

Canadian AgriFoods Export Idea

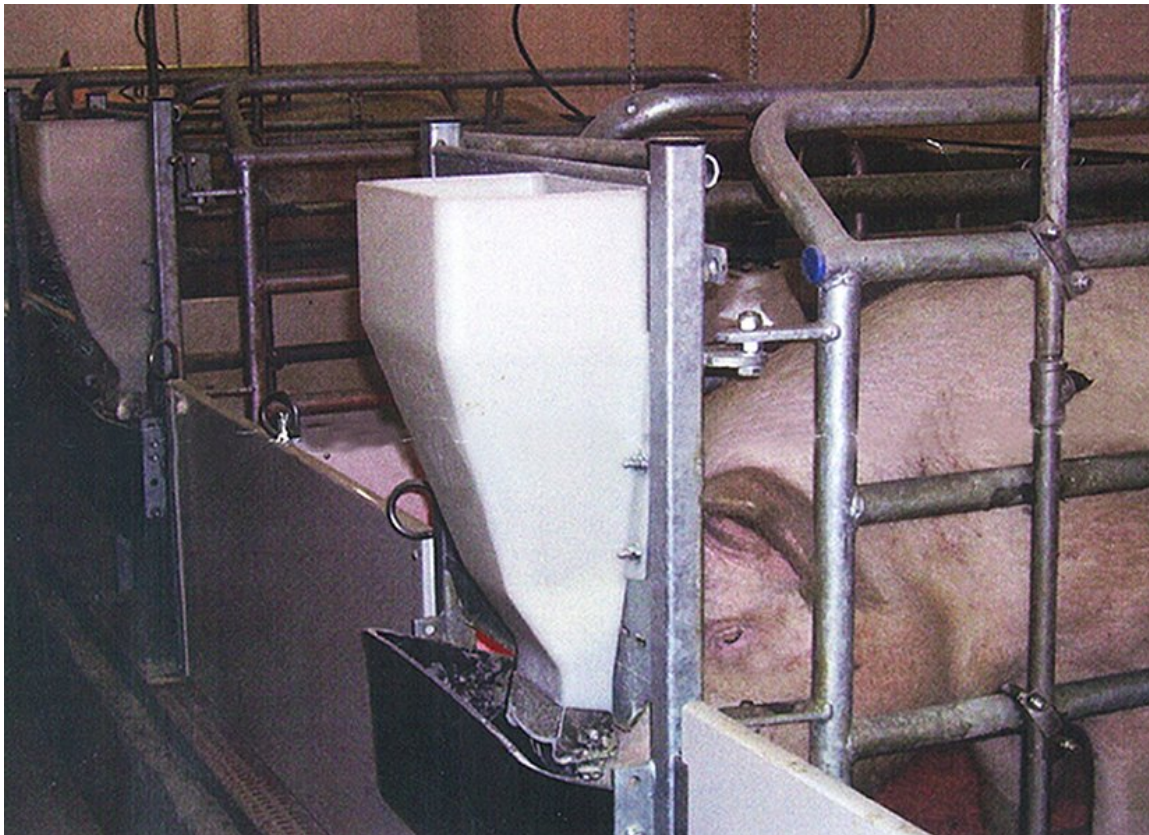
Pig Husbandry Technology

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## Part 1

### Product Description

The IFeed Hopper, made by Canarm, is durable, plastic, and a 100% polypropylene feeder with smooth edges and patent grade material to protect pigs (Canarm AgSystems, 2015).



*Figure 1: IFeed Hopper.*

*Source: <http://205.150.58.49/CanarmBSM%20Swine%20Products/Feeders/index.htm>*

From Canarm, the feeder is shipped to Farmer's Farmacy in Cambridge where it is dealt to other companies across Canada. The feeder costs \$74.99 and has many benefits. For instance, it not only encourages natural environmental

enrichment by supporting root behavior but it also aids in feed intake (Canarm Agsystems, 2015). The IFeeder hopper works with an actuator, and as the pig engages it, feed is dispensed, creating an action similar to the natural performance of a pig (Canarm Agsystems, 2015). The product is designed to be clog free and tests demonstrate feeding up to 15 kg/day, while dispensing the oldest feed first. (Canarm AgSystems, 2015).

With the oldest feed dispensed first, the loss of feed is prevented. With better-feed intake, sows will maintain better milk production (Canarm AgSystems, 2015). Pregnant and farrowing sows eat more and take in more of the required nutrients, minerals, and vitamins (Hardy, 2005). As such, the chances of more favourable milk production are increased. In turn, piglet weight is increased, and there is a decrease in the morality rate (Hardy, 2005).

The average age of weaning for Nepalese pig farmers is about 2 months (Gatenby, 1992). The feeder provides farmers with higher wean rates (Carnarm AgSystems, 2015), resulting in the sow producing sufficient milk for the piglets, supporting the growth of healthier piglets (Hardy, 2005). The IFeeder Hopper is also convenient for the farmer, allowing for them to feed at any time (Canarm AgSystems, 2015). The feeder can easily be attached to cement sidings or the stalls in some pens, making it accessible for the pigs.



*Figure 2: Feeder is clog free and can hold up to 15 kg/day.*

*Source:*

*<http://205.150.58.49/CanarmBSM%20Swine%20Products/Feeders/index.htm>*

### Analysis of the Company

The IFeed Hopper sold out of Arthur, Ontario by a company called Canaram Ltd (Richard, Personal Communication, October 19<sup>th</sup> 2015). Canarm Ltd is headquartered in Brockville, Ontario and is structured around 3 different units, one of them being agriculture (Canarm, 2015). Canarm Ltd has broadened its agricultural products since 2005 and sells high quality equipment which includes livestock confinement equipment that was based around the US hog market, supporting the growing customer demand in North America and abroad (Canarm, 2015).

Although Canarm Ltd does not manufacture the feeders in Canada; they import them at IFeed Technology in Denmark (Richard, Personal Communication, October 19<sup>th</sup> 2015). After the Denmark production ships to Ontario, Canarm Ltd then distributes the feeders to different companies all over Canada (Paul Fallis,

Personal Communication, November 30<sup>th</sup> 2015). The feeders are shipped in bulk containers (Paul Fallis, Personal Communication, November 30<sup>th</sup> 2015). In one container, there is approximately 2200 IFeed Hoppers and the cost of shipping is around \$5000 (Paul Fallis, Person Communicator, November 30<sup>th</sup> 2015).

### Canadian Jobs

The unemployment rate in Canada for October 2015 was at 7% in 2014 (Statistics Canada, n.d) and exporting the feeder from Canada to Nepal will create jobs for Canadians. Jobs can be created at the original head quarters in Brockville, organizing, planning and designing for the company. In the Arthur location, jobs will be available to employees in different areas such a shipping, ordering, and packaging. Employees in the ordering department would order the feeders from IFeed Technology. Once the feeders arrive they could be sent straight to Nepal or repackaged for smaller cargoes at cheaper prices. Jobs would also be available in the shipping part and deciding the details surrounding shipment to Nepal.

### Part 2

#### Introduction to Nepal and Agriculture in Nepal

Nepal is a small country located in South Asia. It is below China and sits beside India (Geography, n.d). Nepal includes 5 major development regions: Eastern, Central, Western, Mid-Western and Far Western (Karma, Durga, Gongora, Moran, 2010). The total land area is 147, 181 square kilometers and it has over 100 Ethnic groups and 70 spoken languages (About Nepal, n.d). The average temperature in the winter months of Nepal (December to February) range from 9-12° while from March to November it ranges from 15° to 23° (Annual Weather

Averages, n.d). The population in Nepal is close to 30 million people (Nepal population, n.d), and over 80% of the population depend on agriculture to sustain life (Nepal-Agriculture, n.d). About 70% of families keep some type of livestock that can include cows, buffaloes, chickens and pigs (Food and Agriculture Organization of the United Nations (FAO), 2005). Pig husbandry and pig production is at an early stage in Nepal in comparison to other livestock systems in other countries (Abington, 1992).

### Pigs in Nepal

Due to social standards and religious prejudice, there are imposed restrictions on pig production (Abington, 1992). The eastern region of Nepal holds a little over half of the total pig population and the meat from those pigs is 7% of the country's total meat production (DD Joshi, n.d). Pigs have been a great advantage to the Nepalese people as they serve multiple functions - primarily to the socially disadvantaged (Karma, Durga, Gongora, Moran, 2010). Pigs can be reared by Nepalese people to meet their socio-cultural beliefs and also for meat and manure (Karma, Durga, Gongora, Moran, 2010). The population was 604,902 pigs in 1993, and increased to 960,827 by 2006 (Karma, Durga, Gongora, Moran, 2010). There has been a minimum of 17 species reported in Nepal (Karma, Durga, Gongora, Moran, 2010). The Nepalese pig population contains about 42% of imported exotic breeds, which include Yorkshire, Landrace, Duroc and Hampshire (DD Joshi, n.d). Of the entire pig population, 58% consist of indigenous pigs while 42% are exotic and composite pig breeds (Karma, Durga, Gongora, Moran, 2010). About 53% of the pig population falls in the mid-hills, while 36% are in the Terai region, and 11% are in the high hills

region (see Figure 1) (Karma, Durga, Gongora, Moran, 2010). With pigs farrowing about two times a year, with 8-12 piglets each time, (DD Joshi, n.d) pre-weaning mortality rates are about 22% for local piglets and 15% for crossbreds (Gatenby, 1992).

*Table 1: Distribution of pig population across Nepal by eco-zone.*

Eco-zone	Population	% of population	Meat production (t)	% of meat production
High hill	102,893	11.0	1,255	8.16
Mid hill	492,598	52.68	8,449	54.90
Tera	339,584	36.32	5,685	36.94
Total	935,075	100.00	15,389	100.00

Source:

[https://www.ilri.org/InfoServ/Webpub/fulldocs/Pig%20Systems\\_proceeding/CH\\_05\\_DD\\_Joshi.pdf](https://www.ilri.org/InfoServ/Webpub/fulldocs/Pig%20Systems_proceeding/CH_05_DD_Joshi.pdf)

*Table 2: Distribution of pig population by development region.*

Dev. Region	Pig Population	% of Pig Population	Pork production (t)	% of pork production
Eastern	495,230	52.96	7,556	49.10
Central	157,371	16.83	3,413	22.18
Western	108,449	11.60	1,879	12.21
Mid-western	126,172	13.49	1,934	12.57
Far-western	47,853	5.12	607	3.94
Total	935,075	100	15,389	100

Source:

[https://www.ilri.org/InfoServ/Webpub/fulldocs/Pig%20Systems\\_proceeding/CH\\_05\\_DD\\_Joshi.pdf](https://www.ilri.org/InfoServ/Webpub/fulldocs/Pig%20Systems_proceeding/CH_05_DD_Joshi.pdf)

Feed for the pigs are primarily based on agricultural bi-products and kitchen wastes, combined with scavenging but contains little supplements of wheat and rice. (DD Joshi, n.d). In a free ranged system, a typical pig's diet comprises kitchen waste, garbage, roots and other green forage (Abington, 1992). Farmers in rural areas keep

pigs reared on a scavenging system with shelter to inhibit theft or predation (Karma, Durga, Gongora, Moran, 2010). With the outdoor housing systems, the concern of public health is involved due to the likelihood of parasitic infection in both animals and humans (Karma, Durga, Gongora, Moran, 2010). Most farmers construct shelter and housing with local materials such as bamboo, wood, mud, thatch and stones while bedding consists of straw and leaf litter to keep costs minimal (Karma, Durga, Gongora, Moran, 2010). If the farmer has an indoor-type housing unit, the bulk of the diet will include cereal by-products such as rice-bran, maize, husks and vegetable waste (Abington, 1992). In some peri-urban areas (in between urban and rural areas) concrete pens are used (Karma, Durga, Gongora, Moran, 2010). However, for pregnant or lactating sows, there is no supplementary feed or housing to provide them with the shelter, nutrients, vitamins and minerals that they need (Abington, 1992).

After a sow farrows, it is very important that piglets maintain as much milk as possible as they are dependent on the milk yield and its composition (Hardy, 2005). It takes about 4 grams of milk to produce 1 gram of weight gain in a piglet (Hardy, 2005). During lactation, milk accounts for 75% of the total energy requirement and uses 70% of the total body's glucose (Hardy, 2005). As the sow's body is trying to produce milk sufficiently and effectively, feed intake is necessary for the regain of body protein (Hardy, 2005). The overall physical aspects of the pig, which include lean protein and back fat during farrowing and weaning, have a general influence on reproductive performance concerning the litter (Hardy, 2005). To improve the overall health of pigs in Nepal, it would be beneficial to import the



feeders that will increase feed intake, reduce the stress on sows, and aid in milk production.

### Buyers

The potential buyers for the IFeed Hoppers are the Nepalese pig farmers. Specifically, the feeders can be introduced to the farmers who have poor feeding systems and/or poor feed. Some famers use a combined program of scavenging with a supplement of poor feed such as wheat or rice bran (DD Joshi, n.d) and the feeder would be able to provide the farmer with a consistent system. Since the feeder is a patented no-clog feed dispenser, (Canarm AgSystems, 2015) it will provide farmers who use cheap feed or wheat supplements the opportunity for full consumption and little to no waste. With these feeders increasing feed intake, pregnant or lactating sows who receive little to no special exceptions for mineral, vitamin and nutrient intake (Abington, 1992) will have the opportunity to obtain or maintain some. This feeder will be very beneficial to all pig farmers who have trouble with maintaining their farrowing/lactating sows weight and/or piglet morality. Specifically, the feeder will help Nepalese pig farmers with increasing their wean rates, sow food intake and feed costs (Canarm AgSystems, 2015).

### Transportation to Nepal

The feeders are typically shipped from IFeed technology in Denmark to Arthur, Ontario in containers that hold about 2200 feeders and cost about \$5000 to ship (Paul Fallis, Personal communicator, November 30<sup>th</sup> 2015). To export these products to Nepal, the feeders will be shipped from their Canadian distributor Canarm ltd in Arthur, Ontario at a price of \$74.99 (Canarm AgSystems, 2015). From

Arthur, the feeders will be shipped by land to Toronto (120 km trip) (Canada Distance, n.d). The feeders will then be shipped from Toronto to Vancouver, British Columbia via air, which is about 4, 370.7 km (Canada Distance, n.d). From Vancouver, the crate would be shipped to Mumbai, India which is a 12, 256 km trip (Canada Distance, n.d) From Mumbai, the containers will then be transported by land via train or truck to Kathmandu. From Kathmandu, the feeders will be transported to various regions in Nepal.

Due to the pig farms in Nepal having a lot less land and pigs per farm, in order to reduce costs feeders will be shipped in crates of 100 feeders/crate in large cardboard boxes that are 30"x30"x71" (the average refrigerator size box). An estimate of 100 lbs will be used for the purpose of this project. Figure 3 demonstrates the possible routes of transportation.

*Table 3: Possible routes of transportation. Source: <http://www.a1freightforwarding.com/quote/rate.php>*

Shipment Method	Number of Feeders	Cost	Starting Destination	Middle Destination	Final Destination
A1 Freight Forwarding by AIR	1	\$279.37 CAD	Vancouver, Canada	N/A	Mumbai, India
A1 Freight Forwarding by OCEAN	1	\$286.89 CAD	Vancouver, Canada	N/A	Mumbai, India
A1 Freight Forwarding by AIR	100 (1 crate)	\$772.10	Vancouver, Canada	N/A	Mumbai, India
A1 Freight Forwarding by OCEAN	100 (1 crate)	\$287.48	Vancouver, Canada	N/A	Mumbai, India

#### Future Studies and Required Unknowns

Employee hourly rate, smaller crate sizes (and specific length, width and height), import/export duties and the weight of each feeder will need to be looked into for shipment costs and purposes. Costs of shipping via land transportation from Arthur to Toronto and Mumabi to Kathmandu will need to be evaluated and put into the total cost. Considering the high price of both the product and the

shipment costs, it would be beneficial to both Canadians and Nepalese farmers to have government grants to reduce major shipping costs.

### Recommendations

With all of the costs for this product, which includes shipping and handling, the total cost for a Nepalese farmer is over \$1000. Due this huge deficit of costs, it is clear that specifically the IFeed Hopper is not an ideal product to sell to Nepalese Farmers. China is the number one producer of pork in the world (Foreign Agricultural Service, 2015), and therefore the feeders could be exported to Chinese farmers. Being a bigger pork producer and having more people, the feeders could be more beneficial and affordable in bulk.

Introducing the construction of feeders might be more beneficial to the people of Nepal. The construction of the home-made feeder could be made with clay, with the similar attributes that make the feeders effective. This construction could also be an effective job for women on the farm, creating a low cost, minimal effort project to contribute to their pork production.

In conclusion, the IFeed Hoppers are very expensive due to product costs and shipping, the product or a product similar to it could potentially be a beneficial export for Nepal. One Canadian dollar is worth 78.79 Nepalese Rupees (Currency Converter, 2015), so with high prices, it becomes very difficult for Nepalese farmers to afford the product itself excluding shipping, HST, GST, etc.

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