

Export of Egg Candling Device to Nepal

Kayleigh McKay

Part 1: Project information

Introduction of Product

Egg candling is important in the poultry industry, as they examine the eggs for deformities. The eggs go on top of the egg candler, and the light emitting diodes (LED) lights illuminate the inside of the egg. This allows people in the poultry industry such as farmers, processors, etc. to examine the product to determine highest quality. This egg candler would be beneficial to Nepalese farmers, and will go under investigation to conclude if the egg candler is economical and useful or Canadian export. In using a hand held egg candler, Nepalese farmers would be able to detect deformities in their eggs as well as; cracks, dirt, blood rings, and excessively rough shells (Canadian Food Inspection Agency, 2015). This product would help to improve the quality of the eggs in Nepal, as well as benefit Canadians with the export of the product. The hand held egg candler will go under further investigation with the Canadian company that retails the product, as well as shipping and export documents that would be needed to export the egg candler. This paper will assess the benefits to Nepal from the hand held egg candler in order to assist the Nepalese agricultural sector.

Description of Company

Berry Hill Limited is a Canadian company located in St. Thomas, Ontario. They retail many products not only across Canada, but the entire world. This family owned business began in 1946 and promises to sell the highest quality products, and would not sell

Country of ownership	Canada
Exporting	Yes
Primary Industry	Farm, lawn, and garden machinery
Total Sales (CAD)	\$1,000,000-\$4,999,999
Export Sales (CAD)	\$1-\$99,999
Number of Employees	8

Table 1. Shows statistics about Berry Hill Limited. Retrieved information from Berry Hill website.

anything that they would not use themselves (Berry Hill Limited, 2016). This company carries products for farming, home gardening, home décor, kitchen supplies, and seasonal products. Although they do not manufacture the hand held candler, they released that the battery egg candler were manufactured in China and cord egg candler manufactured in the USA and shipped over to Canada. Berry Hill Limited offers low prices and shipping outside of Canada, which provides with easy exporting to Nepal.

Description of Product

Berry Hill Limited offers two types of hand held egg candler that would be efficient for Nepalese farmers. The first hand held egg candler that is available to export is the egg candler with a five-foot cord. This hand held egg candler is pocket size and easy to use as there is a switch to control the power. The egg candler with the cord is easy to use, and allows movement over the eggs instead of handling the eggs (Berry Hill Limited, 2016). The cord egg candler weighs approximately five ounces, has a cool LED bulb, and has a concentrated six-watt beam. Although the whereabouts of where this product is manufactured, Berry Hill strives for low prices and free shipping in most conditions. The current exchange from one Canadian dollar is equal to \$81.793 Nepalese Rupees. The hand held egg candler with the five inch cord retails for \$29.99 Canadian and with the exchange rate from Canada to Nepal this would cost Nepalese farmers \$2,452.97 NPR (Berry Hill Limited, 2016).

With every product there are some possible complications that could make the product less efficient, or even useless. In the handheld egg candler with the cord, it is possible that it could cause problems, or not even be beneficial to Nepalese farmers due to many factors. Since there is a cord, it could be restricting depending on the layout of the area where the eggs are being examined. With the cord being five feet it restricts the location of where the eggs have to be examined. This could be a problem for Nepalese farmers if their outlets for power are not close to where the eggs are being examined. Having no power supply is a complication with the product, as the egg candler with the cord needs electricity to function. This product would be a complete waste for any farmer that does

not have access to electricity. Also, after extended use the bulb will eventually burn out which would be a expense for Nepalese farmers. The bulbs used in this egg candler are specific as they have cool light LED bulbs so heat is not emitted to the eggs. The bulb would have to be ordered and shipped over, or there could be a shipment of bulb for the egg candler at local retail stores for convenient purchase.

Another product that Berry Hill Limited retails is the handheld egg candler that is battery operated. The battery operated egg candler allows for quick and efficient observation of the chicken eggs with the egg candler. The battery operated egg candler comes with a wrist strap, cool light LED bulb (which runs cooler than the average bulb), and uses one triple A battery (Berry Hill Limited, 2016). This lightweight egg candler is easy to transport and extremely easy to use. In Canadian dollars this battery operated handheld egg candler would cost \$14.99 dollars (Berry Hill Limited, 2016). In Nepalese rupees it would cost \$1,226.34 before including cost for shipping, and possible increase retail price once the product reaches Nepal (Bank of Canada, 2016).

Some complications with the battery operated handheld egg candler could cause extra costs for Nepalese farmers. In the battery operated egg candler it is run on one triple A battery, batteries do not last for long periods of time and would eventually need to be replaced. Replacing the batteries would be an extra cost, and depending on how frequent the product is being used, could be a repetitive expense for farmers. With battery operated products there are always the problems with corrosion after a certain period of time, in which case the product would need to be repaired. Also, the light bulb used in the product would need to be changed once burnt out, and like the cord egg candler, it uses a special cool-lite bulb that would need to be on standby or ordered in.

In comparison of both products they both offer the same function, the only difference being the way the product runs. Being that electrical outlets in Nepal would not be as commonly found in farmers building in comparison to Canada, so the battery operated egg candler would be the more beneficial to Nepalese farmers. Also, the price for the

battery operated egg candler is much cheaper for retail and has a \$1,226.63 Nepalese rupee price difference as compared in **Table 2**.

	Cord Egg Candler	Battery Operated
Features	5' cord, cool-lite LED bulb, lightweight, concentrated 6 watt beam.	One AAA battery, wrist strap, cool-lite LED bulb, lightweight.
Price in Canadian Dollars	\$29.99	\$14.99
Price in Nepalese Rupees	\$2,452.97	\$1,226.34

Overview of Poultry Industry in Canada

In Canada, poultry production is an important sector in the animal chain of agriculture that includes; chickens, ducks, geese, turkey, processing eggs, and hatching eggs (Agriculture and Agri-Food Canada, 2015). The poultry production in Canada produces \$4.

04 **Table 2.** Comparison of battery operated egg candler to cord egg candler. Retrieved information from Berry Hill Limited website and Bank of Canada website.
bill

on dollars from poultry and egg products, and contributes to 6.8% of the total farm cash receipts (Agriculture and Agri-Food Canada, 2015). The chicken production itself produces \$2.4 billion dollars and is responsible for 4% of the total farm cash receipts (Agriculture and Agri-Food Canada, 2015). The egg production is a large part in the chicken production as it produces \$961.5 million dollars in total farm cash receipts and the highest producer province is Ontario with British Columbia and Quebec close for second (Agriculture and Agri-Food Canada, 2015). In 2015, 697,771 eggs were consumed across Canada with the most eggs being consumed by Ontarians (Statistics

Canada, 2015). **Figure 1** shows egg consumption in Canada across a span of 20 years, comparing shelled eggs and processed eggs.

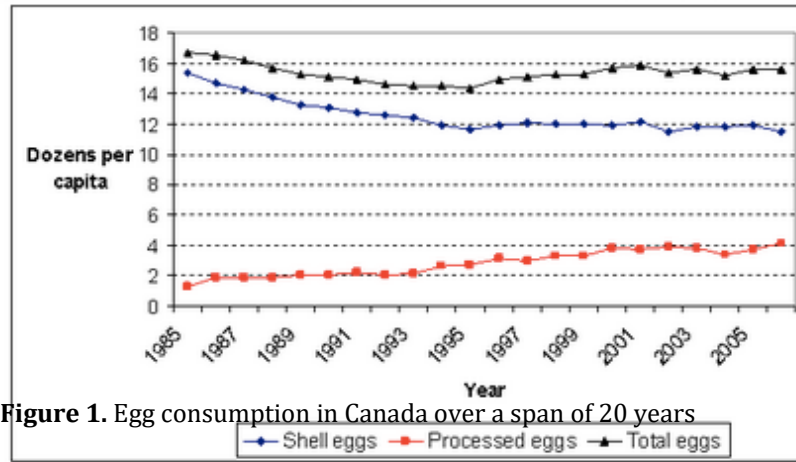


Figure 1. Egg consumption in Canada over a span of 20 years

Source: Statistics Canada and Egg Farmers of Canada .

Uses

Canada

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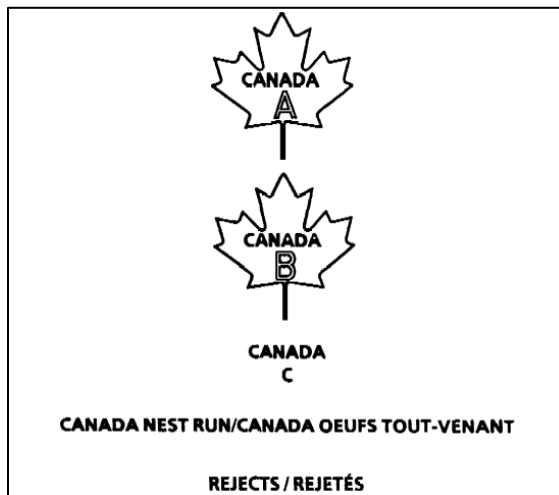


Figure 2. Labels for different Grades of eggs. Picture retrieved from Canadian Food Inspection Agency.

In, Canada, egg candling is a common procedure done during the grading of eggs section of production. Eggs will be gently rolled on top of the egg candler by a conveyor belt, where the light illuminates the eggs. The egg candler allows the recognition of internal problems and external problems that would affect the quality of the egg. Workers in egg candling section observe the eggs as they pass over the light for many things; blood spots, rot, cracks, rough outer shell, low quality yolk, and air cell size (Canadian Food Inspection

Agency, 2012). The eggs are examined so closely through the process because to determine whether the egg complies with the Grade A egg requirements. Eggs are sorted into three different categories at the production site; Grade A eggs, Grade B eggs, and Grade C eggs (Canadian Food Inspection Agency, 2015). Canada only labels Grade A eggs on eggs that have a centered yolk, small air cell, free of cracks, and smooth outer

layer. The next category is the Grade B eggs, which falls under Grade A eggs. These eggs are typically used for commercial baking or future processing due to; rough outer shell, slightly flattened yolk, and a thinner white. Grade C eggs are the lowest grade of eggs in Canada, these eggs are restricted for the use of production of future egg products due to a cracked shell, stained cell, a thin white, and an off centered yolk (Canadian Food Inspection Agency, 2015). After identification of what grade the egg is classified under, it is then labeled with labels as shown in **Figure 2**.

Manufacturing Information of the Product

Berry Hill Limited is a retail company based out of St. Thomas, Ontario and does not manufacture either handheld egg candler on site. After speaking with a representative of the company, further information was gathered to determine that the battery operated egg candler is manufactured in China and shipped over to Berry Hill Limited (B. Campbell, Personal Communication, November 20, 2016). After further investigation of the cord handheld egg candler, it was released that it is manufactured in the United States of America. Since the information of which manufacturing company actually builds the equipment, further information of the manufacturing process could not be released.

Input Requirements

The handheld egg candling equipment is manufactured out of Canada, and without the release of information on the manufacturer information was hard to pull from. The basics of the battery operated handheld egg candler are made from plastic with a metal ring in the middle where the bulb is inserted. A cool-lite LED bulb is also needed in the operation of the battery operated egg candler and triple A batteries are needed to power the equipment.

The cord egg candler has a metal frame with a five-foot cord that ends with a two-prong plug that goes into an electrical outlet. On the inside of the product there is a cool-lite LED bulb that is made of glass and does not emit heat. These products would be manufactured in the United States, and then shipped up to St. Thomas, Ontario to the Berry Hill Limited warehouse for retail.

Market Opportunity and Benefits to Canada

There are many benefits to exporting a product like the handheld egg candler to Nepal. Currently the top five countries that Canada exports to are; the United States, China, Japan, United Kingdom, and Mexico (Innovation, Science, and Economic Development Canada, 2015). The highest manufacturing export market is to the United States, which was \$237.75 billion dollars worth of export (Innovation, Science, and Economic Development Canada, 2015). An export product like the egg candler could increase employment in several sectors of not only the manufacturing business, but shipping and customer service as well. If this product progresses well in the Nepalese environment, other developing countries could benefit from this product as well. This would create further export of goods to other countries creating more opportunities to gain profit and reduce unemployment.

If the product is successful in Nepal, and grows to be exported into other countries this could provide the option of manufacturing the product in Canada. If the product becomes popular enough, manufacturing could be moved from China and the United States to Canada to provide an all-Canadian product. Making the product in Canada would reduce cost of shipping the product from the manufacturer to the retail store. Thus, this would create a lower price for not just Nepalese farmers, but anyone who utilizes the egg candler.

Another very benefit that Canada would receive in exporting this product to Nepal would be creating better relations between the two countries. Canada is more developed than Nepal, and therefore is knowledgeable with the types of equipment that would be beneficial to the Nepalese farmers. Making the agricultural industry stronger worldwide is a benefit to all countries, taking small steps like providing higher quality eggs in Nepal would be another step forward in boosting the agriculture industry in developing countries.

PART II: EXPORT POTENTIAL TO NEPAL

Introduction of Nepal

Nepal is a small country located between China and India with 147,181 square kilometers that has a population of 29,033,914 people. Most of the people in Nepal live in Kathmandu (World Bank, 2016). Nepal can be divided into three agriculture sectors according to geographic characteristics (Session, 2012). The first agricultural sector is the mountain region, which is the highest elevation of the three and typically grows cold season crops (Session, 2012). The mountain region is also home to the famous Mt. Everest, which is a common tourist attraction for Nepal (Session, 2012). The hill region is found in between the two agriculture sectors. It is called the hilly region due to the many hills found, and typically grows warm to cool season crops (Session, 2012). The terai region is the last region and the lowest elevation of the three. The terai region is where most of the crops are grown as it has the warmest climate (Session, 2012). The agriculture sector in Nepal is responsible for 39% of the total GDP, and is important to Nepalese farmers to provide money to their families.

Poultry Industry in Nepal

Nepal's poultry industry includes chickens, ducks, and pigeons (Agriculture Organization of United Nations, 2014). The chicken meat production in Nepal is ranked 112th in the world, and the egg production is ranked 92nd in the world (Agriculture Organization of United Nations, 2014). The total GDP contributed by the poultry industry is 3.5% out of the total 33.7% contributed by agriculture. There are many farms throughout Nepal that have chickens; typically the average household has 5-25 chickens (Agriculture Organization of United Nations, 2014). There are around 1,000 broiler farms and 500 layer farms that typically employ 70,000 people (Agriculture Organization of United Nations, 2014). The highest concentration of poultry is found in the terai region in towns like Chitwan, followed by Kathmandu which both contribute to 81% of the total poultry industry in Nepal (Agriculture Organization of United Nations, 2014).

Needs and Benefits to Importing Nation

The general poultry industry in Nepal has been increasing steadily over the past four years, and with the growing industry further quality procedures would be beneficial to have in place. There has been an unstable trend in the export in eggs from Nepal over the past 10 years as seen in **Figure 3.** , so Nepalese farmers would benefit from an export product that would increase quality (Agriculture Organization of United Nations, 2014). In exporting eggs to other countries, highest quality eggs would be in higher demand. In making sure that eggs are high quality, and egg candler would be one of the steps to increase quality. The handheld egg candler is an easy to use piece of equipment for Nepalese farmers. Training would be put into place to show what exactly to look for in the eggs to determine deformities. The average hen in Nepal lays around 80 eggs per year, which is on the lower end of the global average (Agriculture Organization of United Nations, 2014). Since, the average of eggs laid per year is so low, it is important to only sell the eggs of the highest quality. Also, since Nepalese farmers chicken herds are not very large, they can look at the eggs of individual chickens are determine if their eggs are good quality. Being able to keep track of the quality of each individual chickens eggs allows Nepalese farmers to control the hens that are being used.

Nepalese laying hens are typically free-range chickens, which allows for the potential problem of damage in eggs (Agriculture Organization of the United Nations, 2014). Eggs that are laid throughout the yard could potentially be cracked or damaged on the inside. Using an egg candler would allow for Nepalese farmers to look for cracks that are hard to see by general observation. Eggs with small cracks that go unnoticed and then shipped, have a high chance of breaking before reaching their destination. By observing the eggs with an egg candler would allow Nepalese farmers to produce eggs of higher quality.

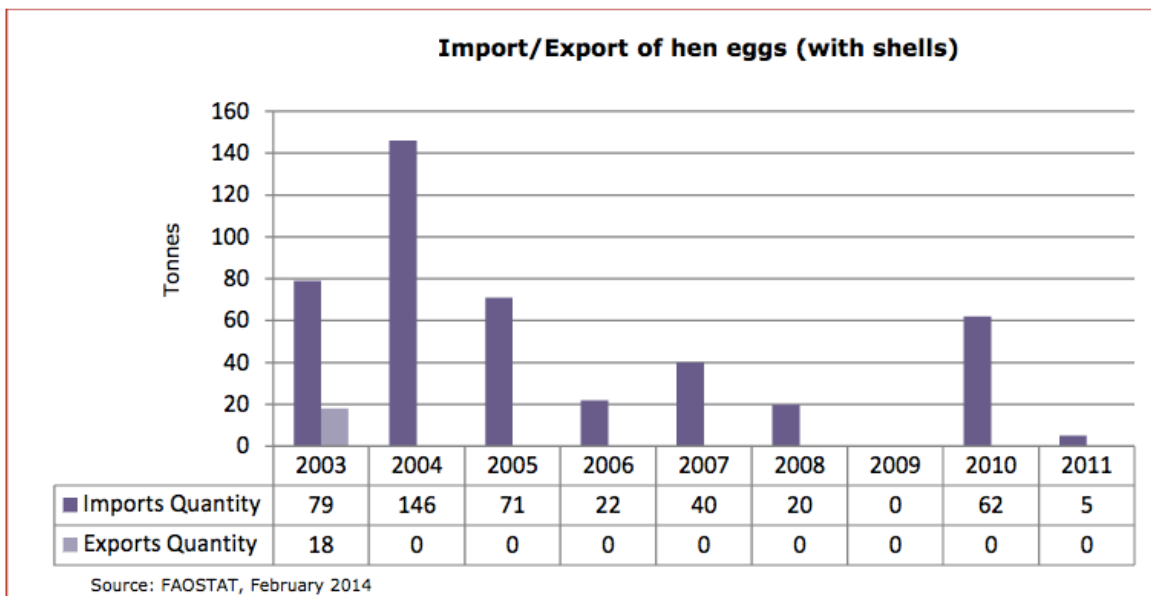


Figure 3. Shows Import/Export of hen eggs over 8 years. Retrieved from FAOSTAT, 2014.

Transportation

The egg candler would be shipped out of St. Thomas, Ontario to Pearson International Airport. Once arrived at Pearson International airport the egg candler would be flown to Tribhuvan International Airport in Kathmandu, Nepal. The transportation costs from St. Thomas to Pearson International Airport would be a total of \$49.36 dollars are shown in **Table 3**. Once arrived at the Pearson International Airport, the package would be placed on a plane for shipment to Kathmandu. This air freight would cost \$424.19 Canadian dollars which can be broken down into costs such as fuel surcharge as shown in **Table 3**. These quotes are based of one FedEx box containing 20 pounds, which are around 50 egg candler.

Once the package has reached Kathmandu, it will be distributed to local agricultural retail stores. The retail stores would then offer the product for sale to local farmers, families, and other rural markets that want to retail this product.

Price (Canadian \$)	<u>Base Rate:</u> \$35.98	<u>Base Rate:</u> \$412.29
	<u>Declared value:</u> \$5.27	<u>Declared value:</u> \$2.63
	<u>Fuel surcharge:</u> \$2.43	<u>Fuel Surcharge:</u> \$9.27
	<u>Canada, Ontario</u>	Total: \$424.19
	<u>harmonized sales:</u> \$5.68	
	Total: \$49.36	
<u>Total Cost:</u> \$473.55 Canadian Dollars		

Table 3. Shows breakdown of estimated transportation costs from Berry Hill Limited to Pearson International. Then from Pearson International to Kathmandu. Direct quotes sourced from FedEx.

Competition

There is competition in surrounding areas of Nepal that could potentially offer better prices than Canada. Since the export of the product would not be such a far distance this would create lower shipping cost, making it more affordable for Nepalese people to buy the product. One of the products offered for sale at Berry Hill Limited is the battery operated egg candler. This egg candler is manufactured in China, and therefore would make more sense to be shipped from China to Nepal since they are closer in distance. Since the exact location of the manufacture was not released it is hard to say how far away from the border they are located from Nepal.

Another egg candler is manufactured in India and retails for \$17.90 Canadian dollars. It is 4.2 x 1.2 x 1.2 inches and includes a rubber grip handle, 4-foot cord, and a cool-lite LED bulb (Farm Innovators, 2016). This egg candler is competitive with the egg candler from Berry Hill Limited and the location is convenient for Nepal import.

Although these manufactures may be closer in geographic terms, Canada's plan of action to make it a more organized and long-term relationship between the two countries makes Canada a running contender for this export idea.

Unknown/Future Studies

This analysis of the egg candler allows to observe current trends and today's prices for export, but future studies will have to update the information to ensure accuracy. If the manufacturing of egg cinders would want to be moved in Canada, further investigation would be required to determine equipment needed to build this product. Also, investigation would need to be done to determine the restrictions of manufacturing companies in Canada for export.

Studies in determining restrictions of importing/exporting this product would need to be done, as limited information was provided. This limited information restricts the knowledge of measures that need to be taken in order to export/ import this product from both countries.

Finally, further investigation of grants and loans to Nepalese people to buy this product should be looked into. Any financial help that the people of Nepal fall under the criteria for should be applied for.

Conclusion

With the increasing poultry production in Nepal, but declining export of eggs the egg candler would be a feasible option to export from Canada. This paper has shown an in-depth analysis of the possible export of handheld egg candling devices from Canada to Nepal. The export of this equipment will benefit Canadian economy, by boosting jobs in Berry Hill Limited, and transportation sectors. Providing egg candling devices will be a way to further agricultural practices in Nepal by increasing the quality of eggs. Nepalese farmers will be able to be more observant in their production of eggs by detecting deformities before selling the egg. This will help increase the export of eggs from Nepal because of their high quality.

Implementing this export idea would be an excellent idea to boost the quality of the poultry industry in Nepal. To help underdeveloped countries like Nepal, understanding of their lifestyle in comparison to Canada's lifestyle should be taken into consideration.

Implementing procedures from developed countries like Nepal could have a influential impact that helps grow the agriculture sector in Nepal. In conclusion, this export idea would be beneficial to Nepal and would strengthen trade between Canada and Nepal to help improve the agricultural industry as a whole.

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