

Nepal Final Report on Oxford Feed Supply Fly Tape

William Carson

Canada is a country with a high quality very high quality of life. In Canada there is a median after tax income of \$65,000 of per family.(Stats Canada, 2016) Canada is also a country with a thriving agriculture industry. 2016 statistics show that farm capital in Canada \$330.8 million with 205,730 farms across Canada.(Stats Canada, 2016) With a thriving industry seen in Canada there is the opportunity to export our agricultural products and ideas to third world countries to help them expand and improve their agrifood industries. One country that would benefit from Canadian Agrifood products would be the country of Nepal. In the following paper I will examine the potential export of Canadian fly tape to Nepal for use in controlling pests, more specifically the common housefly.

Flies are a common insect found on farms across the world. These insects are much more than just a nuisance as they are a carrier of disease. “House Flies, *Musca domestica* L., are the number 1 nuisance pest associated with dairy and other confined animal facilities in the United States” (Gerry et al, 2011) Disease causing organism can be picked up by flies when they are feeding. The transfer of the disease occurs when the fly makes contact with and animal or a human.(Kieding, 1986,) In the USA alone economic losses are up to 608 million dollars from these pests.(Taylor et al, 2012)

One technology that can be used to combat is Fly Tape(fly ribbon). Fly tape is exactly as its name describes, tape with an adhesive rosin surface that attracts and traps flies. Fly tape is most effective when flies consolidate overhead after hatching. When a fly is caught on the tape it releases a stress hormone which in turn attracts more flies. USDA testing on this Non-Toxic, Non-Polluting product showed that it kills 92% of Flies (Oxford Feed Supply, 2016) There is no standing patent as the original patent was first applied for and received before 1910.(Foster, 1909)

A Canadian company sells this brand of fly tape is Oxford Feed Supply LTD. This

company is located in Ingersoll Ontario. They have been serving Oxford County for 15 years. They employ 18 people and specialize in animal feed and nutrition as well as supply other farm products.(Oxford Feed Supply, 2016) They have a variety of fly control products one being fly tape. They are a main distributor of Sure-gain one of the leading agricultural companies in Eastern Canada.(Oxford Feed Supply) Their location in Ingersoll Ontario puts them right on highway 401, one of the main highways in Ontario.

Fly Tape Technology is fairly low cost. A starter kit from Oxford Feed Supply LTD. would cost 15.49CND with refill kits costing 11.99CND. The brand they stock is Mr. Stickys fly tape.(Oxford Feed Supply, 2016) There are no other secondary costs or procedures involved in using fly tape. Fly tape is most often used when temperatures are between 20-25 degrees Celsius(Kieding, 1986,) This means that fly tape is only a seasonal cost to farmers. There is no chance for injury to live stock as these Fly Tapes are both Non-Toxic and Non-Polluting(Oxford Feed Supply, 2016). Fly Tape is great for use in dairy barns and milking parlours but it could be used anywhere else that flies pose a problem(eg. restaurants, veterinary offices).

There is both a economic and humanitarian benefit to Canada if we distributed fly tape around the world. First, economically the export of these products would benefit Canadian distributors. Canada is a country that has specific fly seasons due to our high range in temperatures. In Oxford county on average seven months of the year is under 10 degrees Celsius(Government of Canada, 2016) which is a range when flies are undetectable(Kieding, 1986) Having access to world markets where flies are a nuisance all year long would be of benefit to small scale Canadian distributors. Secondly, There is a humanitarian benefit to exporting fly tape. In developing countries with poor sanitation house flies are a major problem. House flies are known to transfer over 100 animal diseases as well as diseases that threaten humans such as bird flu virus.(Kahn et al, 2013) The majority of these diseases can be picked up directly from livestock, contaminated food, water and person to person contact.(Kieding, 1986) Dairy farms in these regions greatly contribute to fly problems as sanitation and hygiene are often overlooked. “Poor hygiene conditions in the form of farm manures, poor disposal and open defecation

places are recognized as potential feeding and breeding places of house flies”.(Kahn et al, 2013) If Canadian distributor can send over fly control products as well as expertise in the field to developing nations, steps can be taken toward better farm practices in these countries.

Nepalese is a land locked country between India and China. It has a population of around 30million.(World Bank, 2016) Nepal is divided between three districts; Himalayan, Hill and Tarai. The Tarai low land district is the most significant agricultural district.(World Atlas, 2016) The GDP per person of this developing country is \$1,300. (World Atlas, 2016)

Looking now into the export opportunities to Nepal the first step would be to observe the transportation logistics. The bulk cost of the commodity would be in the transportation to Nepal. The steps for export to a foreign export are listed on the Government of Canada’s website. There are no restrictions for export to Nepal as well there is no restrictions for import with our fly tape. (Government of Canada, 2016) A shipment of Fly Tape would be shipped to India via Vancouver. Upon arrival to Asia the product would be trucked into Nepal. The estimates to ship a load of 30 pounds worth of fly tape(approx. 500 units) would cost just over \$800 dollars with both Fed ex(\$816.52) and UPS.(Secure Ship, 2016) I was unable to find a government website that gave shipping estimates but all the independent estimates I have received all show that the price of transport is very expensive. The product would need to be distributed by a Nepalese distributor such as the Nepalese Farming Institute or directly to farmers. Another route, and possibly the most beneficial, would be do distribute fly tape units through farmer co-ops. Farmer co-ops are for the farmers and run by the farmers. “Through co-operatives farmers are empowered and economic growth is stimulated”(Poudel, 2007) The product would be easy to ship as it is small, packable and does not need refrigeration. There is a large amount competition for these products already based in Asia. There are multiple products available from China that are easily ordered from Alibaba. A comparable fly tape unit to the unit from Oxford Feed Supply would cost 20 cents a unit when you order a minimum of 10,000 units.(Alibaba, 2016)

The major benefit of these companies based in Asia is their close proximity to the country of Nepal. This would lead to lower shipping costs compared to their Canadian counterparts. The lower price per unit can also be attributed to cheap manufacturing costs in China compared to in Canada.

The target market would be primarily Nepalese ruminant farmers. The species that are most commonly farmed are water buffalo(milk and meat), Cattle(milk and work) and Goats(meat).(Redding et al, 2012) Being an agricultural country Nepal has many small scale ruminant farms. These farms are a primary breeding ground for fly populations. Animal faeces are the most important breeding sites for houseflies.(Kieding, 1986) In India, (a bordering country to Nepal) houseflies have been linked to the outbreak of Vibrio Cholerae through fecal-oral transmission.(Fotedar, 2001). There is a need to educate farmers in the developing world about the hazards of flies and how to manage their organic waste to minimize fly breeding. Many farmer in developing nations were recorded saying they knew nothing about the disease risks with improper manure practices, and how it increases housefly population. This in turn increases the chances of disease spread both among their animal herds as well as the human population living in the area.(Kahn et al, 2013) Houseflies pose a great threat to the Nepalese farmers as with out proper sanitation disease can be prevalent. A 2012 study of small Nepalese farms in the Kaski district showed Water Buffalo and Cattle farmers saying that disease was the greatest threat to their farming practices. Goat farmers listed disease as the second greatest threat.(Redding et al, 2012) Fly tape could have a great impact on the introduction and transfer of disease between herds. The control of fly populations has been shown to lower animal disease as well as lower human intestinal infections and diarrhea.(Kahn et al, 2013) Fly tape would be best used inside barns and milking parlours in the spring to limit breeding the rest of the year. Fly tape used in conjunction with the knowledge of Canadian agrifood distributors would be a tool in fighting the greatest threat to Nepalese farmers.

The cost of Fly Tape would be the largest barrier to Nepalese farmers. Even though they are a relatively cheap product in Canada with a average income of \$1,300 the price

of \$15.49CND not including shipping would be a sizeable price to Nepalese farmers. Possibly, target farms comprised of mid sized to large farms that could afford this price. With increased funding from the Canadian government it would allow smaller farms to be able to purchase these units. Fly tape export from Canada faces two main challenges, First there is the issue of the price. Even if the Canadian government highly subsidized the fly tape units there is no way to compete with the Chinese prices. China has cheaper labour as well a far cheaper shipping costs. There is no incentive for Nepalese farmers to pay top dollar for a product they can buy from their next door neighbours. There is also an issue with Canada funding fly tape units at a reduced price. The goal is to have a mutually beneficial trade agreement for both countries. Fly tape coming from Canada would not be beneficial for either country. For the Nepalese farmers, they would never gain independence in there practices, and Canadian taxpayers would be left to foot the bill. This situation is not fair to either country. Another issue associated with price is the fact that Canadian distributors are a middle man. The majority of flytrap units are produced in Asia.(Alibaba, 2016) Its doesn't make economic sense to ship fly tap to Canada then back to Asia to be sold to the Nepalese farmers. The second, and largest issue facing the distribution of fly tape is the fact that fly tape does not solve the root issue facing the disease transfer. To use a metaphor putting fly tape units on a Nepalese farm is no better than putting a band-aid on a broken leg. The technology of fly tape, while beneficial in North America, is not ready to be used in the third world countries. The main issue facing third world in fly control is improper faces storage.(Kahn, et al) Female flies lay their eggs in a variety of decaying organic material with one of the most common substances being animal manure.(Keiding, 1986) A study of punjab farmers(similar in farming practices, income and geography) showed over 40% of them saying they had no knowledge of flies carrying disease and many of the others did not have any strategies to deal with the problem. These farmers need to learn proper techniques to limit fly reproduction. Until Nepalese farmers can address the places on their farms that are major breeding grounds for houseflies, fly tape will not effectively make a difference in disease reduction or be worth the money spent by the Nepalese and/or the Canadian government.

Lastly, I want to go over my recommendations for further study and action taken in respect to export of fly tape from Canada to the country of Nepal. The negative affects of disease facing Nepalese farmers can not be ignored. However, the original idea of exporting fly tape frankly will not be a viable option for both countries involved. As stated before Chinese companies sell similar fly tape units for a fraction of the costs in Canada.(Alibaba, 2016) The only Nepalese that could afford Canadian priced fly tape would be the largest farms, but most likely they would buy from the Chinese. Instead, Canada can focus on one of the main resources it can give to the Nepalese farmers. This resource is our knowledge of farming practices and procedures. Through research Canadian farmers know the risks and best practices associated with fly control. If representatives from Canada could go over to Nepal to do workshops with leaders in the Nepalese farming community, there is a potential for substantial improvement in fly control. The Canadian representatives could educated Nepalese farmers about the risks of improper manure storage and strategies to improve the bio-security of their farm practices. A simple solution to limit fly breeding in manure is covering manure storage piles with tarpaulins. By covering the manure piles(common fly breeding ground) with a thin sheet breeding becomes impossible as surface temperatures get too high.(Keiding, 1986) The may be opportunities for the export of Canadian plastic sheets or tarpaulins but this prospect can only be realized with more research. The covering or manure is only one small idea of many that could be explored if Canadian agricultural knowledge was applied in Nepal.

If Nepalese farming was to achieve a level comparable to North American standards fly tape would be a viable option for further fly population control. Future study of both fly populations and disease among animal herds and human population in the area would serve to observe if fly tape made any noticeable difference in herd health and sanitation.

In Conclusion, fly tape is a very useful technology with a high success rate(kills 92% of flies(Oxford Feed Supply, 2016)) that is great for use in areas where fly's are problematic. The fly tape however must be used along with other steps used to limit fly

populations, the most important being proper storage of organic waste.(Kahn et al, 2013)
At this point farming practices in third world countries like Nepal is not up to a standard where fly tape would make an significant change in disease control, and economically Nepalese farmer could not afford to buy fly tape from Canada regardless. I would however encourage Canadian and Nepalese farmers, researchers, and government to explore alternative strategists, collaboration and products to combat the problems associated with flies in Nepal. I am confident that through technology and eduction a positive impact can be seen in the Nepalese farming sector through input and resources from the Canadian agrifood sector. Through continued corporation there is a potential for future trade opportunities both in biosecurity related to fly control, as well as in other agricultural sectors due to the international relationship being strengthened. This strengthened relationship between Canada and Nepal would be beneficial for both countries but most importantly, to the farmers of Nepal.

References

- Alibaba. (2016). Fly paper products. Retrieved November 29, 2016, from alibaba.com
- Atlas, W. (2016). Nepal. Retrieved October 17, 2016, from <http://www.worldatlas.com/webimage/countrys/asia/np.htm>
- Cheapest Way to Ship: Track, Ship, Get Shipping Estimate & More | Secureship.ca. (2016). Retrieved November 29, 2016, from <http://secureship.ca/>
- Foster, N. L. (1909). U.S. Patent No. US 919149 A. Washington, DC: U.S. Patent and Trademark Office.
- Fotadar, R. (2001, January 29). Vector potential of houseflies (*Musca domestica*) in the transmission of *Vibrio cholerae* in India. *Acta Tropica*, 78(1), 31-34. doi:10.1016/s0001-706x(00)00162-5
- Gerry, A. C., Higginbotham, G. E., Periera, L. N., Lam, A., & Shelton, C. R. (2011). Evaluation of Surveillance Methods for Monitoring House Fly Abundance and Activity on Large Commercial Dairy Operations. *Jnl. Econ. Entom. Journal of Economic Entomology*, 104(3), 1093-1102. doi:10.1603/ec10393
- Government of Canada, S. (2016). Welcome to Canada.ca. Retrieved November 29, 2016, from <https://www.canada.ca/en/index.html>
- Keiding J. The housefly—biology and control. Training and information guide (advanced level). Geneva, World Health Organization, 1986 (unpublished document WHO/VBC/86.937; available on request from Division of Control of Tropical Diseases, World Health Organization, 1211 Geneva 27, Switzerland).
- Khan, H. A., Akram, W., Shad, S. A., Razaq, M., Naeem-Ullah, U., & Zia, K. (2013). A cross sectional survey of knowledge, attitude and practices related to house flies among

dairy farmers in Punjab, Pakistan. *J Ethnobiology Ethnomedicine Journal of Ethnobiology and Ethnomedicine*, 9(1), 18. doi:10.1186/1746-4269-9-18

O. (n.d.). Oxford Feed Supply Ltd. Retrieved October 19, 2016, from <http://www.oxfordfeedsupply.ca/>

Poudel, D. D. (2007, October 5). Farmer Cooperatives for Food Self-sufficiency, Agricultural Commercialization, and the Socio-economic Development of Nepal. *Nepalese Economy, Society, and Politics*. Retrieved November 29, 2016.

Redding, L., Chetri, D. K., Lamichhane, D. K., Chay, Y., Aldinger, L., & Ferguson, J. (2012). Animal production systems of small farms in the Kaski district of Nepal. *Tropical Animal Health and Production*, 44(7), 1605-1613. doi:10.1007/s11250-012-0114-4

Statistics Canada. (2016). Retrieved November 29, 2016, from <http://www.statcan.gc.ca/eng/start>

Taylor, D. B., Moon, R. D., & Mark, D. R. (2012). Economic Impact of Stable Flies (Diptera: Muscidae) on Dairy and Beef Cattle Production. *Journal of Medical Entomology J Med Entomol*, 49(1), 198-209. doi:10.1603/me10050

W. (2016). World Bank Group. Nepal. Retrieved October 17, 2016.