

## Canadian Export to Nepal: Micotil Treatment for Sheep

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### Part I

#### Product for export information

The product chosen to be a potential export idea to send over to Nepal would be a treatment for mastitis in sheep called micotil. In Nepal, sheep are important to the economy, farmers and villagers. They provide wool which is their primary source of clothing and they are one of the best meat sources. The average gestation length in sheep ranges from 142 to 152 days. (Beginners guide to raising sheep, 2012) During a ewes last 5 weeks, the majority of the fetus is grown and this places larger demands on the health systems of the ewes. If they lack a sufficient diet during these last few weeks, it can lead to pregnancy toxemia, milk fever and poor milk production. Ewes are also more susceptible to mastitis if they have suckling lambs already, have been cut or injured in any way, if they are living in a crowded and dirty environment or if they are faced with a lot of stress. (Department of

Agriculture and Food 2015). Mastitis is the term for a bacterial infection of the udders of the ewes and the inflammation of the mammary gland. Mastitis becomes present due to the bacteria already living in the sheep. These bacteria are already resistant to many commonly used antibiotics and medications and this is why ewes with mastitis need to be treated

with something else. The most common forms of mastitis are called subclinical and clinical mastitis. Clinical mastitis is defined by

abnormalities that are easy to see in the milk or udder like clotting of milk, a watery appearance



Normal lactating Udder Vs Mastitis Infected Udder

Figure 1 . Difference in mastitis,  
taken from  
<http://i303.photobucket.com/alb>

in the milk or flaking. The udder will also become firm or hot to the touch. The prevalence of subclinical mastitis, which is the inflammation of the mammary gland ranges from 4% to 50% in lactating ewes. (Department of population Medicine OVC, 2000) Lambs from ewes with infected mastitis can have a significantly lower growth rate and there is also the chance of death of the lambs from not getting their sufficient amount of milk since ewes can produce 19.7% less milk if infected with mastitis. (Department of population Medicine OVC, 2000).

### Description of Product

Micotil has been considered the ‘drug of choice’ by certain farmers because it has known to be highly effective in reducing the effects of mastitis. (Elanco Canada 2015) It does not cure ewes of the infection but it fights against the bad bacteria within the udder cells as well as the inflammatory cells. Micotil is a solution of the antibiotic tilmicosin. This



Figure 2. Taken directly from [https://www.valleyvet.com/swatches/226RX\\_L\\_vvs\\_000.jpg](https://www.valleyvet.com/swatches/226RX_L_vvs_000.jpg)

medication has anti-endotoxic effects as to reduce toxins produced by the mastitis bacteria. (Fiona Lovatt, University of Warwick 2013). The dosage requirements are 1.5ml to 3ml of

micotil per 100 pounds of body weight and the pre slaughter withdrawal time is 42 days. (Elanco, 2012). It can be stored anywhere from a cabinet to a lockable container, as to prevent misuse.

## **Benefits to Canada**

This export idea would extremely benefit Canada and the Canadian company that produces this product because it would firstly generate more jobs in Canada. From hiring more Canadian shipping companies and truckers to get the product to where it needs to go, as well as hiring more workers to help with the production of this product. The Canadian company that produces this product is Elanco Canada. This company has more than 2,500 employees and delivers its product to over 80 countries worldwide. Currently, Elanco Canada ships its products as well as having companies in countries like China, India, Japan, Thailand and Vietnam to name a few. (Elanco Canada 2015). Its location is also currently in Guelph Ontario, so secondly I believe it could help with students and research opportunities because learning more about mastitis in sheep is still an ongoing research project today. Lastly it could benefit the company itself because that would get its brand and its name out there to other Canadian sheep farmers that may not know of this treatment for their sheep, again increasing production of this product.

## **Part II**

### **Farming in Nepal**

In Nepal, everyone relies on farmers to get their food. 68% of the population in Nepal is employed in the agricultural and forestry sector. This also accounts for 34% of the GDP in Nepal. (USAID 2016) Even with all these farmers in Nepal, the people are still going hungry. Around one in four people in Nepal live below the national poverty line and many struggle to feed themselves and their families. There are on average 5 million people that are

undernourished as well 29% of those people being underweight. (World Food Programme 2015) Even with all the farmers in Nepal, their food underproduction is because their agriculture is not able to keep up with the new technologies that are being produced all the time. This and the ranging climate and earth quakes also have a factor on their



Figure 3, mountain sheep farming in Nepal from <http://thehimalayantimes.com/wp-content/uploads/2015/08/sheep-farming-myagdi.jpg>

underproduction. Sheep farming in Nepal is a major part of their livestock production. Sheep farming is one of the oldest practiced type of farming and is especially prevalent in the mountain and hills region

of Nepal. (The Roll of Small Ruminants N.D) There are many reasons why sheep are important animals to the Nepalese farmers. Firstly, sheep are multipurpose animals. Not only do they supply meat for the people of Nepal, but they also supply things like wool, hide, manure, milk and transport. For farmers, sheep manure is very important to maintain soil fertility for places where certain chemical fertilizers are not readily available or cannot be delivered to certain regions. Sheep manure contains a lot of nitrogen and is beneficial to the soil (FAO, 2016). Secondly, when it comes to sheep for meat, lamb is also very nutritional. It has a richer iron intake than chicken or fish and it has a higher quality of protein, vitamins and minerals. (Authority nutrition, 2016). This is extremely beneficial for people who are malnourished, like in Nepal.

## **Benefits to Nepal from this product**

As stated, sheep clearly have large benefits for farmers. Therefore the demand for sheep is great in the country and it is hard to keep up with demand. It is important to increase flock production but it is also extremely important to keep the sheep that they already have, as healthy as possible. One benefit of this product for the people of Nepal would be healthier flock management. Sheep receive very little care and they are mostly animals that fend for themselves. They have to compete for food with larger ruminants and lack of pasture management means that the nutrient rich grasses they should be feeding on are replaced with thorny weeds. (Constraints to sheep farming In Nepal, 2000) Climate and diet are also factors that could lead to mastitis in ewes after lambing and all these things are very prevalent in the farming systems in Nepal. Helping to heal mastitis in ewes means that the lambs from these ewes will have the same growth rates, and normal average daily gains as a lamb from a mother without mastitis. This means increased flock production for the farmers for meat, wool or anything else they are using the lambs for. Another benefit would be the economic benefit that sheep give. Financially, it is a small amount of money required to start up a small flock and most of the equipment or any buildings needed can be constructed by local materials so it's affordable for poor farmers. With help and the availability of micotil, ewes can provide farmers with a sound source of cash by producing many healthy and growing offspring.

## **Funding and Distribution**

This treatment would also benefit and could be distributed by the Nepal Veterinary Association. The veterinary association



Figure 4, taken straight from <http://www.nva.org.np/index.php>

was founded in Kathmandu and “Aims to promote scientific knowledge and deliver quality health care to clients” (Dr. Sital Kaji Shrestha, president of NPA, 2010). The treatment is recommended to be distributed by veterinarians for injections so this would bring the veterinary association more clients. Due to the high risk for humans, micotil should be administered by someone who has been educated and trained on how to correctly oversee the treatment. Possible funding for



the treatment to get to the veterinary association could be by the help of the government or possible bank loans. The government could fund a bank, like the Rastriya Banijya Bank LTD. Or

AFigure 5, an image of RBB bank taken from <http://coolnepalijobs.blogspot.ca/2015/06/rbb-bank-vacancy.html>

otherwise known as RBB. RBB provides credit service for farmers of animals like sheep, poultry, goat and pigs as well as the products that can come from them. The government could support these banks by giving them the money to sustain farmers in their purchases of flocks and the mastitis treatment. RBB already lends money to people in the agricultural sector of Nepal for people including farmers, marketers and chain consumers. (RBB LTD. 2013) The government could also fund the veterinary clinic in order for it to buy and distribute the micotil treatment. With the help of the loans from the bank, the Nepalese flock operators could afford to purchase the treatment for their sheep on their own if they have a larger flock, or they could get it right from the veterinary clinic. This source of funding would contribute highly to not only the farmers but the villagers and everyone that benefits from the products produced by this kind of livestock, sheep.

## **Marketing and Education**

The knowledge about this product is something that has to be distributed to farmers in Nepal who do not know about mastitis or the effects that it can have on their flock. One way of marketing this product would be through education. Going around to actual farmers and talking to them about this product would help them to understand how much of a positive contribution this product could have to their livestock. Possibly hiring people from Elanco Canada, vets or anyone else that could be studying the product or the benefits of sheep farming would bring more employment opportunities as well. Setting up classes that the farmers could go to, to educate them on not only mastitis, but the different forms of it, signs that contribute to these forms and just knowledge about sheep farming in general. The Canadian Veterinary Association could be one potential organization to go and educate farmers in the Nepal. They consider themselves to be the “Voice of the Canadian veterinary profession in promoting animal welfare” (CVA, 2016). They advocate for leadership and animal welfare as well as helping veterinarians achieve a successful career. Possibly sending Canadian veterinarians who have studied mastitis and the specific treatments for it to Nepal, could educate farmers on the correct way to handle the medication, inject the medication and treat the ewes. The farmers in Nepal would not know of the potentially deadly side effects if this vaccine is ever mistreated or accidentally injected into a person so sending someone who is knowledgeable about the treatment would be beneficial. It would also open up possible job opportunities to more veterinarians in Canada by giving them the opportunity to work in Nepal. Education and getting knowledgeable information is never a bad thing. Giving the Nepalese farmers the opportunity to become further educated on their flock leads them to become better farmers who have the skills to grow their healthy flock and provide for themselves, their villages, their families and their economy.

## Challenges and Unknowns

One of the main challenges for this product would be the cost of the treatment.

100 ml Bottle	\$194.77
250 ml Bottle	\$387.09

(Animart, Dairy and livestock solutions 2001-2016)

Even though the treatments are costly, through the methods of obtaining them that were listed before, (Government funding and veterinary distribution) it would still be beneficial. For sheep, a small dosage of 1.5-3ml/100lb is required (Elanco dosage information 2012) so a bottle would last a long time, making the product worth the price. That also means that you would not need to ship an abundance of the product. Sheep flocks in Nepal are small and manageable so farmers would not need multiple bottles of the treatment for their flocks. The price of this treatment may be a prohibiting factor for farmers to obtain micotil.

## Shipping Information

Guelph to Toronto	Truck Purolator end of day	\$26.83 CAD
From Toronto to Kathmandu	Plane (International Courier)	\$180.53 CAD

(Purolator 2016) (A1 Freight Forwarding, 2016)

To ship this product to Nepal from Canada, the first step in this process would be shipping it from Guelph Ontario by truck to the Toronto Airport. Then, from Toronto using A1 Freight Forwarding, it can be shipped directly to the airport in Kathmandu. One unknown factor would be how the product will get distributed from Kathmandu to the Nepal Veterinary Association. Since the Vet Association is also located in Kathmandu someone from the clinic could pick it up

and then distribute as necessary. Since it should not be a large shipment of the product it would be easy for one person to receive the product from the airport.

When shipping this product, the documentation required would be a commercial invoice, export declaration, toxic substance control act form, certificate of origin, and Canadian federal communication commission. An airway bill, bill of landing or truck bill may also be required (Fedex 2016). Each of these steps are important for the process of shipping the product.

### **Unknowns**

The first unknown, besides not knowing how the product would be distributed after it has arrived in Kathmandu, would be another method of shipping the product to make it less expensive. Since Elanco is a worldwide corporation, they have a company located in China. It may be cheaper to ship the product from the Elanco in China then it would be to ship it from Canada to Nepal. Another unknown would be the demand for the product at this moment. There is not really a method of knowing how many sheep need this treatment at this exact moment or in the future, or even how many farmers could afford it. It is however a very good treatment for farmers in Nepal to have access too. The last unknown for this topic would be if there are going to be any treatments for mastitis in sheep in the future that would be cheaper than micotil. Mastitis in sheep is still something that is continually being tested and monitored today. There are not many treatments or vaccines in the market today as competition, so a competitor may be introduced that is more beneficial than micotil at any time.

### **Conclusion**

In conclusion, the exporting of the micotil treatment would be beneficial for the sheep farmers in Nepal. These benefits would include better flock care, healthier ewes and lambs,

better milk production, a possible increase in income as well as a possible increase in the Nepalese economy. Large flock operators could have the possibility of buying the treatment themselves if they are educated in it or smaller scale farmers could possibly share the treatment with each other and get it from the Nepal Veterinary Association.

It would also have the opportunity to benefit Canadian companies and economies. Elanco Canada could develop new and better business opportunities as well as growing their company and making their product known better to other sheep farmers in Canada. The Canadian Veterinary Association would also have the opportunity to expand their business operations and teach the farmers in Nepal all about better flock care and educate them on how to properly use the treatment as well as other forms of medication. However the distribution and purchasing of the treatment is going to prove to be very costly. Finding a different method of exporting, possibly from China may be more cost efficient for Nepal.

### **Further Inquires**

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