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Nepalese Moringa

Agri*2150

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Product Information

Moringa oleifera is commonly referred to as "The Miracle Tree" due to its extensive practical and nutritional benefits for marginalized peoples. Moringa is believed to have originated in northern India, though it is now found in many regions of the world (Orwa et al, 2009). In ancient days Moringa was used primarily for medicinal purposes such as treating ailments including asthma, malaria and topical wounds (Trees for Life, 2011). While it is still widely used in indigenous medicine, its nutritional properties have been the most recent topic of research.

Moringa is a deciduous tree that can quickly reach ten to twelve metres upon maturation and is able to adapt to many environmental situations. It can be grown in elevations of 100 to 1100 metres and typically thrives in neutral to slightly acidic soil, though it has succeeded in soils with a pH of 8.5 (Orwa et al, 2009). The tree can be planted by seed or cuttings though the roots develop a stronger and further-reaching taproot system through direct seeding (Omotesho et al, 2013). When grown to full maturity the tree provides erosion control, wind protection, and semi-shade establishing it as a useful intercrop (Orwa et al, 2011). The bark, roots, gum, and flowers of Moringa are primarily used in indigenous medicine, while the leaves and fruit contribute the most nutrients (Orwa et al, 2009).

Moringa leaves are great antioxidants due to their high levels of ascorbic acid, flavonoids, and carotenoids (Omotesho et al, 2013). They are also a haven of micro and macronutrients with high levels of vitamin C, calcium, potassium, and vitamin A, often significantly higher than that found in more commonly consumed fruits and vegetables (Trees for Life, 2011). The leaves contain all of the essential amino acids, are rich in

protein and other important nutrients such as iron and phosphorus. Research has also shown that most nutrient content levels increase when the leaves are dried and concentrated into a powder (Trees for Life, 2011).

The Moringa fruit pods are typically twenty to fifty centimetres long and generally hold up to twenty-six seeds (Omotesho et al, 2013). The pods have high counts of thiamine, beta-carotene, riboflavin, and vitamin A and C. The seeds inside are made up of nineteen to forty-seven percent oil, which is often extracted for cooking oil due to its sweet and non-sticking properties (Omotesho et al, 2013). The seeds can also act as a coagulant, clarifying most degrees of water impurity (Orwa et al, 2009).

Moringa also offers enormous benefits when cultivated as a field crop. In one study using only small amounts of fertilizer and no irrigation, one hectare of Moringa produced 100,000 kg of green matter and was able to harvest every seventy-five days (Trees for Life, 2011). In another study with irrigation and larger amounts of fertilizer, one hectare was able to produce approximately 700,000 kg of green matter and was harvested every thirty-five days (Trees for Life, 2011).

Benefits to Nepal

Due to Moringa's many uses, it can provide benefits to Nepal's agriculture industry. Nepal is home to millions of livestock with high crop consumption, straining the resources available for people (Pariyar, 2008). One study found that adding both fresh and dried Moringa leaves to cattle feed significantly increases both milk production and weight gain (Trees for Life, 2011). As well, many of Nepal's central cereal crops are struggling with decreasing rainfall due to climate change (Nepal FAO, 2007). Moringa is

a highly drought tolerant alternative, as it is able to survive with minimal rainfall and does not require irrigation (Nepal FAO, 2007).

The Terai, Siwalik, and Middle Mountain regions are the best-suited regions of Nepal for Moringa cultivation due to their elevation and climate conditions (Pariyar, 2008). Moringa is also a great supplement to provide essential amino acids, micronutrients, and protein to the typically nutrient-lacking rural Nepalese diet. The high nutrient content in the leaves is especially beneficial to pregnant women and infant development (Nepal FAO, 2007).

Economic Benefits

The possibilities of products from Moringa are extensive, though many have not yet had sufficient research. One study shows that juice extracted from Moringa leaves can be a highly efficient natural fertilizer (Trees for Life, 2011), while another suggests that one hectare of Moringa can produce more than 4400 cubic metres of methane annually to be used in biofuel (Omotesho et al, 2013). Seed oil is also highly advantageous for cosmetics as its high protein is appealing to skin and hair care, while its absorption and scent retention properties are beneficial to perfumers (Omotesho et al, 2013).

Powder from Moringa leaves is currently the leading economic possibility as it has been suggested that one hectare of Moringa can produce 50, 616 kg of powder per year, creating huge economic gains for the producer (Omotesho et al, 2013). The cultivation of Moringa and the production of powder is not labour intensive, making it a viable option for women (Trees for life, 2011). Additionally, due to its resilience to climate changes and soil fluctuations it is a highly dependable product (Orwa et al, 2009).

Further research is greatly needed to understand the vast possibilities of Moringa. Though it is clear Moringa is very high in nutrients, one study questions the bioavailability of the nutrients based on their results (Diouf et al, 2011). Additionally, prospects other than nutrient extraction need to be explored such as cosmetics and biofuel as it could be a highly beneficial development, increasing the diversity of the Nepalese economy. There is huge potential in Moringa products that can only be realized through research and development.

Export Potential

There is a great possibility of a trade partnership between Canada and Nepal through Moringa products. Moringa powder provides a unique opportunity, as there is a push for health foods as Canada faces an aging population, high obesity rates and raised public health awareness. Furthermore, people are seeking pro-active and non-pharmaceutical methods to take care of their health (Agri-Canada, 2011). Additional export products are also available through seed oil for cosmetics, leaf extract for fertilizer, and methane for biofuel.

Moringa powder poses little risk to Canadian agriculture and forestry industries, therefore does not require a phytosanitary certificate or additional import permits (CFIA, 2009). Should the producers or buyers desire an organic product additional certification is required. Organic foods were the highest growing trend in the Canadian health and wellness market in 2010 reporting 5.4 percent growth, making it a very appealing option (Agri-Canada, 2011).

The greatest issue facing the exportation of Moringa products is transportation. The majority of farmers that would benefit from Moringa cultivation

live in rural areas where seventy percent of people lack access to all-weather roads (Nepal FAO, 2007). Government or private investment in transportation infrastructure would be highly advantageous allowing for a more reliable method of transporting the product. There is also potential for local and regional co-ops to assist each other and share the costs of transportation.

Potential Canadian Purchasers

Loblaws Canada
Contact:
Phone-1-888-495-5111
E-mail- customerservice@loblaws.ca

Whole Foods Canada
Ontario contact:
Phone- 1-319-799-5600
British Columbia contact:
Phone-1-425-957-6700

Healthy Planet Canada
Contact:
Phone- 1-888-974-4722
Online- http://www.healthyplanetcanada.com/contacts/

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