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Exporting Hoop Houses to Nepal

To promote Canadian agricultural section exportation and commercial relationship with Nepal, selecting a suitable product to export is the key. The aim of this paper is to show the potential of the low cost hoop houses. By exporting cheap hoop houses, Nepalese farmers can have a higher income by having better quality and larger yield of their commercial fruits and crops. Canada, on the other hand, can have increasing number of employment. Therefore, it is a good bidirectional exportation product.

http://www.extension.org/pages/18356/low-cost-high-tunnel-construction#.VHECE1fF-R1

Product description and companies associated

Hoop house, also named polytunnel, is an agricultural product. DeVault described hoop house as a structure composed by large hoops, pipes (metal, plastic or wood pipes) and huge plastic sheet (DeVault. G, 2003). The baseboards are connected with tensioned skin by wood bars, metal pieces, and other materials. The advantage of hoop house is that it is cheaper than greenhouses and easier to manipulate. For expensive product is not suitable for Nepalese farmers, the hoop houses introduced here are cheap and movable ones. Customers could build and

dismantle the product as they want. Hoop houses can be used to protect against unexpected weather in an effective and economical way. They can also increase the temperature maximum 10 degree without any other equipments (DeVault. G., 2003, eXtension, 2012). Price of the low cost hoop house can be varies in different sizes and materials, which has huge flexibility to transform; therefore, they can be applied on any crop at any temperature in the year.

Product required and cost

According to research, the cost of a hoop house is around $2 to $8 per square foot in Canada, and Price can have a big range depend on the type and quality of the hoop house element. Professor Hilaire in the New Mexico State University, shows the materials and price of a 12×15-square foot hoop house they purchased for their University classes (Rolston St. Hilaire, http://horttech.ashspublications.org/content/19/2/445.short Theodore W. and John G. , 2009). In this graph, there are several description which is not part of the hoop house, so that the total price is actually cheaper than 701.20$. To reach the goal of making product as cheaper as possible and easier to promote, customers can make their own unique hoop house. For instance, polycarbonate, shade cloth, row and bed covers, and polyethylene can replace the plastic in the chart (eXtension, 2012). On the website of "eXtention", a non-profit learning network, Tim Coolong of the University of Kentucky introduced a season extension

Table 1. Construction materials, seed, and fertilizer inputs needed for Introduction to Horticulture (HORT 100G) students to build and plant three 15-ft (4.6 m) hoop houses at New Mexico State University. The assembly of the materials and seeding the greenhouse required an assortment of tools.[z]

Description[y]	Quantity	Unit[y]	Unit price ($)	Total price ($)
1.25-inch polyvinyl pipe (PVC)	15	20 ft	8.80	132.00[x]
6-mil plastic	36 × 72 ft	1 roll	215.00	215.00[x]
Garden hose	3	1	11.99	35.97
Soaker hose	3	1	13.99	41.97
Drill bits	2	Packet	2.39	4.78
Wood screws	3	Box	4.11	12.33[x]
Staple gun	3	1	15.99	47.97
Staples	1	Box	2.99	2.99[x]
Wood (2 × 4 × 8 ft)	42	1	2.09	87.78[x]
Rebar (1/2 inch)	15	8 ft	4.27	64.05[x]
Lettuce seeds	12	1-g packet	1.49	17.88
Radish seeds	12	1-g packet	1.79	21.48
Granular fertilizer	1	30-lb bag	17.00	17.00
Total cost				701.20

[z]Portable power drills, hand saws, hammers, staple guns, and shovels were used.
[y]1 inch = 2.54 cm, 1 ft = 0.3048 m, 1 mil = 0.0254 mm, 1 g = 0.0353 oz, 1 lb = 0.4536 kg.
[x]Total structural materials cost = $514.15 or $171.4 ($0.95/ft^2) per hoop house; $1.00/ft^2 = $10.7639/m^2.

hoop house making tutorial, he shows audiences that low cost and movable hoop houses are customized and his hoop house only cost $0.35 per square foot (Tim Coolong, 2012). Therefore, the Nepal farmers might not feel too stressful when making their own hoop houses.

Construction Method

The setting of a hoop house is approachable and easy. First, one need to dig trenches and place anchors at a certain distance (depend on different buyers' needs).The anchors can be regulated into the soil using a small hydraulic driven motor.

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Second, set up the pipes over the anchors by insert the anchor into the pipe. Third, build the end walls with wood bars as well as construct a metal pipe across all the plastic pipes and hold them up by using aluminum connectors. Next,binding the frame and plastic with ropes and finally,

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cover the entire frame with plastic skin and staple it (Rolston St. Hilaire, Theodore W. and John G. , 2009, eXtension, 2012).

Name	Description	Location	Contact
Pather Plastics Canada Inc.	Manufacturer	7400 Victoria Park Ave, Markham, ON L3R 2V4	info@pather.com
Silgan Plastics Canada Inc.	Plastic Fabrication Company	1200 Ellesmere Rd, Scarborough, ON M1P 2X4	www.silganplastics.com
Allied Plastic Group Of Companies	Door Supplier	707 Arrow Rd, North York, ON M9M 2L4	1-800-999-0386
EJ Bags & Boxes Co.	Moving and Storage Service	120 Milner Ave, Toronto, ON M1S 3R2	sales@ejbags.com
Poly Five Plastics Inc.	Plastic Fabrication Company	205 Limestone Crescent, North York, ON M3J 2R1	info@polyfiveplastics.com
Post Plastics Canada Inc.	Patio Enclosure Supplier	375 Frankcom St, Ajax, ON L1S 1R4	(905) 683-1161
Container Corporation of Canada	Manufacturer	68 Leek Crescent, Richmond Hill, ON L4B 1H1	1 905-764-3777
U Kwong Canada Co Ltd	Plastic Fabrication Company	Milliken Blvd, Scarborough, ON M1V 2R3	sales@ukwong.com
Transilwrap Of Canada Limited	Plastics & Plastic Products (Mfrs)	333 Finchdene Sq, Scarborough, ON M1X 1B9	info@transilwrap.com
Harnois Greenhouses	Greenhouse Supplier	1044 rue Principale, St-Thomas, QC Canada, J0K 3L0	info@haenois.com
shelterLogic Operations Canada Ltd.	Shelter Supplier	80 Stafford Drive, Brampton, ON , L6W 1L4	1-800-559-6175

Tunnel Tech	High Tunnel Supplier	47 Clearview Drive, Tillsonburg, ON, N4G 4H8	519-688-2451

Companies associated

The companies associate with this project are listed above. Some of them are hoop house companies, and some of them are factories which produce plastic pvc pipe, shelter and wood bar. Their product are not suitable to export to Nepalese Farmers individually because the price of their hoop house is quite expensive and in large scale. However, if those companies work together in this project, there will be a wider price and material range by picking the cheapest material from each company. By doing so, different companies can interact with each other can find out the most suitable hoop house for Nepalese farmers.

Benefit to Canada

The companies in the previous chart are all Canadian Companies. The exportation proposal will bring Canada profit. First, the low cost input may attract different local and small scale companies to join the exportation project. It there will be a chance to form a companies cooperation project, which enhances the connection and commercial relationships. Second, the economic strength of individual company will increase as the result of this exportation idea. Third the exportation will also stimulate employment, people can get jobs from this new project. Production and transportation need more workers as will as office clerks. Employees such as technological guidances will be sent to eastern Nepal to help the local farmers to build hoop houses. Therefore, there will be more job opportunities inside Canada.

Brief Introduction of Nepal

The potential of hoop house in Nepal is remarkable. Nepal is a country located in between India and China. It is right beside the Himalayas which gives Nepal a massive river systems. Nepal has a population about 26.62 million people and contains total land area of 147,181 square kilometer, including part of the Mount Everest. There are three geographical regions include hill region, mountain region and plain region. The average temperature is about 19°C – 35°C in summer and 2°C – 12°C in winter. Agriculture is the biggest part of Nepal's development, which occupies 39 percent of its GDP, and 66 percent of employment of the total population are farmers (Nepal Tourism Board, 2012).

Marketing Opportunity in Nepal

Kiwi as one of the most profit and nutrient fruit is widely grew in the eastern part of Nepal. From the article "Kiwi farming gaining popularity in Ilam" written by the International Centre for Integrated Mountain Development, Mr. Taramani (Manager of the Environment Protection and Alternative Power Development Private Limited) described there were about 1350 kiwi farmers in eastern Nepal, and 450 female are working in this field (ICIMOD, 2012). Women describe kiwi farming as profitable, less time-consuming compare to other crops and containing less work. The difficulty those farmers meet is the cultivation in winter. Low temperature and windy weather lower the quality and amount of their fruits (ICIMOD, 2012). As a result, low cost hoop house could be extremely helpful and necessary to those farmers who want to protect crops in winter and earn more money. This in turn will also have a positive effect on the local economy. Hoop houses can be purchased by individual farms, or up the multiple cities and villages in Nepal. Urban people can also purchase the hoop house to construct small garden equipment for their flower and vegetables.

Other Benefits to Nepal

If the exportation of hoop house stimulates more people to start kiwi farms, more land can be kept. In the article "Kiwi fruit cultivation" by ICIMOD, Kiwi fruit is a good method to decrease the rate of soil erosion of the sloping land and middle altitude mountain area as well as bring biodiversity to the local area (ICIMOD, 2012). Mr. Taramani also mentioned about they may establish a kiwi juice and jam company in the future. Kiwi as a nutrient fruit is popular among the city people in Nepal and farmers also start to export some of the fruit to India (ICIMOD, 2012). Hoop house as a new strategy can help farmers to get more profit and push the kiwi juice and jam company go to the success. Additionally, kiwi juice and jam may become a new local specialty in tourism as a good income resource.

Other functions and use range of Hoop house

The hoop house application on Kiwi fruits as a good example shows the remarkable potential of this product. The average size of the kiwi farm in Illam is about five to six kiwi plants per household, and some of the farmers have bigger scale then that (ICIMOD, 2012). It not only can be widely used geographically, but also can be applied on almost every kind of fruit and vegetables (Tim Coolong, 2012). Therefore, every farmers in Nepal can use hoop houses in the situation they think is necessary. Besides providing a shelter and a warmer growing environment for crops, hoop house can also separate crops and outer environment, which decrease the disturbing of wild animals (ICIMOD, 2012).

Exportation procedure

The exportation procedure is not special because the product is not biological, chemical nor special component. Hoop houses are made by wood, metal and plastic. The procedure of

exportation can follow the basic format. The detailed steps of transportation and exportation can be found at the website called Government of Canada. Information about how to export goods can be found on the page named *Step-by-Step Guide to Exporting Commercial Goods from Canada* under the Import and Export bullet. Details of the shipping process can be found at *The Canadian Trade Commissioner Service* under Export bullet.

Transportation Logistics map

The transportation would have two parts, from Canada to India by sea and from India to Nepal by Train. Same type of materials will be packaged together and be stored in the warehouse rent by the companies and then sent to the warehouses in Newfoundland by trucks and ship. When it is time to ship product to Nepal, materials will be put into containers on trucks and be sent to Newfoundland dock. Ships start at Newfoundland, and pass through the Atlantic Ocean. Then the containers will be unloaded once it arrives at New Delhi in India. Products will be kept in the warehouse in India for one or two days and then be transported by train to Nepal. Trucks in Nepal will carry those products from India trucks and send them to the central warehouse in Nepal. Finally, delivery cars will load different amount of products to various stores and shops in Nepal. The freight companies which are suitable for this transportation rout are KWE India and S Pandey & Company (KWE India, 2009 and S Pandey & Company, 1975).

Competition evaluation between China and Canada

Product Name	Company Name	Location	Unit Price	Material of skeleton

Single Tunnel Hoop House	Hangzhou China Agrotime Agri-Tech Co., Ltd.	China	US $4.58-6.98/ piece	EVA
Cold Frames and Hoop Houses	Xiamen Longyoung Agricultural Technology Co., Ltd.	China	US $10-100/ square meter	Galvanized Steel
Gardman Polytunnel	Cangzhou Xinming Hardware Products Co., Ltd.	China	US $3-10/piece	metal + PVC
Galvanized steel Frame Poly tunnel Greenhouse	Rough Brothers Greenhouse Manufacturing (Shanghai) Co., Ltd.	China	US $8-15/Square Meter	galvanized steel
epolytunnel greenhouse for EU film	Trinog-xs (Xiamen) Greenhouse Tech Co., Ltd.	China	US $10-30/Square Meter	PE
temporary greenhouse	Changzhou Weedmat Environment Technology Co., Ltd.	China	US $0.5/Square Meter	PE
Galvanized Steel Frame Polytunnel Affordable Green Houses	Wuyi Nuotu Trade Co., Ltd.	China	US $13-20/Set	Steel
Garden Greenhouse Poly Tunnels	Zhejiang Universal Tools Co., Ltd.	China	US $5-8/Piece	Steel + PVC
Tall Poly Tunnel	Cixi Robert Plastic Mould Factory	China	US $1-5/Piece	PE
poly tunnel greenhouse	Shanghai Eversuccess Industries Co., Ltd.	China	US $12.99-16.99/ Piece	PVC

From research, The price of piece parts and entire hoop house in Canada is approximately the same as those in China found in Alibaba website. The table below shows the detail information of the Chinese hoop house companies. The difference is Chinese companies used unit in square meter and Canada use square foot which is a little bit more expensive then Chinese product

(Alibaba, 1999). If all the other expense added into it , such as subsidy, transportation fee, Chinese product will be cheaper, because it is closer to Nepal compare to Canada. On the other hand, The exportation of hoop house in India which should be able to access at TradeIndia.com shows there is no information about the hoop house online. As can be seen the hoop house market in India is not quite big. Therefore, Canada still have a positive position in this exportation project.

Marketing and selling strategies

To open a wide market, the product can be purchased by government and then sell in a lower price to farmers if the price of product rise dramatically after overseas transportation. Government and local business leader can cooperate with the organization called The International Centre for Integrated Mountain Development which is a regional intergovernmental that share and teach useful knowledge to help the development of eight regional countries of the Hindu Kush Himalayas (ICIMOD, 2008). They guide and support famers to grow kiwi in Nepal, and local farmers have a good relationship with those helpful organization. With their help and guide, farmers can have a formal access and understanding of hoop house so that help to advertise and product market.

Transportation and subsidy cost

The cost of transportation would vary depending on the amount of materials sent to there. Both of the weight and volume can affect the price of a sea freight. The unit price for transporting them can be approximately US $10 to US $90 for one set, and there is a number of minimum sets to transport. The cost of transporting from India to Nepal is also unstable due to the amount of

material may change depending on the requirement from government of Nepal. Canadian government does not have restriction about exporting hoop house materials. Nepal has a tariff of 10% for agricultural products, and that can be even lower if Canadian government negotiate with Nepal government well. These parts will count towards to the retail price of the hoop house.

Barrier and unknown facts

The barrier and known fact is that there seems have no big scale wholesale factory of hoop house in Canada, and small and middle size company contain quite expensive (for Nepalese farmers) price of hoop house and the element. Therefore, an idea price of this product is unable to find out unless the companies is willing to form the project together. However, the cooperation idea may not work depend on different companies marketing goals and needs.

Conclusion and recommendation

To conclude, low cost hoop house is beneficial to both Canada and Nepal. Easy construction, movability and transformability make hoop house an attractive agricultural tool. However, the cost of the hoop house might be more expensive after exporting into Nepal. The cooperation between company, government and other organization is necessary and important to open the market. Other Canada companies can also involved into the project by importing the kiwi juice and jam from Nepalese farmer which courage those farmer willing to pay and invest their farm by purchasing hoop houses.

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