Wool Growers Limited, 2014). They can be purchased at veterinary clinics, or from the Canadian Wool Growers (Canadian Co-operative Wool Growers Limited, 2014). If purchased from the Canadian Wool Growers, a cartridge with 20 rounds of implants costs $52, and the specific implant gun for this brand of implants is valued at $30 (Canadian Co-operative Wool Growers Limited, 2014). If implants are purchased in bulk, there is a good chance that the implant gun and needles will be free (Brown, personal communication, 2015)

Benefits to Nepalese Farmers

Compudose hormone implants would be very beneficial to Nepalese farmers and the Nepalese people.

Hormone implants will be very cost effective for Nepalese farmers (Central Intelligence Agency, 2015). Hormone implants will allow farmers to produce more meat with less feed, this will minimize the farmers feed expenses and it will also provide more profit for the farmer with more beef being produced (Alberta Beef Producers, 2015). The farmer will also require less cattle to produce more beef (Beef Farmers of Ontario, 2015). This would be very economical to the farmer if he was feeding less cattle and producing more beef (Brown, personal communication, 2015). The cattle raised with the use of hormone implants are more efficient because 11% more beef was produced from 20% fewer cattle (Beef Farmers of Ontario, 2015). Using hormone implants should have a reasonable profit return for the farmer (Daily Cattle Report, 2015).

Compudose hormone implants do not have a withdrawal time, which means that the farmer does not need to wait a certain amount of time after implanting the animal before the animal can be slaughtered for the use of food (Elanco, 2015). This will be helpful for the farmer because less organization will be required (Brown, personal communication, 2015). The farmer will not need to keep close track of which animal was implanted, and when they were implanted for planning when they can be slaughtered (Brown, personal communication, 2015).

Labour Required for Farmer

There is very little labour required for the farmer to use Compudose hormone implants (Brown, personal communication, 2015). Since each animal only require one hormone implant, the cattle will only need to be handled once with regards to implanting (Elanco, 2015). The farmer will be required to bring in all of the cattle that he or she wants to implant into a pen, or a handling system that the cattle can be implanted in (Grandin, 2015). This will not be an inconvenience to the farmer because the farmer could also vaccinate and examine the herd for health concerns while the animals are caught to be implanted (Brown, personal communication, 2015).

Additional labour that may be required would be building a head gate or a pen so that the cattle can be restrained and contained for implanting. If the farmer is vaccinating the heard there is the possibility that a handling system already exists (Brown, personal communication, 2015). If building a handling system is necessary, to make building more economical, the farmers that ranch their cattle in the mountain region could collaborate and build a shared coral and handling system. By doing this, the cost for each farmer would be minimized because it is shared, and all of the farmers in the area could have access to a handling system.

Some organization would be required on the farmer's part in order to make sure that the cattle do not get implanted twice, or do not get implanted at all (Brown, personal communication, 2015). Organization is very important for a healthy herd and a successful farm.

Benefits to Canada

Canada will benefit by exporting hormone implants to Nepal because the hormone implants will be purchased from Canadian retailers. With Compudose being purchased from Canadian retailers, that will bring profit to those businesses and therefore the Canadian economy (Canadian Co-operative Wool Growers, 2014).

Using FedEx Canada as the courier company for transporting the hormone implants to Nepal will create Canadian jobs, and profit for the company, which will benefit the Canadian economy (FedEx, 2015).

Exporting hormone implants from Canada will also be advertising Canadian beef to other nations, being that Canadian beef techniques and practices are being exported to Nepal (Brown, personal communication, 2015). Our quality beef will be a role model and a goal for the Nepalese farmers (Alberta Beef Producers, 2015). Promoting the Canadian beef industry may also encourage Canadians to recognize the quality beef that we are producing (Beef Farmers of Ontario, 2015). The advertising will benefit the Canadian beef industry, and therefore the Canadian economy (Beef Farmers of Ontario, 2015).

Public Concerns

Lately there have been some public concerns about consuming beef raised with the use of hormones (Beef Farmers of Ontario, 2015). There is nothing to worry about (Beef Farmers of Ontario, 2015). The hormone levels in the meat raised with the use of hormones are so low they are not significant, and are not capable of altering our bodies in any way (Alberta Beef Producers, 2015). No health concerns will arise from consuming beef raised with the use of hormones (Alberta Beef Producers, 2015). See figures 1 and 2 below.

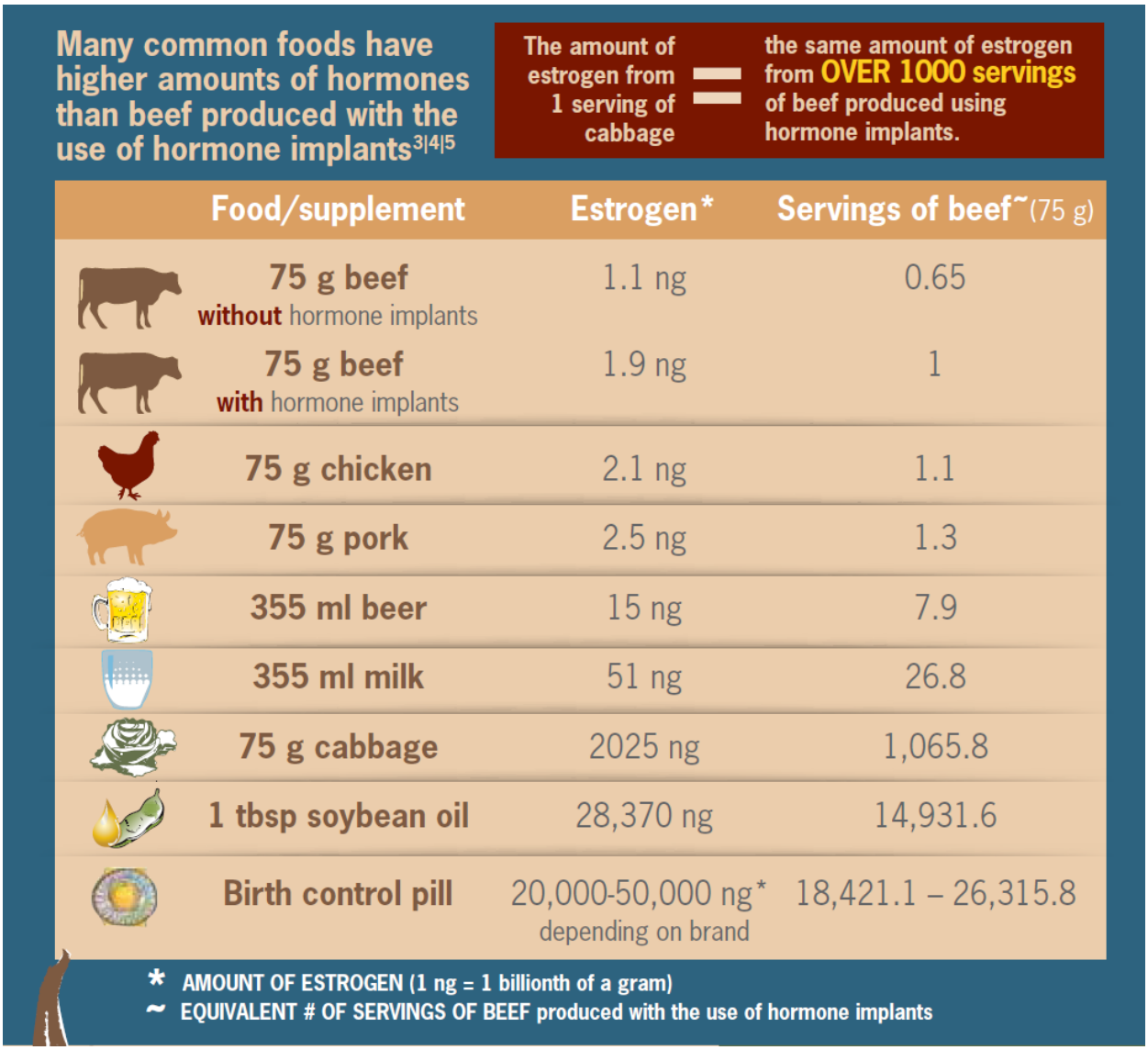

Figure 1: demonstrates the amounts of estrogen present in different foods and the birth control pill.

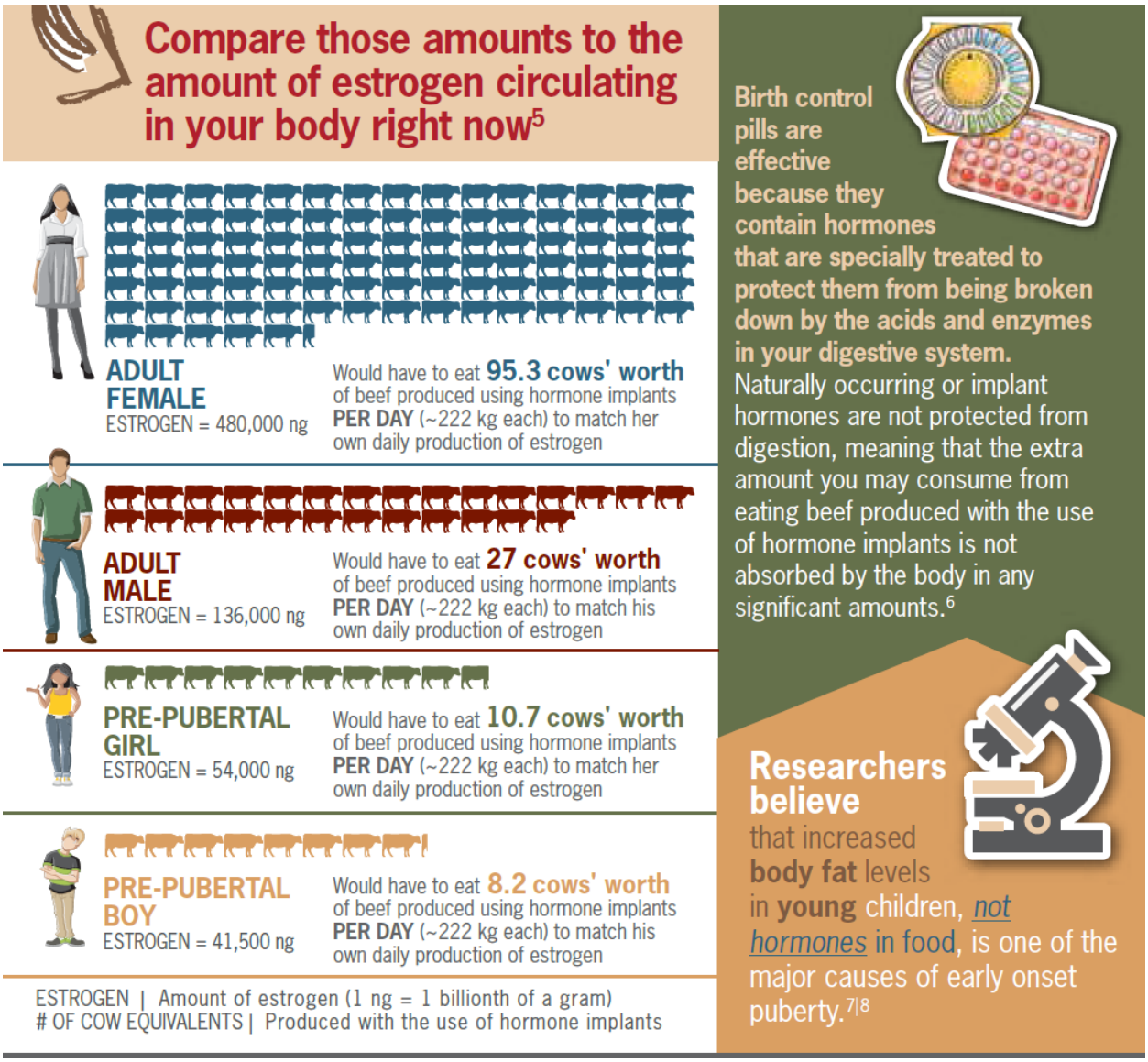

Figure 2: demonstrates the amount of beef raised with the use of hormones that different ages and different genders of people would have to consume in order to match their own estrogen production.

Part 2: Export Potential to Nepal

Transportation

Compudose hormone implants are manufactured in Indianapolis, IN, USA (Elanco, 2015). The hormone implants will need to be transported from Indianapolis by FedEx Courier, to where they are distributed in Canada (FedEx, 2015). Compudose hormone implants are distributed by the Canadian Wool Growers in Cookstown, Ontario (Canadian Co-operative Wool Growers Limited, 2014). In order for Canada to obtain the maximum profit from exporting Compudose, the hormone implants will need to be purchased from Canadian retailers (Brown, personal communication, 2015). The implants will then be shipped directly to Kathmandu, Nepal by FedEx Courier (FedEx, 2015). This is the most inexpensive option (A1 Freight Forwarding, 2015). Since the hormone implants are small in size, light weight and do not require refrigeration, they can quickly and easily be shipped to Nepal through the mail (FedEx, 2015). It will cost approximately $92.22 to mail one unit (cartridge with implant rounds, implant gun, and needles), and it will cost around $164.00 to ship 10 units from the manufacturer in Indianapolis to Cookstown, Canada where they are sold (FedEx, 2015). To mail 1 unit from Cookstown to Kathmandu, it will cost approximately $237.92, and to mail 10 units is will cost around $598.36 (FedEx, 2015). This is the most inexpensive option compared to trucking and shipping via freight vessel or plane (A1 Freight Forwarding, 2015). The estimated total cost for transporting 10 units of Compudose hormone implants is $765.36 (FedEx, 2015).

Cost Analysis

If 10 units are mailed to Nepal, the total cost of transportation would be $765.36. It would cost $260 to purchase a box of 100 implants (5 20 implant round cartridges) from the Canadian Wool Growers (Canadian Co-operative Wool Growers, 2014). That would result in a total cost of $1025.36 to get the Compudose hormone implants to Nepal. It would cost the Nepalese farmers $10.25 to implant each animal (Canadian Co-operative Wool Growers, 2014). It will be expensive for farmers to implant their cattle, but if they are producing 11% more meat with the hormone implants, and the animals are not consuming any more feed then normal it would be a good investment for the farmer, if the farmer is intending on selling the implanted cattle for meat (Brown, personal communication, 2015). The price for beef is very high in today's market, so the farmer would still make a profit if the implants are used properly (Alberta Beef Producers, 2015). Cattle that weigh over 900 pounds are selling on average between $1.75 and $2.16 per pound (Alberta Beef Producers, 2015). The $10.25 that was spent of the implant will pay back when the farmer sells the implanted animal.

Benefits to Nepal

Cattle can consume feed that humans can not (Food Standards Agency, 2015). They can also convert that feed into food that humans can consume, which is meat (Food Standards Agency, 2015). Meat has a very high of nutritional value (Brown, personal communication, 2015). This will be very valuable to Nepal because cattle can efficiently convert inedible feed into nutrient rich food, the population could become healthier and less hungry (Food Standards Agency, 2015).

Producing beef with the use of hormones could open possible export markets for Nepal (World Beef Exports, 2015). A large population of Nepal will not eat beef because of the Hindu religion (Joshi D.,1991). If hormone implants are a success in Nepal, the cattle or beef could be exported. Since hormone implants aid the animal in producing more beef per amount of feed, if the animals are being fed then same amount of feed that they were getting before being implanted, the result would be a huge increase in beef quality (Beef Farmers of Ontario, 2015). If Nepal can make a market for quality beef, they could export their beef, which would benefit the Country's economy (Brown, personal communication, 2015).

Issues with Export Idea

The majority of Nepal worships the Hindu Religion, and cows are sacred in the Hindu religion (Joshi D. et al,1991). This means that the majority of the people in Nepal will not consume beef (Joshi D. et al,1991). This also means there will be a smaller market for the farmers to sell the beef that they would be producing (Joshi D. et al, 1991). A solution to this problem would be to export some of the beef to China. Hinduism is not as predominant in Chinese culture (Joshi D. et al, 1991). China also has a very large population therefore they have a big market, and a lot of people to feed, which is a great market for the Nepalese farmers (Joshi D. et al, 2015).

International Competition

There would defiantly be some international competition for Nepal if they decide to start exporting beef (World Beef Exports, 2015). India, Australia, Brazil, and The United States are the top Beef exporters (World Beef Exports, 2015). Nepal would likely have trouble competing against the United States for beef quality because their beef is fed a very high protein diet, and that will not be affordable for the average Nepalese farmer (Beef Farmers of Ontario, 2015). Nepal will likely be able to compete with Australia and Brazil's grass fed beef, especially if they are using the hormone implants (World Beef Exports, 2015).

There will not likely be very much competition within Nepal because there is a very small number of Nepalese beef producers (Joshi D. et al, 1991).

Companies Involved with Exportation

Elanco Animal Health is the manufacturer of the brand of hormone implants, Compudose. Contact:

Elanco Animal Health
2500 Innovation Way
Greenfield, IN 46140 USA
1-877-Elanco1 (1-877-352-6261)

Canadian Co-operative Wool Growers is the Canadian distributer. Contact:

Canadian Co-operative Wool Growers Limited

Agricultural Service · Cookstown

3807 Hwy 89
Cookstown, ON
L0L 1L0
(705) 458-4800

FedEx is the courier company. Contact:

Federal Express Canada Ltd.
5985 Explorer Drive
Mississauga, ON L4W 5K6
1.800.GoFedEx
1.800.463.3339

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