

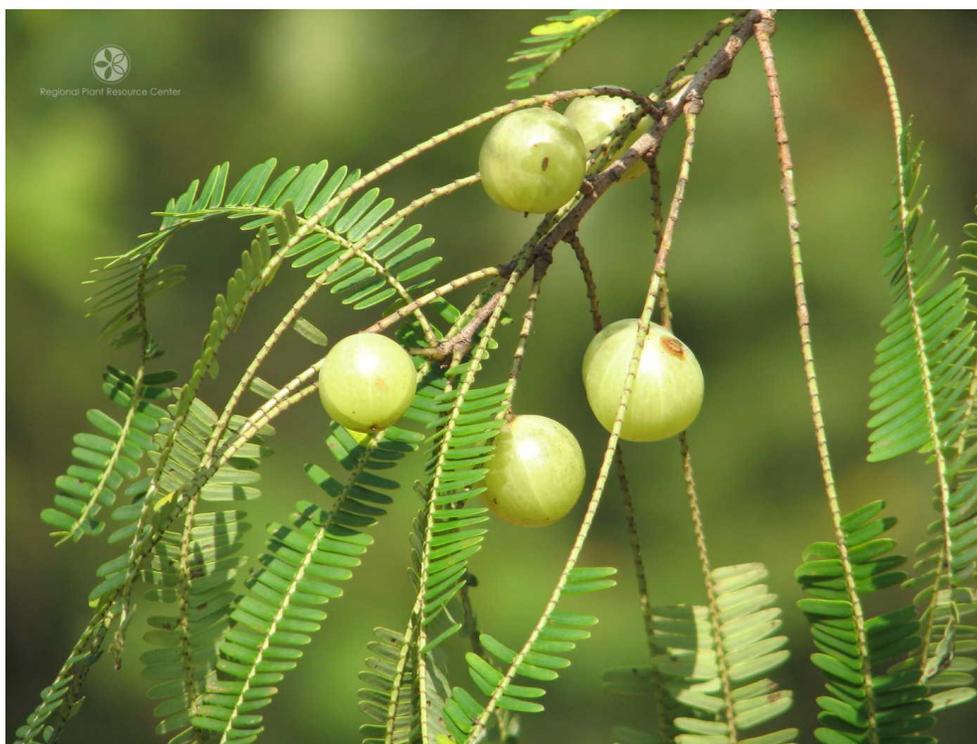
Potential Nepalese Agrifood Export

Product Analysis:

Nepalese gooseberry

(*Phyllanthus emblica*)

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(Photo taken from Milena Zurawska)

Product Name: *Phyllanthus emblica* (*Emblica officinalis*), locally Amala

Introduction

Phyllanthus emblica, or *Nepalese gooseberry*, is a crop that has strong export potential and beneficial nutritional properties and healing benefits for a variety of health conditions. It is a hardy plant that can grow in diverse environments and is a highly valued plant in both Nepal and in regions that are already importing its products.

Product Description: Berries from the deciduous tree (locally known as amala) ground into a powder or turned into an oil extract. Fruits have a sour, astringent flavor, but have many health benefits (Morton, 1958).

Health/Nutritional Info

- Antiviral/Antimicrobial properties (Saeed and Tariq, 2007)
- Ability to induce apoptosis/modify gene expression in osteoclasts involved in rheumatoid arthritis and osteoporosis (Penolazzi et al. 2008)
- Cancer fighting/prevention abilities (Ngamkitidechakul, et al. 2010)
- Lowering of cholesterol and blood glucose levels (Qureshi et al. 2009)
- Improved liver function (Qureshi et al. 2009)
- High amino acid (lysine, proline, alanine, glutamic/aspartic acid) and nutritional content (Arnold and Barthakur, 1991)

History/Geography of Product

This tree is considered sacred by the Hindu people, and the fruits are believed to lead to longevity (Morton, 1958). The tree has been used in traditional Ayurvedic medicines to provide relief for many different ailments (Morton, 1958). This tree can be found throughout the hillside regions, with a known abundance in the Bajhang region in western Nepal (Gurung, 2008).

Growing Conditions of Product

- Tropical or subtropical regions (up to an elevation of 1500 m) (Gurung, 2008)
- Can grow in humid/wet conditions, but also in arid conditions (Morton, 1958)
- Sensitive to frost, but drought/wind tolerant (Morton, 1958)
- Tolerant of a variety of soils
 - Tree will grow in anything from sandy loam to clay (light or heavy)
 - Soils can be slightly acidic to slightly alkaline– bark from tree is known to reduce acidity in surrounding soils (Morton, 1958)
- Needs plenty of light (Gurung, 2008)

Cultivation

Shoots should be pruned and thinned out throughout its life to increase the size of the berries (Morton, 1958). This tree can be propagated from cuttings or seeds. Pests and diseases prone to attack this tree are leaf rust, chewing pests and birds who may steal the berries (Morton, 1958).

Environmental Sustainability

Overharvesting

Overharvesting is a potential problem on lands where gathering of berries is not regulated (Heinen and Shrestha, 2011). Regulations exist in national parks where gathering the berries need to apply for harvesting permits (Heinen and Shrestha, 2011).

Potential for Land Degradation

Wild trees should not be moved from their original location as removal could trigger erosion and nutrient loss to soils on mountain slopes; removal of trees could also change soil acidity as the bark of this tree can reduce acidity in the soils, this is a potential issue with the export of this product (Heinen and Shrestha, 2011).

Labor Required and Cost Issues

Labor required to harvest this product is minimal, especially if a tree farm is established. This tree is resilient, and it would not be difficult to find a suitable place to plant. Since trees are propagated from cuttings, it would not be costly to plant this tree, but seedlings do need attention to ensure survival (Morton, 1958). Tests should also be done to ensure optimal soil pH.

Impacts on Biodiversity

Since this tree has so many benefits and contributes to balancing soils through fallen leaves and bark, it would not detract from, and may even be beneficial to other plant species.

Impacts on Women and Children

This would have a positive impact on women and children; children can gather fruits and assist in drying them. Women would also have success growing these trees, and would not suffer the same problems as with growing a smaller crop where the grower is constantly on her knees or bent over. This can be used a source of income for families, in selling or processing the fruits. Collectives of women/farmers could be formed who will compile their seeds and process them themselves (or arrange processing), adding value to the product before it is exported. Technical problems may occur at this stage during transportation of fruits to centers where they can be processed or exported from mountain regions and funding may be needed for this initially. Another problem with this is that it may turn out to be costly to convert the berries to powder or oil while still inside Nepal.

Inputs Required

Minimal amounts of fertilizer may be needed as crops are fairly resilient to different types of soil (Gurung, 2008). Green manure could be used as mountain people generally have cattle and other grazing animals (Morton, 1958).

Economic Benefits to Nepal (specifically hillside farmers)

- Source of income that does not require excessive labor or inputs
- Can be used to buy other food products or send children to school
- Create jobs at various stages in the harvesting/production process (harvesting, transportation, processing, exporting) and improve people's living situation

Practical Business Information

In the beginning, a region should be established where a piece of land can be used to start a tree farm. In these early stages, mature trees should be brought in from other areas, and seedlings should be planted. Tools will be needed to cultivate an area to grow the trees, pH tests should be done and locals should be educated on ways to minimize damage to land (i.e. no tilling, soil loss prevention and nutrient depletion protection). The business will also need to establish a method for transporting the fruits to a processing area, or to the person who will be exporting the product. The fruit is known to be firm, long-lasting, and can withstand long trips to processing/distribution centers (Morton, 1958). A collective of local farmers could be created to create unity amongst growers, with profits being evenly distributed amongst growers. A cooperative would allow resources like land and labor to be pooled and shared so that everyone benefits economically.

Export Potential

Many Canadians are searching for healthier, more natural products, especially health/beauty products that are not harmful. Oils can be added to homemade shampoo mixtures (or sold to natural hair care producers) and used a similar way as olive oil or lavender extracts (Morton, 1958). Another use for this product is in nutritional supplements/vitamins (Morton, 1958). Health conscious people are looking for the most effective ways to increase their intake of amino acids and other important nutrients. If the crops are turned into oils or supplements while still in Nepal, this will add value and benefit more Nepalese than if the product were exported raw.

The Government of Canada website lists requirements for foreign imports and can be referenced when imported (Canadian Border Services Agency, 2014). If the importer is a small business, minimal documentation required. If it is a larger company the importer needs to be licensed with the Canadian Food Inspection Agency (Canadian Border Services Agency, 2014).

Once this project gets off the ground, it will be sustainable without aid, but in early stages grants could be obtained through either the International Finance Corporation (IFC, 2014) or Canada/s

Fund for Local Initiatives (Government of Canada, 2014), both of which issue loans/grants to projects in developing countries.

Information Still Needed

- Assessment of impacts on conservation and sustainability
- Market related information that will reach mountain communities (to increase control over the prices charged and distribution)
- Cost-benefit analyses (oil extract vs. nutritional supplements)

Conclusion

This plant has potential to be economically profitable and is a viable business opportunity for hillside farmers. With proper funding/support for farmers in the initial start up phase businesses could bring income to these regions where there are limited resources for generating income.

Potential Canadian Buyers

- The Stone Store – Guelph, Ontario
Owners: Candice Pergolas and Brenda Aherne
Contact Information: (519) 821-2120
- Bulk Barn Foods Limited –Aurora, Ontario
Contact:
Contact Information: (905) 726-5000
- Purity Life Health Food Products – Acton, Ontario and Vancouver, British Columbia
Contact:
Contact Information: 1- 800-265-2615 (toll-free retailer line)
- Feel Good Natural Health Store – Oshawa and Bowmanville, Ontario (Online and physical store)
Contact:
Contact Information: (905) 571-1100

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