

# **Evaluation of the Export of Low Cost Poultry Netting from Canada to Nepal**

## **Emma Ohirko**

### **PART 1: PRODUCT INFORMATION**

#### **Introduction of Export Product**

Poultry netting is used in the rearing of poultry and other small animals raised for the production of meat and other animal bi-products, and will be further examined for its export to Nepal. Poultry netting typically comes in rolls, which vary in length, and is most commonly made of galvanized steel. There are also some varieties which are plastic coated, mesh or equipped with an electrical charge. The use of poultry netting could be advantageous to a large proportion of poultry and small livestock producers in Nepal. This paper will explore different types of poultry netting, specifically focusing on a low cost product supplied by Thunder Bay Feeds. A cost and critical analysis of the exportation of poultry netting from Canada to Nepal and the benefit to both countries will be conducted in this paper.

#### **Company Description**

Thunder Bay Feeds is a small company located in Northwestern Ontario, in a small municipality called Murillo, west of the city of Thunder Bay (Thunder Bay Feeds, 2016). It is a distributor of grain seeds, animal feed, pet food, and livestock equipment, founded in the mid 1970's (Thunder Bay Feeds, 2016). In the early 2000's, Thunder Bay Feeds merged with Double D Tack Shop, a full service horse tack shop (Thunder Bay Feeds, 2016). They have become specialized in the production of custom feed mix since the installation of a *Weightronix* roller mill built in the 1990's (Thunder Bay Feeds, 2016). The company sources all of its products from Canadian manufacturers and employs a total of ten people (Leona, 2016). Thunder Bay Feeds ships their

products primarily across Canada, occasionally shipping products to other locations within North America (Leona, 2016).

### **Poultry Netting Available in the Canadian Market**

Thunder Bay Feeds offers wire poultry netting made with 20-gauge wire from galvanized steel, that comes in five different size and price options (Thunder Bay Feeds, 2016). The poultry netting is sold and priced per roll. The sizes and prices of the available poultry netting supplied by Thunder Bay feeds are shown in **Figure 1**. Galvanized steel is used because of its relatively low cost and the high corrosion resistance from the galvanization (Will, 2011). It also bends and stretches easily, making it generally easier to work with (Will, 2011). The netting is weaved into small hexagonal shapes to create a mesh. The product does require some form of additional structure or support in order to create an effective barrier to house or contain the livestock.

<b>Dimensions</b>	<b>Price per roll (in Canadian Dollars)</b>
1" x 24" x 25'	\$17.36
1" x 48" x 25'	\$29.86
2" x 48" x 50'	\$15.86
1" x 48" x 50'	\$42.06
2" x 60" x 50'	\$28.76

**Figure 1:** Dimensions and prices of poultry netting sold by Thunder Bay Feeds.

There is the option to electrify the netting, however the purchase of additional products is required. Thunder Bay Feeds carries all the accessories needed to electrify their poultry netting. These accessories include: grounding rods, grounding clamps and grounding wire, jumper leads, insulators, insulated cable, lightning arresters and a fence electricity tester (Thunder Bay Feeds, 2016). Electric fencing delivers a shock to any animal that comes into contact with one of the

wires (Will, 2011). Electrified netting is an effective method in the prevention of the exit or entry of animals, because the shock delivered to the animal from coming into contact with the netting is memorable and the helps form a psychological obstacle for the animal, discouraging any other contact with the netting (Will, 2011). Disadvantages of electrified netting, over the use of traditional poultry netting, are increased costs, more laborious installation, and additional upkeep and maintenance.

Additional suppliers and varieties of poultry netting available to Canadian consumers include, The Incredible Country Hardware Store, which is headquarter in London, Ontario and offers both plastic and steel netting varieties (The Incredible Country Hardware Store, 2016). Their prices for poultry netting range from \$16.99 to \$349.99 (The Incredible Country Hardware Store, 2016). Gallagher is another Canadian company, located in Owen Sound, Ontario, offering poultry netting. The netting sold by Gallagher is electrifiable and prefabricated, provided in large rolls of up to 164 feet in length (Gallagher, 2016). Poultry netting sold by Gallagher is priced at approximately \$350 per roll (Gallagher, 2016).

### **Uses of Poultry Netting**

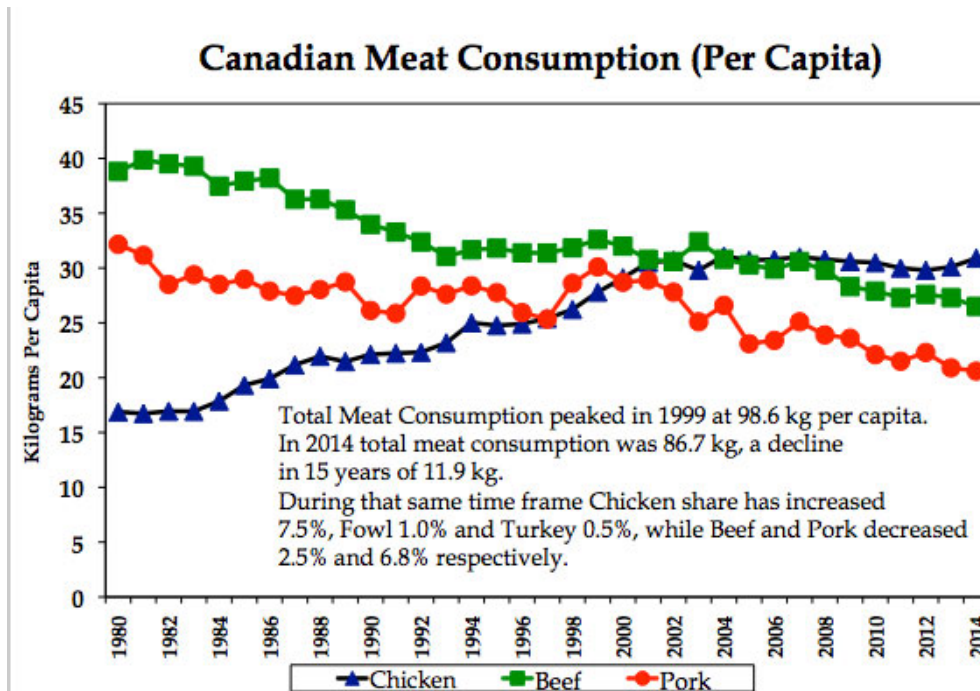
The purpose of this paper is to highlight the usefulness of poultry netting in poultry and other small livestock production in Nepal. There are however, alternative uses for poultry netting that should also be noted to fully examine the export potential of low cost poultry netting to Nepal, as they have the potential to fulfill other, non livestock production related needs for the Nepalese. Some alternative household uses of this product are: fences for gardens, plaster and stucco reinforcement, plant protection and support, preventing soil erosion, compost pile confinement, trellis construction, and animal traps.

### **Manufacturing Information**

The production of poultry netting in Canada is fairly extensive, with many companies, including Thunder Bay Feeds, selling poultry netting that has been manufactured in Canada. The product sold by Thunder Bay Feeds is sourced from a manufacturer in Southern Ontario, who uses inputs sourced exclusively from Canada (Leona, 2016). The exact location and information on input providers was not disclosed by Thunder Bay Feeds due to certain confidentiality constraints. Other companies, such as, Canada Wire and Metal Inc., based in Vancouver, British Columbia, fabricate their own products on site.

### **Brief Description of the Poultry Sector in Canada**

The poultry sector in Canada is a large and important sector of the economy and Canadian agriculture. The poultry industry in Canada is composed of the production of broiler chickens, laying hens, hatcheries, turkeys, ducks, and geese. In 2015, the poultry and egg sector produced \$4.04 billion worth of products, constituting 6.8% of all farm cash receipts (Agri-Food Canada, 2016). Additionally, in 2015, Canada exported 162 million kilograms of poultry meat and edible bi-products to 71 countries worldwide (Agri-Food Canada, 2016).



**Source:** Alberta Chicken Producers, April 2016

**Figure 2:** Total Canadian per capita consumption of chicken, beef, and pork between 1980 and 2014, retrieved from Alberta Chicken Producers. As interpreted from the graph, chicken consumption has steadily increased over the years, while beef and pork consumption have decreased.

**Benefits to Canada**

International trade is of vital importance to the Canadian economy, the trade share accounting for over 63% of our economy (Global Affairs Canada, 2013). It is estimated that 1 in 5 jobs in Canada directly or indirectly rely on exports (Global Affairs Canada, 2013). Canada relies so heavily on trade because the more trade Canada conducts, the more stable its economy (Global Affairs Canada, 2013). Trade networks, such as the one that would be created by the export of this product, work to strengthen Canada’s economy (Global Affairs Canada, 2013). The trade relationship that would result between Canada and Nepal through the exportation of poultry

netting, could open up doors to other Canadian companies to develop trade relationships with Nepal and other Southeast Asian countries.

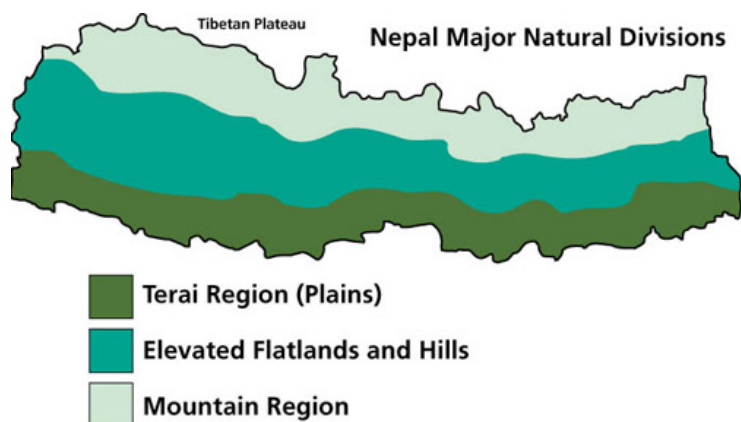
In addition to the benefits from this export to the Canadian economy in general, there are also many benefits that more directly impact the companies and consumers involved in this export. For example, exports directly help job creation to those involved in producing and selling the good, and indirectly to those providing any services that support the producers of the export product (i.e. shipping companies) (Global Affairs Canada, 2013). The export of poultry netting from Thunder Bay Feeds would increase the company's profits. When a good is being produced in higher quantities to meet the domestic and export demand, the cost of producing the good goes down, lowering prices for both domestic and foreign consumers (Global Affairs Canada, 2013). As the profits and exports increase for the company, they grow and become more apt at dealing with downturns in the economy, making them more stable employers (Global Affairs Canada, 2013).

## **PART 2: EXPORT POTENTIAL TO NEPAL**

### **Brief Description of Nepal**

Nepal is a small, landlocked country in Asia, bordering China and India, with a population of approximately 29 million (CIA, 2016). Kathmandu is the capital city of Nepal. Nepal is a very poor country with a per capita gross domestic product (GDP) of only \$2,500 USD (CIA, 2016). The country is divided into three distinct topographical regions: terai, hill, and mountain, **Figure 3** shows the division of Nepal into its respective regions. The terai region is known for its hot, humid climate and fertile agricultural lands (Gautam, Sthapit & Shrestha, 2006). The hill region sits between terai and mountain areas and is recognizable for its cool but humid climate, the hill region in Nepal is ideal for terrace farming (Gautam, Sthapit & Shrestha, 2006). The cool and

dry climate of the mountains makes the region primarily suitable for some livestock production (Gautam, Sthapit & Shrestha, 2006).



**Source:** Info Nepal, February 2011

**Figure 3:** The map of Nepal shows the location of the three topographical regions in Nepal: terai, hill, and mountain.

Many Nepalese citizens rely on the agriculture industry and its success. In Nepal, 69% of the labour force is employed in agriculture and agriculture accounts for about 39% of the GDP of Nepal (CIA, 2016).

**Brief Description of the Poultry Sector in Nepal**

Poultry production in Nepal is widespread, the average farm having three to four chickens (Dhaubhadel, 1992). The poultry industry has 70,000 direct employees in Nepal (FAO, 2014). The poultry sector in Nepal is growing at a very steady rate of over 17% (FAO, 2014). The sector however, has no history of export, only recently has there been some exportation of broilers and eggs to Bhutan (FAO, 2014). The demand for poultry meat in Nepal is relatively high at 150,000 kilograms/day (FAO, 2014).

<b>Distribution of poultry in Nepal by topographical region</b>	
<b>Region</b>	<b>Total (including chickens and ducks)</b>

	Numbers	%
Mountain	2,045,668	5.13
Hill	19,952,400	49.99
Terai	17,910,602	44.88

**Source:** FAO Livestock Country Review, March 2014

**Figure 4:** The distribution of poultry across the three topographical regions, mountain, hill, and terai, in Nepal.

The majority, 80%, of the chickens raised in Nepal are the native Sakini breed, which are typically raised in rural areas (Dhaubhadel, 1992; FAO, 2014). Often, more intensive, commercial production of poultry is used for the exotic breeds of chickens that have been introduced in Nepal (Dhaubhadel, 1992). These exotic breeds are usually reared in peri-urban areas, close to the market (Dhaubhadel, 1992; FAO, 2014). In Nepal, one of three production systems is used to raise poultry: scavenging, otherwise known as free-range, semi-scavenging or intensive. Most farmers employ the scavenging system because it is easy for farmers with little to no technical knowledge to raise a few chickens in a scavenging system alongside their other farming practices (Dhaubhadel, 1992). The Sakini breed is most commonly produced using this system, meaning there is very little oversight therefore, and a much lower yield compared to the improved and exotic breeds reared in other systems. The semi-scavenging system works best for the improved breeds found in villages and for farmers with regular access to feed (Dhaubhadel, 1992). Where crop yield is high, small-scale intensive poultry rearing is effective when a local market exists (Dhaubhadel, 1992).

There are approximately 40 million chickens being raised for meat and eggs, and over 378,000 ducks in Nepal (FAO, 2014). Most ducks, 73%, are found in the Terai region (FAO, 2014).



Ducks are usually raised in traditional farming systems with chickens (FAO, 2014). Ducks and duck eggs are often used as religious offerings in some areas of Nepal, which contributes to a large part of the demand for duck products in Nepal (FAO, 2014).

### **Brief Description of Rabbit Production in Nepal**

In recent years, farms in the western hill region of Nepal have begun raising rabbits within their existing farm systems (Bahadur, 2011). There are many advantages to Nepalese farmers to produce rabbits for meat and fur. Rabbits are efficient producers, due to their high reproductive rate and they do not suffer from any known communicable diseases, like chickens do (Bahadur, 2011). Rabbits have a similar yield to chickens in terms of protein conversion rates. They can turn 20% of the protein they consume into edible meat, this is comparable to broiler chickens who have a 20-23% conversion rate of protein to meat (Bahadur, 2011). The growth in rabbit production helps fill the growing demand for rabbit meat and fur in Nepal, particularly the demand for rabbit meat by tourists (Bahadur, 2011).

Rabbits need similar types of housing to poultry, making poultry netting also effective in rabbit production. Their housing requires good air circulation and drainage, in addition to this, wire enclosures reduce fly problems that exist in rabbit production (Bivin & King, 1994).

### **Target Nepalese Consumer**

The primary consumer target of this poultry netting will be chicken farmers who employ the scavenging or semi-scavenging systems to raise their flock. Most of these target consumers will have smaller flock sizes, close to the national average of three to four chickens, and will be located in the mountain and hill regions of Nepal. Farmers using these systems face the major challenge of predation, therefore a low cost fencing option could help cut their losses. A large majority, 74%, of all agricultural landholdings in Nepal are less than one hectare. Thus, even if

farmers were to fence off their entire property using poultry netting to contain their livestock, only a small amount of netting would be required (FAO, 2010).

Other potential consumer targets could be farmers located throughout Nepal, who rear rabbits and ducks, among other small animals. They require identical or similar housing and would therefore benefit from poultry netting much like the chicken farmers mentioned above.

Consumers, such as construction workers and laborers, might also be interested in poultry netting for its aforementioned alternative uses, including plastering and stuccoing.

### **Transportation Costs and Logistics**

It is likely that the largest barrier that could impede the exportation of this product will be transport. Thunder Bay Feeds does not currently ship any of its products outside of North America. In order for the export of their poultry netting to Nepal to work, a third party shipping or freight company will be needed and the costs of this are relatively high. Another barrier to transport that exists is the poor infrastructure in Nepal (CIA, 2016). The inhabitants of the mountain region, in particular, are directly affected by this, as they have limited access to reliable roads and face unsafe road conditions (Jacoby, 2000).

<b>Shipping /Freight Company</b>	
<b>Purolator</b>	
<b>Destination</b>	
Kathmandu	<b>Costs (CAD)</b>
	\$231.23
	<b>Time</b>
	6 business days

Pokhara	<b>Costs (CAD)</b>
	\$258.78
	<b>Time</b>
	8 business days

**Source:** Purolator, November 2016

**Figure 5a:** Estimated costs of shipping with Purolator from Murillo, ON to Kathmandu and Pokhara, Nepal. Transport would be via air from Pearson International Airport, Toronto, ON to Tribhuvan International Airport, Kathmandu, Nepal and then by transport truck to Pokhara and/or farmers, distributors and hardware stores. (Estimates for one roll of 2” x 48” x 50’ poultry netting)

<b>Shipping/ Freight Company</b>			
<b>FedEx</b>			
<b>Destination</b>	<b>Method</b>	<b>Costs (CAD)</b>	<b>Time</b>
Kathmandu	Economy	\$331.80	Unknown

**Source:** FedEx, November 2016

**Figure 5b:** Estimated costs of shipping with FedEx from Murillo, ON to Kathmandu, Nepal. (Estimate for one roll of 2” x 48” x 50’ poultry netting)

<b>Shipping /Freight Company</b>			
<b>Canada Post</b>			
<b>Destination</b>	<b>Method</b>	<b>Time</b>	<b>Costs (CAD)</b>
Kathmandu	International Parcel-Surface	2-3 months	\$89.71
	International Parcel-Air	6-10 business days	\$155.89
	Priority™ (includes Worldwide delivery)	2-3 business days	\$372.34

	confirmation and optional requirement)		
--	--	--	--

**Source:** Canada Post, November 2016

**Figure 5c:** Estimated costs of shipping with three different available methods through Canada Post, from Murillo, ON to Kathmandu, Nepal. Parcels shipped with International Parcel-Surface travels by boat to India, where the shipment is received and transported to Kathmandu by truck. Shipments placed using International Parcel-Air or Priority™ Worldwide travel via air from Pearson International Airport, Toronto, ON to Tribhuvan International Airport, Kathmandu, Nepal. The biggest differences in the services are cost and travel time. (Estimates for one roll of 2” x 48” x 50’ poultry netting)

### **Regional and Global Competition**

The biggest competitor in the global and regional markets will be Chinese manufacturers. There are many producers of poultry netting across China that are able to produce and sell poultry netting for a much lower cost than Canadian manufacturers.

Some of the most competitive prices are offered by Guangzhou Nian Fa Wire Mesh Factory, whose head factory is located in Guangdong, China, which is 2,844 kilometers Southeast of Kathmandu. **Figure 6** shows the company’s specifications and prices for its poultry netting that is most similar to that being examined, from Thunder Bay Feeds. Much like the product sold by Thunder Bay Feeds, the poultry netting produced by Guangzhou Nian Fa Wire Mesh Factory is 20-gauge galvanized steel poultry netting, with hexagonal shaped holes (Alibaba, 2016).

<b>Price (USD)</b>	<b>Minimum Order Size</b>	<b>Minimum Cost (USD)</b>	<b>Supply Ability</b>
\$0.50-2/ square meter	30 square meters	\$15.00 for 30 square meters	2000 rolls/ month

**Source:** Alibaba, November 2016

**Figure 6:** The costs of poultry netting sold by Chinese competitor Guangzhou Nian Fa Wire Mesh Factory and their monthly supply ability.

Potential Canadian export competitors were previously briefly examined under **PART 1**, subsection **Poultry Netting Available in the Canadian Market**. Chinese competitors also hold a competitive advantage over Canadian exporters as they face lower transportation and labour costs.

### **Benefits to Nepal**

The most obvious benefit to Nepal from the export of poultry netting would be the increased poultry yields. Since the majority of chickens reared in Nepal are reared under either the scavenging or semi-scavenging system, most chickens roam freely, making them highly susceptible to predation (FAO, 2014). Predation is one of the most significant issues facing Nepal's poultry sector (Dhaubhadel, 1992). Effective use of the poultry netting could help eliminate any losses suffered from predation. The implementation of poultry netting would not change the amount of input required to manage chickens in one of the specified production systems, beyond the one-time installation of the netting. The netting could also be used to construct housing for the poultry, as even birds raised in the scavenging system are housed at night (Dhaubhadel, 1992).

In recent years, it has become more socially acceptable to consume chickens and eggs in Nepal, and thus the demand for these products has increased (FAO, 2010). The productivity of the poultry industry must also increase to meet this increasing demand, therefore the use of the netting is instrumental to increasing yields and cutting losses, especially in cases of predation. Poultry netting is also useful in the housing of rabbits and other small livestock raised in Nepal, as it provides adequate housing (Bivin & King, 1994). Other benefits to the consumers of this product are, to those using poultry netting for its alternative uses, as it offers a low cost solution to many common problems facing anyone living in a house, maintaining land, or growing plants.

## **PART 3: CONCLUSION**

### **Unknowns**

Based on this critical analysis of poultry netting, further information and studies are needed to provide more extensive conclusions. For example, more detailed information of the manufacturing and inputs required to produce the poultry netting are needed to better understand the benefits to all parties of the Canadian market involved in its export. Further collection of information about the existence of any tariff and/ or trade barriers that this product might face are necessary. If any financial aid programs exist for Canadian exporters and Nepalese consumers, that would help create a more accurate cost analysis and conclusion about the export potential of this product.

### **Conclusions**

The poultry sector in Nepal is growing, while poultry yields for many producers remain low (Dhaubhadel, 1992; FAO, 2014). The export potential of low cost poultry netting from Canada to Nepal has been thoroughly examined in this paper. The export of this product would be highly beneficial to the Canadian economy and job market, the profits and stability of Thunder Bay Feeds, and Canadian consumers of poultry netting. Proper implementation of poultry netting on scavenging and semi-scavenging poultry farms in Nepal, would reward producers with higher yields and fewer losses of birds and predators.

The Nepalese have such a low GDP per capita therefore they have very little disposable income to spend on consumer products (CIA, 2016). The cost of the poultry netting itself is not unaffordable for the average farmer in Nepal however, when transportation costs are factored into the price, it very quickly becomes too expensive. This is especially true for farmers living in the mountain region where transportation costs would be even higher, lowering farm profits to an

amount where the poultry netting is no longer affordable (Jacoby, 2000). For this reason alone, the Nepalese would receive greater benefit from purchasing poultry netting through a Chinese company, like Guangzhou Nian Fa Wire Mesh Factory, who is able to sell their products for a much lower price and where transport costs would also be lower. Until Canadian companies can offer their products for more competitive prices it does not seem realistic to export Canadian made poultry netting to Nepal.

## References

- Alberta Chicken Producers. (2016). Retrieved from <http://www.chicken.ab.ca/wp-content/uploads/2016/07/canadian-meat-consumption-per-capita-apr-2016.jpg>
- Bahadur, T. (2011). Proceedings of the 8th National Workshop on Livestock and Fisheries Research. *Nepal Agricultural Research Council*, 8th ser. Retrieved from [https://www.researchgate.net/publication/258030219\\_Proceedings\\_of\\_the\\_8th\\_National\\_Workshop\\_on\\_Livestock\\_and\\_Fisheries\\_Research](https://www.researchgate.net/publication/258030219_Proceedings_of_the_8th_National_Workshop_on_Livestock_and_Fisheries_Research).
- Bivin, W. S., & King, W. W. (1994). *Raising Healthy Rabbits*. Christian Veterinary Mission.
- Dhaubhadel, T.S. (1992). The Role of Monogastric and Small Stock. *Sustainable Livestock Production in the Mountain Agro-ecosystem of Nepal*. Retrieved from <http://www.fao.org/docrep/004/T0706E/T0706E06.htm>
- Canada's poultry and egg industry profile. (2016). Retrieved from <http://www.agr.gc.ca/eng/industry-markets-and-trade/statistics-and-market-information/by-product-sector/poultry-and-eggs/poultry-and-egg-market-information/industry-profile/?id=1384971854389>
- Canada's State of Trade: Trade and Investment Update 2012. (2013). Retrieved from [http://www.international.gc.ca/economist-economiste/performance/state-point/state\\_2012\\_point/2012\\_7.aspx?lang=eng#ft1](http://www.international.gc.ca/economist-economiste/performance/state-point/state_2012_point/2012_7.aspx?lang=eng#ft1)
- Estimate Time & Cost. *Purolator*. (2016). Retrieved from [https://eshiponline.purolator.com/ShipOnline/Estimates/Estimate.aspx?lang=e&\\_utma=83770135.274325820.1479247670.1480026739.1480459653.4&\\_utmb=83770135.3.9.1480459656469&\\_utmc=83770135&\\_utmx=-&\\_utmz=83770135.1479247670.1.1.utmcsr=google|utmccn=\(organic\)|utmcmd=organic|utmctr=\(not%20provided\)&\\_utmv=-&\\_utmk=131791430](https://eshiponline.purolator.com/ShipOnline/Estimates/Estimate.aspx?lang=e&_utma=83770135.274325820.1479247670.1480026739.1480459653.4&_utmb=83770135.3.9.1480459656469&_utmc=83770135&_utmx=-&_utmz=83770135.1479247670.1.1.utmcsr=google|utmccn=(organic)|utmcmd=organic|utmctr=(not%20provided)&_utmv=-&_utmk=131791430)
- FAO. (2010). Characterisation of Small Farmers in Asia and the Pacific. In FAO (Eds.), *Asian Pacific commission on agriculture statistics* (pp. 1-14). FAO. Retrieved from [http://www.fao.org/fileadmin/templates/ess/documents/meetings\\_and\\_workshops/APCA\\_S23/documents\\_OCT10/APCAS-10-28\\_-Small\\_farmers.pdf](http://www.fao.org/fileadmin/templates/ess/documents/meetings_and_workshops/APCA_S23/documents_OCT10/APCAS-10-28_-Small_farmers.pdf)
- Fencing Supplies. *Thunder Bay Feeds*. (2016). Retrieved from <http://www.thunderbayfeeds.com/liveequip.shtml#fence>



Find a Rate. *Canada Post*. (2016). Retrieved from

<https://www.canadapost.ca/cpotools/apps/far/business/findARate?execution=e1s1>

Gautam, R., Sthapit, B. R., & Shrestha, P. K. (2006). Home Gardens in Nepal: Proceeding of a workshop on“ Enhancing the contribution of home garden to on-farm management of plant genetic resources and to improve the livelihoods of Nepalese farmers: Lessons learned and policy implications”, 6-7 August 2004, P. *Research and Development (LI-BIRD)* PO Box, 324. Retrieved from [http://www.unscn.org/layout/modules/resources/files/Home\\_Gardens\\_in\\_Nepal.pdf](http://www.unscn.org/layout/modules/resources/files/Home_Gardens_in_Nepal.pdf)

Get Rates & Transit Times. *FedEx*. (2016). Retrieved from

<https://www.fedex.com/ratefinder/home?source=gh&cc=ca&language=en>

Info Nepal. (2016). Retrieved from

<http://1.bp.blogspot.com/->

[8zuNBHbcjoQ/TV6DskhF\\_QI/AAAAAAAAADc/6\\_evBqmq7Sc/s1600/blog+2.1.jpg](http://1.bp.blogspot.com/-8zuNBHbcjoQ/TV6DskhF_QI/AAAAAAAAADc/6_evBqmq7Sc/s1600/blog+2.1.jpg)

Iron Wire Mesh (252008). *Alibaba*. (2016). Retrieved from

[https://www.alibaba.com/product-detail/Hexagonal-hole-20-Gauge-Galvanized-Poultry\\_60493069454.html](https://www.alibaba.com/product-detail/Hexagonal-hole-20-Gauge-Galvanized-Poultry_60493069454.html)

Jacoby, H. G. (2000). Access to markets and the benefits of rural roads. *Economic Journal*, 110(465), 713-737. Retrieved from <http://onlinelibrary.wiley.com/doi/10.1111/1468-0297.00562/abstract;jsessionid=D93BEEDBEC9F74F01E1A35F668BF9970.f03t03>

Leona. (2016). Personal communication by telephone. October 18, 2016. Employee of Thunder Bay Feeds.

*Livestock country reviews: POULTRY SECTOR nepal* (2014). Rome: Food and Agriculture Organization of the United Nations. Retrieved from <http://sfx.scholarsportal.info/guelph/docview/1700861226?accountid=11233>

Poultry Netting. *The Incredible Country Hardware Store*. (2016). Retrieved from <http://www.tscstores.com/Poultry-Netting-C622.aspx>

Poultry Netting A 207015. *Gallagher*. (2016). Retrieved from <https://am.gallagher.com/ca-en/products/electric-fencing/fencing/portable-fencing/netting/A207015>

The World Factbook: Nepal. (2016). Retrieved from

<https://www.cia.gov/library/publications/the-world-factbook/geos/np.html>

Will, O. H., III. (2011, December). Farm fencing: horse high, chicken tight and bull strong: with livestock fencing, there's plenty to consider: woven wire or high-tensile? electric or non-electric? Here's how to make the best choice for your animals. *Mother Earth News*, (249), 90+.

Retrieved

from

<http://go.galegroup.com/subzero.lib.uoguelph.ca/ps/i.do?p=AONE&sw=w&u=guel77241&v=2.1&it=r&id=GALE%7CA279613264&asid=3ca615009e1d7d9447f0b1db452c0175>