

Nepal final assignment – Sweet potato seedlings

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## **Part 1:**

**Introduction to the sweet potato:** The sweet potato is theorised to have originated in south America somewhere around Peru because of the warm southern climate and the arable land. It is said to only have been domesticated between 8000 and 10000 years ago. (Woolfe 1992) In modern times, there are more than 100 countries producing this crop, approximately 119 million pounds grown around the world and it is the 7<sup>th</sup> most produced crop in the world. The leading producer of the sweet potatoes globally is China by almost 87 million pounds. (Woolfe 1992) Contrary to most crops, the bulk of sweet potatoes are grown in developing countries instead of developed countries. Sweet potatoes are also boasted as being one of the healthiest plants and extremely beneficial for countries in development B.A et al. (2006)

**The product:** Sweet potatoes have hundreds of varieties, how ever the most popular varieties are Convington, Japanese and O'Henry. (Cubero 1984) The product provided for export to Nepal are convington sweet potato seedlings. Sweet potatoes are one of the richest plants in beta carotene. Beta carotene is a chemical compound which helps produce vitamin A. According to Dierreto et al. (2007) 250g of sweet potato can contain 50% of your vitamin A needs. Since Nepal and much of the middle east have severe Vitamin A deficiency, an export of sweet potato plants to Nepal would help prevent child blindness, nighttime blindness in pregnant women as well as immune system weakening. (Sommers 2001) In Nepal alone Vitamin A deficiency is responsible for 9000 deaths in children and for 2500 children becoming permanently blind. (Vitamin A. N.d)

**Planting:** In order to produce optimum yield in colder climates and shorter growing seasons such as Canada and Nepal, a black plastic covering the row of sweet potato plants is

recommended to conserve heat. The sweet potato seeds can be hand planted, however a trowel can be used for faster planting. For harvesting, the only low cost optional equipment would be a pitch fork, otherwise handpicking is always a possibility. A sweet potato seed should be planted between 2 and 3 inches deep and between 15 to 18 inches apart in order to let the plant grow horizontally and in a vine across the ground. The yield of each plant should be approximately 2-3 pounds. (Veseys N.d)

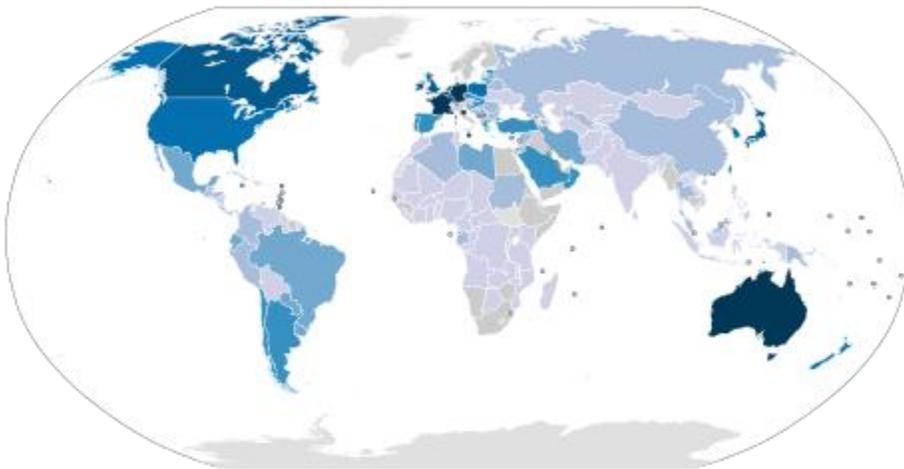
**Price:** For cost of potato plants see the chart below.

<b>5138</b>	<b>Package of 10 Plants</b> Shipping & Handling on this product is \$5.00 per order.	\$14.95	<b>Out-of-stock</b>
	<b>Package of 20 Plants</b> Shipping & Handling on this product is \$5.00 per order.	\$21.95	<b>Out-of-stock</b>
	<b>Package of 50 Plants</b> Shipping & Handling on this product is \$5.00 per order.	\$39.95	<b>Out-of-stock</b>
	<b>Package of 200 Plants</b> Shipping & Handling on this product is \$5.00 per order.	\$113.00	<b>Out-of-stock</b>
	<b>Package of 1000 Plants</b> Shipping & Handling on this product is \$5.00 per order.	\$449.00	<b>Out-of-stock</b>

**The company:** The supplier of sweet potato plants chosen is Veseys. Veseys is a Canadian company based out of York, Prince Edward Island. They sell a wide variety of seeds from flowers to crops, including sweet potato plants. Veseys employs roughly 50 employees to run the various field they have. They are also partnered with 14 dealerships spread between New Brunswick, Newfoundland, Nova Scotia and Prince Edward Island. Veseys has been producing seeds since 1939 and is a proud member of farmers helping farmers. (Vesey. N.d)

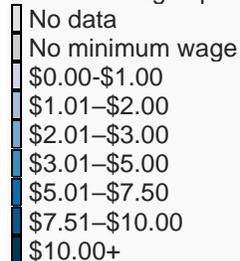
**Evaluate the market:** There are 4 essential criteria for evaluating markets are: Urgency, Market size, Pricing potential and delivery value. (Kaufman. 2012) All things considered, since this product is targets consumers with medical problems, the urgency of the market is very strong.

The market size for product is considerable because all though the target buyers are Nepali vitamin A deficient citizens, the market could grow considerably to anywhere in Asia or Africa. The pricing potential and delivery value are unfortunate downfall of the market. Canadians can not compete with countries in development because the price of labour and materials are available at a fraction of the cost. See image below for labour costs globally. Lastly, any other country that does not have to ship overseas can export the product for a significantly reduced price. Given these points, the market is perfect for Canada to exploit assuming there is no competition.



[https://en.wikipedia.org/wiki/List\\_of\\_minimum\\_wages\\_by\\_country](https://en.wikipedia.org/wiki/List_of_minimum_wages_by_country)

Minimum wages per hour in U.S. dollars:



**Nutritional information:** Sweet potatoes, also known as yams are one of the worlds healthiest foods, aside from the enhanced levels of Vitamin A previously boasted, sweet potatoes also contain very high concentrations of Calcium and Magnesium. Between these two minerals, a couple of the potential benefits are increased bone density and lowered risk of heart conditions. Prentice et al. (2012) Gyemlani et al. (2000) As well as minerals, the content of crude protein and crude fibre are exceptional and has a high caloric value. B.A et al. (2006)

Fig.1

Mineral elements of Sweet potato leaves:

Mineral elements	Compositon
Calcium	28,44
Magnesium	340,00
Potassium	4,5
Manganese	4,64
Phosphorus	37,28
Copper	0,00
Sodium	4,23
Vitamin A + or – S.D of triplicate	0,67
Vitamin C	15,2
Zinc	0,08

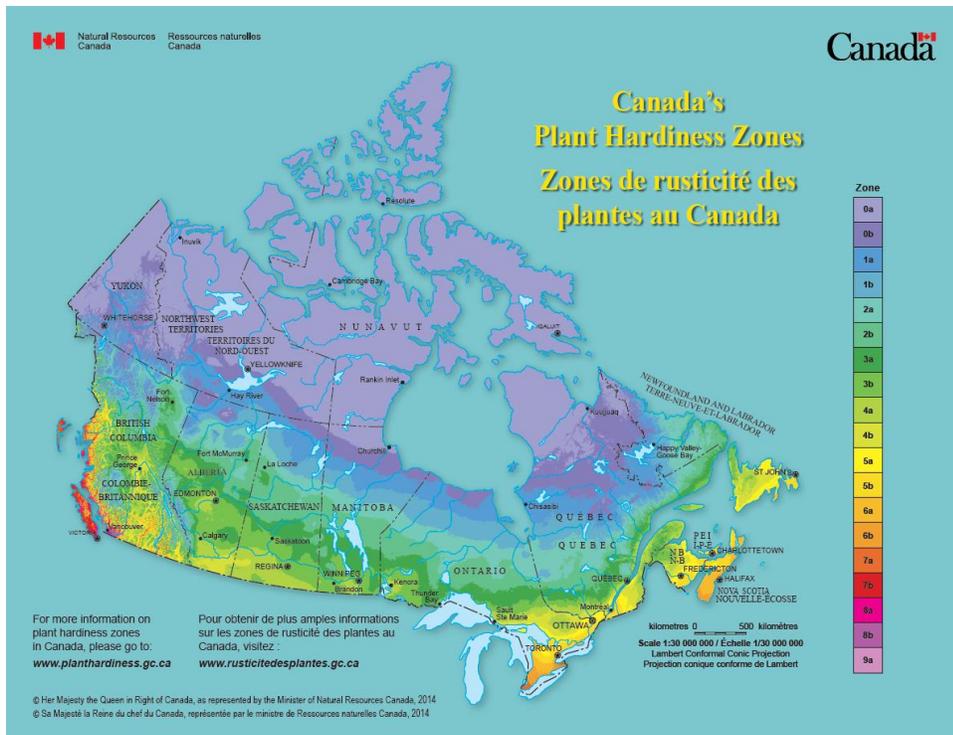
Fig.2

Content

Crop	Production (Per million)	Dry matter (Million tonnes)	Energy trillion (kj)	Protein (Million tonnes)
Sweet potato	119	35	452	1,6

(Woolfe 1992)

**Costs, inputs and issues:** Costs vary immensely all depending on the inputs demanded by the type of farming engaged in. In north America, most farms are engaged in agriculture for profit and therefore farmers use nutrients, micro nutrients, pesticides, herbicides and equipment for large scale production in order to produce higher yields in shorter time. However, this requires a significant amount capital invested. Contrary to this, Nepali farmers are for the most part engaged in sustainable agriculture. With this intention, Nepali farmers have no need for large yield and could use next to no inputs and produce a sustainable amount. The issues surrounding sweet potatoes are that they are not very hardy. Similarly, to Canada, Nepal has many hardiness zones where sweet potatoes can not be grown and therefore limits the range of land that can be cropped with sweet potatoes. Fortunately for Nepali farmers, they do not face harsh winters like those in Canada and can grow year-round in the terai and hill regions.



<http://www.planthardiness.gc.ca/>

## Part 2:

**Transportation logistics:** In order to get the sweet potato plants from Nova Scotia to Kathmandu Nepal as quickly as possible for the least price, the plant seedlings will be send from one of Veseys certified dealers named Shurgain Feeds n Needs in Bridgewater Nova Scotia, by Fedex Priority overnight for 51.75\$ for every 5kg to Halifax Nova Scotia. (FedEx N.d) From Halifax, the sweet potato plant seedlings will be flown to Kathmandu Nepal by A1 Freight forwarding for a base rate of 461\$ per box of 5kg with dimensions of 60x40x40cm. Every box after this will add 61\$ plus tax to the base rate of 461\$. (Freight shipping. N.d)

**Canadian grants:** According to (Government business grants N.d), a new business export such as this project could be eligible for 14 grants and up to 1,48 million dollars. This would easily

help set this project in motion and even enough money to send to potential buyers in Nepal sweet potato seedlings to test before hand.

**Potential Nepalese buyers:** The following companies are large Nepalese seed importers who could be potential buyers; Aaron international Nepal, Horticulture enterprises, Mega agrotech Co.Pvt.Ltd and Nepal biotech. Dealing with these large seed importers allows for much bigger shipments and avoids having to set up complex distribution networks in Nepal. (Www.business1.N.d)

**Cost Analysis to achieve profitability:** Assuming the Nepali companies buy the maximum quantity of seedlings which is 1000 plants for the price of 450\$ and that in a box of 60x40x40 it is possible to fit 500 plants. Then according to shipping logistics the total price to buy and have shipped to Nepal 1000 sweet potato seedlings is 972\$. (Veseys N.d) This price includes the base price of 461\$ plus 61\$ for the additional box to be shipped and the 450\$ for the 1000 plants. Sweet potato plants take between 90 and 170 days to produce potatoes. (Veseys N.d) Seeing as the plants are only grown to seedlings this only takes about 50 days. If you factor in that approximately 250 cubic meters of water would be used for the production of these 1000 plants at a price of 1,59\$/m<sup>3</sup> as well as paying one staff member 10.70 for at least 24 hours of work to plant, harvest and package plus 1\$ for two cardboard boxes of appropriate size the cost of production is 654.3\$ per 1000 plants. (Water rates N.d) (Lightweight N.d) Therefore, profitability is achievable with a margin of error of 347.7\$

**Creative real world marketing idea:** The goal of this export is not only to benefit a Canadian company but most of all to help prevent vitamin A deficiency in Nepalese people. One of the biggest challenges of selling this product to the Nepali people is that the majority of them are unaware of the problem, all though many of them are significantly affected by it. To solve this

problem, I recommend cause marketing. By strategically advertising the medical problem using statistics about the Nepali citizens who are troubled by this and making people aware of the benefits of sweet potatoes in regards to Vitamin A deficiency, the sales will rapidly grow.

**Export document information:** Exporting a product is a 15-step process that starts with obtaining a business number and ends with being aware of monetary administrative penalties.

Below are the 15 steps provided by (Step by step 2016) :

1. Obtain a Business Number issued by the Canada Revenue Agency.
2. Identify the goods you want to export.
3. Determine the country of origin for the goods you are exporting.
4. Ensure the goods are permitted to be exported from Canada.
5. Determine whether the goods you intend to export are subject to any permits, restrictions or regulations by the CBSA or other government departments.
6. Ensure that the goods you are exporting are allowed entry into the receiving country.
7. Determine whether or not the goods need to be declared on an export declaration.
8. If an export declaration is required, determine the appropriate export code.
9. Determine the method of shipping and identify the reporting time frame for that method.
10. Submit an export declaration if required.
11. Present proof of export if required.
12. Provide a Certificate of Origin to the receiver of the goods if requested.
13. Procedures to follow if you need to cancel or amend an export declaration.
14. Keep all records pertaining the export for six years.
15. Be aware that the CBSA uses an Administrative Monetary Penalty System (AMPS).

**Regional and global competition:** The competition for sweet potato production is very large. In terms of sweet potato production and regional competition, sweet potatoes are produced in almost every province and territory in varied amounts. In terms of global competition, the most important competitors to Canada are China and India. On a global scale, China is a leading producer in sweet potatoes with 80,1 million tonnes produces per year while India produced only 1,1 million tonnes. (Woolfe 1996) The statistics on Nepal sweet potato production are unavailable, however a small negligible amount of sweet potatoes have found to produced from an uncitable source. Unfortunately for Canada, it is very difficult for Canada to compete against the other countries of the world who are must closer and for the most part do not have to ship overseas. For a more specific overview of global competition please see figure 3 below.

Fig 3.

World production

	Production (in 10 <sup>3</sup> )
Asia	104 603
China	93 550
Africa	6100
North and Central America	1442
South Ameica	1371
Europe	108
Oceania	560
World	114 185

(Woolfe 1992)

**Environmental benefits:** The environmental benefits of growing sweet potatoes are abundant. First of all, the biomass wasted can be used for composting and eventually as fertilizer. Adding sweet potatoes to the environment increases biodiversity which helps reduce the risk of mass crop loss. Pimental et al. (1997) But most of all sweet potatoes have been known to be successful in the absorption of toxic chemicals such as lead. According to (Environmental mon. 2015) sweet potato plants manage to absorb 7.7 kg of lead per hectare.

**Canadian benefits:** Canada and in particular Veseys will benefit very much from this trade. The export of the sweet potato seedling to Nepal brings in money to the country that previously was not in the system. Exporting also allows Veseys to go exploit niche opportunities all over the world such as the situation with Nepal and many other poor countries in development. As well as bringing money into the country, the extra business will allow Veseys to grow the company and as a result will create more jobs. (Rodriguez 2009)

**Recommendation:** If Nepal and Canada were the only two countries in the world, sweet potato seedlings would be an exceptional export. The sweet potato plant produces 2-3 pounds of potatoes which can be sold for 2\$ a pound. In the largest shipment amount each plant only cost 45 cents. At this rate, each plant will produce a profit of 5.55\$. However because of the cost shipping, no Canadian product can compare. From Canada, the price to ship by air the base price is 461\$ plus 61\$ for every additional box, from China or India, two large sweet potato producers, the shipping price varies from 130-145\$ reducing the price by 377\$. (Freight shipping N.d) All though sweet potato seedlings are an excellent niche market for Canada to exploit, it is just not possible to compete with any country with in a closer distance. In order to compete Canadian companies would have to reduce the price to a fraction of the cost, to the point where

profitability would be impossible or make a partner ship with a closer developing country where labour costs are minimal and shipping is from a much smaller distance.

**Future references for complete study:** For future reference, in order to fully evaluate the viability of sweet potatoes as an export to Nepal, statistics from a valid source would have to be available about sweet potato production in Nepal to know whether or not the market for an export is even viable.

## References:

., B. A., ., E. A., ., P. O., & ., I. U. (2006). Nutritive and Anti-Nutritive Evaluation of Sweet Potatoes (*Ipomoea batatas*) Leaves. *Pakistan Journal of Nutrition*, 5(2), 166-168. doi:10.3923/pjn.2006.166.168

Canadian business grants. (n.d.). Retrieved October 18, 2016, from <http://www.canadagovernmentgrants.org/>

Cubero, J. I. (1984). Taxonomy, Distribution and Evolution of the Lentil and its Wild Relatives. *Genetic Resources and Their Exploitation — Chickpeas, Faba Beans and Lentils*, 187-203. doi:10.1007/978-94-009-6131-9\_16

Diretto, G., Al-Babili, S., Tavazza, R., Papacchioli, V., Beyer, P., & Giuliano, G. (2007). Metabolic Engineering of Potato Carotenoid Content through Tuber-Specific Overexpression of a Bacterial Mini-Pathway. *PLoS ONE*, 2(4). doi:10.1371/journal.pone.0000350

Environmental monitoring; researchers at asia university have reported new data on environmental monitoring (exploring the benefits of growing bioenergy crops to activate lead-contaminated agricultural land: A case study on sweet potatoes). (2015). *Food Weekly Focus*, , 726. Retrieved from <http://sfx.scholarsportal.info/guelph/docview/1671035645?accountid=11233>

FedEx. (n.d.). Retrieved November 29, 2016, from <http://www.fedex.com/>

Freight Shipping & Cargo Shipping by Country. (n.d.). Retrieved November 29, 2016, from <http://www.a1freightforwarding.com/>

Gyamiani, G., Parikh, C., & Kulkarni, A. G. (2000). Benefits of magnesium in acute myocardial infarction: Timing is crucial. *American Heart Journal*, 139(4), 703. doi:10.1016/s0002-8703(00)90051-6

Kaufman, J. (2012). *The personal MBA: Master the art of business*. New York, NY: Portfolio/Penguin.

Lightweight 32 ECT Boxes. (n.d.). Retrieved November 29, 2016, from [https://www.uline.ca/BL\\_440/Lightweight-32-ECT-Boxes](https://www.uline.ca/BL_440/Lightweight-32-ECT-Boxes)

Pimentel, D., Wilson, C., McCullum, C., Huang, R., Dwen, P., Flack, J., . . . Cliff, B. (1997). Economic and Environmental Benefits of Biodiversity. *BioScience*, 47(11), 747-757. doi:10.2307/1313097

Prentice, R. L., Pettinger, M. B., Jackson, R. D., Wactawski-Wende, J., Lacroix, A. Z., Anderson, G. L., . . . Rossouw, J. E. (2012). Health risks and benefits from calcium and vitamin D supplementation: Women's Health Initiative clinical trial and cohort study. *Osteoporosis International*, 24(2), 567-580. doi:10.1007/s00198-012-2224-2

Rodriguez, C. M. (2009). Learning From Exporting: New Insights, New Perspectives. Robert Salomon. Learning From Exporting: New Insights, New Perspectives. Hardback: Edward Elgar Publishing, Inc., Northampton, MA 2006. 148 pp, ISBN: 978 1-84542-581-4. *International Marketing Review*, 26(1), 110-113. doi:10.1108/02651330910933221

Sommer, A. (2001). Vitamin A Deficiency. *Encyclopedia of Life Sciences*. doi:10.1038/npg.els.0002106

Step-by-Step Guide to Exporting Commercial Goods from Canada. (2016). Retrieved November 29, 2016, from <http://www.cbsa-asfc.gc.ca/export/guide-eng.html>

Veseys. (n.d.). Retrieved October 18, 2016, from <http://veseys.com/ca/en/store/vegetables/potatoes/sweetpotatoes/covingtonsweet>

Vitamin A. (n.d.). Retrieved October 18, 2016, from <http://www.merckmanuals.com/professional/nutritional-disorders/vitamin-deficiency,-dependency,-and-toxicity/vitamin-a>

Woolfe, J. A. (1992). *Sweet potato: An untapped food resource*. Cambridge: Cambridge University Press.

Www.business1.com, B. B. (n.d.). Seed Importers in Nepal. Retrieved October 18, 2016, from <http://www.seeds1.com/seed-importers/nepal.html>

@. (n.d.). Water rates - City of Guelph. Retrieved November 29, 2016, from <http://guelph.ca/living/environment/water/water-rates/>