

Fruit Tree Grafting  
Nepal Trade Idea

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## Product Information And Export Production

### Section I

- **Product Description**

Tree grafting is a fairly simple procedure that can transform fruit trees that aren't producing fruit, into trees that provide an abundance of varieties. The process of grafting a tree involves cutting a small slit on a branch that has been cut previously, and inserting a small branch from the same type of fruit tree in the slit (Crasweller, 2005). If the tree accepts the branch successfully, the branch will grow into a fruit-bearing portion of the tree. This procedure is relatively quick to set up and requires only a few tools and materials that are reasonably cheap (Crasweller, 2005). The branch can have multiple grafts on it and they may bear different fruits as long as they are from the same family of tree. For example, on an orange tree, limes, lemons and other oranges can be grafted onto it since they are all in the citrus family.

- **Where to Graft Trees**

Grafts can be done on any fruit tree that is alive in any environment. It should also be noted that the tree being grafted does not have to be bearing fruit at the time it is being grafted. The grafts can be put on a tree that no longer produces fruit and the branch that is grafted onto the tree will still bear its own fruit from that branch. The specific tools can be found in stores in Canada and online. The majority of the tools can be bought in countries close to Nepal such as China. Alternative tools that are only produced in Canada can be purchased and shipped to Nepal. It will be easiest if the trees that are being grafted are on more planar lands. This would be the southern and middle parts of Nepal, avoiding the northern section that has hills and mountains (Raizada, M 2014). Grafting trees in the mountainous regions of Nepal would be more difficult for workers because they would have to climb to high altitudes on foot.

- **Machinery and Cost**

The tools required for tree grafting are a knife, tape and grafting wax. String can also help the plant bind but is not necessary for success. Grafting knives can be purchased at \$0.20 - \$0.50 CAN each when buying a minimum of 1000 knives (alibaba 2014). This would be a total cost of \$500.00CAN for 1000. Grafting tape is available at \$0.15CAN per roll when buying minimum of 2000 rolls (alibaba 2014). The total cost of the tape is \$300.00CAN for 200 rolls. String costs \$2.00CAN per kg when ordering a minimum of 1000kg (alibaba 2014). The total cost of 1000kg of string is \$2000.00CAN. Grafting

wax is only available to buy in Canada or the United States and is \$7.49USD for a half lb. (Agriculture Solutions 2014). A starter package for each farmer including one of each item would only cost them \$10.15CAN plus the cost of the Canadian trainer which would be a one time fee.

- **Labor Required and Cost**

In 2008, there were 11.34 farm workers in Nepal (NationMaster 2008).

If farmers began training workers to graft trees then workers would have more work duties in a day. In tree grafting, minimal labor is required. This means that a farmer, if needed may employ workers to graft trees. These workers could be paid minimum wage, keeping the costs low for the farmers. Minimum wage in Nepal is 4600 rupees a month (Minimum Wage 2014).

The procedure does not take long to do so the workers (if hired) would not be required to stay for a lot longer, thus keeping the costs down for farmers. The employee requires minimal training, this may be taught by the farmer. There does not have to be safety training provided. “The general labour laws of a number of countries exclude agricultural workers completely or partially”(International Labour Conference 2000). Nepal is included in this list. Since this work involves the usage of knives it would be recommended that the workers receive some form of safety training. If the farm workers already have been working with knives and have already received safety training, further training may not be necessary.

- **Inputs**

The input cost for tree grafting is relatively low. There should be existing trees to be grafted; using these trees would be must faster and efficient than planting new ones to graft. Tools required have to be purchased, but only cost approximately \$10CAN for one of each tool. Human labor costs are another input by the farmer, this is, if they choose to hire. Another input would be safety-training costs if needed. Finally, hiring Canadians for the one time fee to train them is one last input.

- **Health and Nutritional Information**

The health benefits of grafting would be an increase in the volume of fruits produced. Unfortunately, tree grafting does not improve the quality of the fruits grown. Natural selection can be used when picking out the branches to use. If the farmer chooses branches from the trees that bare better fruits, then when the branch is grafted, the fruits will yield better quality. This way the Nepalese will be selecting for better genetics. The better the fruits they produce are, the more they will sell.

- **Patent/intellectual property constraints**

There are no clear constraints on the property if a farmer in Nepal wants to graft his trees. They are not cutting down any trees nor planting new ones, but simply adding branches to existing trees. It does not have a negative affect on neighboring properties. There are no harms to the environment when grafting trees. The farmers also do not need access to any breeders' varieties to do this.
- **Market Opportunity**

An increase in fruit production in Nepal will help the economy. Increasing the volume of fruits would result in an increase in sales. When they have enough products to feed themselves and then sell, they can lower the cost to consumers. There could also be more processed foods being made from the excess fruit. This includes desserts and dried fruits. Any processing companies wanting to buy fruits from them will most likely want them in bulk. If the Nepalese farmers can keep up to the demand, then they will prosper and build a relationship with larger companies. Grafting trees would positively impact fruit production for farmers in Nepal. Since this trade idea originated from Canada, some farmers will appreciate this and want to build a relationship for fruit trade with Canada also.
- **Benefits to Canada**

Grafting fruit trees in Nepal could have benefits for the Canadian economy. Canada could choose to buy fruit from Nepal. Buying fruit from Nepal could have a reduced cost benefit since Canadians assisted the Nepalese to increase their fruit production. Canadian candidates would have to travel to Nepal to train and educate the farmers in grafting. Since grafting is a new concept for the Nepalese farmers, they would need to be educated on how grafting is done. The Canadian candidates will have to make starter packages for grafting and host the conference for farmers. The starter packages would include 1 of each of the required tools. This would be enough for the farmers to make more than 20 grafts. The only product that needs to be purchased from Canada is the grafting wax. All other tools required to graft trees are available in neighboring countries.
- **Environmental Sustainability in Growing and Manufacturing in Canada**

If the farmers choose to continue grafting trees once they have started, they can always grow more trees and graft them too. When they expand the number of trees they can also hire more workers to do this. At first, the

farmers themselves may initiate the grafting concept and then, if successful, they could begin hiring more workers as production increases. With an increase in the quantity of fruit produced, they would have larger profits than ever before. The farmers will eventually buy and expand more land and have trees and other crops on that land. Realistically, it would be more economic to purchase tools and materials for grafting from within Nepal or countries close to Nepal. These tools would cost less than ones imported from Canada. Regardless of where the tools are purchased, Canadians are still needed for this trade to Nepal.

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## Export Potential In Nepal

### Section II

- **Transportation Logistics**

There are minimal costs for transportation, if something does not exist in Nepal (for example the grafting wax) and needs to be shipped from Canada, it is small and not very heavy. Most tools needed are available in countries close to Nepal and for a low cost. The shipping from China, where the tools are being purchased from, to Nepal is \$2.00 US (Alibaba 2014). Since the items are produced mostly in Asia, it is fairly close to Nepal and the shipping costs are not high. Most of the tools are purchased from Alibaba online. The shipping will always be around the same price from other Asian countries to Nepal when purchased from Alibaba.

- **Storage Issues from Post Harvest to Market**

More fruits are available to be sold in market and if they are not they need to be stored for future use. If there is too much to be stored the fruits can be sold in bulk to restaurants or other places that process foods. The fruits can be processed and sold as desserts. Selling the fruits in bulk will create good relationships with other Nepal businesses, thus helping the economy. Selling in bulk is also easier and a good way to make money efficiently. Another alternative is to dry and store the fruit then sell it dried anytime of year.

- **Cost Analysis to Achieve Profitability**

Since the cost of all the tools is so cheap for the Nepalese farmers, the only large input is going to be employees. This is, if they chose to hire them. This means that it will take about a year for the Nepalese to start seeing profitability. The reason it will take a year is because the grafts need time to grow and develop. Once the first year has passed, the profits will be steadier. The trees will be bearing fruits in different seasons and the income will be more regular. Also in the first year, the farmers will have to pay off the initial inputs. They had to pay the Canadian trainer the one time fee, and the starter package that is \$10.15CAN. Fruit tree grafting is very realistic as a beneficial trade to Nepal. They have a suitable climate for growing any kind of crop and grafting is a cheap and effective way to use trees that no longer bare fruit.

- **Needs and Benefits to Nepal**

Nepal is lacking trees in their country since there was deforestation due to tourism needs. Being able to graft existing trees, even those that no longer bare fruit will increase the value of trees in Nepal. Creating this good reputation for trees will help the environment for Nepal and also assist

farmers in fruit production. If enough farmers decide to start grafting their fruit trees the economy will benefit significantly. Nepal had almost 40% of their GDP due to agriculture in 2012 (NationMaster 2012). Even if only a few farmers choose to do this, they will still benefit and be able to sell many more fruits than before. Tree grafting is also going to help raise awareness of the importance of agriculture in the country.

- **Environmental Benefits**

Tree grafting will help save a lot of trees in Nepal. Nepal is already lacking in trees since it has been deforested greatly. The deforestation rate in Nepal is currently 1.7%, which is well above the Asian average (1%) and the global average (1.3%) (MFSC 2008). Fruit tree grafting can be done on any tree, even if it no longer produces fruit. This will help sustain existing trees. Tree grafting will make the trees more valuable. Instead of cutting down trees those are thought of as “impractical” they can be grafted and have many branches with fruits on them.

- **Canadian Companies and Potential Nepalese Buyers**

Agriculture Solutions is a United States based company. They have many grafting and other planting products for sale. They can supply the grafting wax to Canadian employees so that they could put together the starter packages for grafting. Potential buyers in Nepal are any farmers that have fruit trees on their property. If they are interested in the trade idea, they can be provided with a tree grafting starter package and a Canadian trainer.

- **Sales Strategy to Sell in Nepal**

Candidates from Canada will go to Nepal and present the idea of tree grafting to the farmers in a public conference. They will present videos of tree grafting that will clearly exemplify the ease of this procedure. They will present actual grafted trees to demonstrate the successful results of fruit tree grafting. This will attract the attention of the farmers of Nepal and they will want to start grafting themselves. In order to make the start up process easy for the farmers, Canadians will put together a starter package for tree grafting. They will buy the tools required in bulk and sell the starter packs for \$10.15CAN. The candidates will offer training to the Nepalese for a reasonable cost; this is also only a one-time fee and a good investment for the farmers. The farmers will have learned how to graft trees and have done it by themselves with their own tools. they will then graft all of the trees that they would benefit from. Their profit will have increased after about a year of grafting the trees and they will need more supplies. They will start to buy the



tools needed in bulk on their own from their geographically closer countries. At this point, they will no longer need Canada's assistance and they will be producing and selling much more fruit than before.

- **Import and Export Documentation and Permits**

The items that need to be shipped to Nepal are not restricted in any way, although there may be customs or duty taxes. The documents required upon import is a Passport, Original Bill of Lading (OBL) or Air Waybill (AWB), Packing list, Investment License, Business License, Letter of Employment (International Association of Movers 2013). The documentation required from Canada for exporting is an export declaration, proof of report. Non-restricted goods must be included in the report if the goods are valued at \$2000CAN or more and the final destination (Exporting Goods from Canada 2014).

- **Trade and Subsidy Barriers**

"The Nepal Standards (Certification Mark) Act 1980 and Standard Weights and Measures Act 1968 establish standards, regulations, certifications and licenses for all kinds of goods, processing and services in Nepal. Article 5 of the Nepal Standards (Certification Mark) Act sets out the powers of the Nepal Bureau of Standards and Metrology. "(The Impact Of Agriculture-Related WTO Agreements On The Domestic Legal Framework In The Kingdom Of Nepal 2006). The trade barriers are minimal since the product that is being traded with Nepal is not a single item that gets imported and exported; it is a skill that must be learned.

- **Canadian Government and International Grant Programs to Start**

The IFAD is currently running a leasehold forestry and livestock programme. "The overall goal of the programme is to reduce poverty by allocating leasehold forestry plots to poor families, thus enabling them to increase their income from forest products and livestock"(IFAD 2014). This works to improve household forage and tree crop production. The total grant for this project is \$14.7 million USD. Tree grafting would cohere with this programme smoothly. It will help improve the fruits on the trees in Nepal and help fund what some farmers cannot afford.

- **Regional and Global Competition**

As fruit tree grafting is not actually a simple product that is bought and sold, there is not much competition globally. Tree grafting is a technique and the products that are required are available almost everywhere. The farmers that

will be grafting their trees will be selling their fruit from grafting locally. This demonstrates that there is no real global competition, but there is regional competition. If neighbors in Nepal are growing and selling the same fruits, then they will be in competition with each other. The farmers' skills for natural selection will come into play here; thus the farmer with the best-bred plant will sell the most fruit.

In conclusion, tree grafting as a trade idea for Nepal would be beneficial for their economy. It would be positively economic because their fruit production would increase greatly. They would have enough fruit for themselves and more to sell at their markets. Tree grafting is virtually inexpensive, easily generated and very successful. This trade idea would also save the existing trees and facilitate further tree growth in a country that has undergone much deforestation. The farmers of Nepal would receive education on fruit production and extensive agriculture. They would be trained on how to implement tree grafting. An increase in fruit production is a boost for Nepal's economy. It would potentially employ more farm workers also. It benefits Canada as a prospective fruit trade partner. It can employ Canadians temporarily. This idea has huge potential in Nepal and the concept could expand throughout the country once it has been started. They can also develop tree grafting into other plants being grafted. Plant grafting has been successful in Canada and the United States thus giving it potential to be successful in Nepal. The idea is not globally competitive and there are little restrictions and complications involved. Grafting improves the environment and value of existing trees in Nepal.

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