

An Overview of Moringa Production in Ethiopia

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Abstract: *The Moringaceae or Horseradish tree is the family of trees consists of 13 different species, of which Moringa oleifera is the most widely cultivated. Malnutrition causes a great deal of human suffering and is associated with more than half of all deaths of children worldwide. Thus nutrition plays an important role in the reduction of poverty from one generation to the next. The potential benefits of using the products of the Moringa tree, documented the part of Green Revolution in Africa and efforts being made to overcome the malnutrition problem. This article provides an information and overview of Moringa Production in Ethiopia.*

Keywords: Moringa, Production and Economic Value

1. Introduction

United Nations Former Secretary-General Kofi Annan said that Africa is the only continent where child malnutrition is getting worse rather than better. During 2004, 6th July addressing at Addis Ababa, Annan calls for a green revolution, Halving hunger in Africa by 2015 under global anti-poverty goal reported by Lowell J. Fuglie, Dakar of Senegal

Malnutrition causes a great deal of human suffering and is associated with more than half of all deaths of children worldwide. Thus nutrition plays an important role in the reduction of poverty from one generation to the next. The potential benefits of using the products of the Moringa tree, documented the part of Green Revolution in Africa and efforts being made to overcome the malnutrition problem.



Moringa Leaves

The Moringaceae or Horseradish tree is the family of trees consists of 13 different species, of which Moringa oleifera is the most widely cultivated. Moringa is native to the sub-Himalayan parts of Northern India, Pakistan, Bangladesh and Afghanistan. Moringa oleifera, is a multi-purpose food plant, which originated produced and used in many African countries, South America (Nicaragua and Bolivia), and New Zealand. Almost all parts of the moringa tree are used for food, oil, fiber, and/or medicine. However, it has been cultivated in many parts of the world for millennia and can now be found in almost all tropical countries.

Moringa plant comes under different names such as the drumstick tree. The most frequently used common names in the Pacific are variants of marrungai, malunggai, or kalamunggai. Other common names used in the Pacific are

katdes (Guam), sajina (Fiji), and bèn ailé (French Polynesia). English common names include horseradish and Ben oil tree.

Moringa is a commercial crop; it is cultivated extensively in India and parts of Africa. It would be challenging to find a region in the tropics or subtropics where moringa is not grown as a backyard tree for leaf and pod consumption, medicinally, and for fiber. Moringa is most commonly found in areas with South and Southeast Asian populations. The leaves in particular have a distinctive strong, mustard-like taste.

The demand for the Moringa in Ethiopian recipe is unidentified. Even though, Moringa provides nutritional support. Ethiopian's have the most benefit from the rising importance of Moringa. The demand may be huge in future and it will create promised job opportunity not only for rural or farmers but also can see urban horticulture.

The growing population in Ethiopia has reported 93 Million populations, recorded second highest in African continent next to Nigeria censuses by World Population during 2014. The commercialization of Moringa products in Ethiopia is still very informal and makes it difficult to get reliable information of production volumes and prices. To effectively exploit the existing market potential, the commercialization should become more structured and formalized. Thus, the coordination between producers, wholesalers and retailers should be improved in vertically

An experience of many developing and developed countries like USA, UK, Germany, Australia, Korea, Japan, China, India, Brazil and some of Sub Saharan African Countries like Kenya, South Africa, Kenya, Côte d'Ivoire, and Zimbabwe has the record break producers of horticulture products.

Over the last decade, a growing middle class population in Ethiopia, primarily in semi-urban and rural areas and have brought about changes. Consumer tastes and Lifestyle changes brought about by improved economic conditions have an impact on eating habits. Exotic and imported foods as well as health foods and organic foods are now in high demand by consumers. Next most dynamic changes in Shopping habits are more time spent in the work place and

less time available for food preparation. The horticultural exports of Sub-Saharan Africa now exceed USD, 2 billion, yet this is only 4 per cent of the world's total. Thus, Moringa is a horticulture product with a greater value and high returns for economic development in Ethiopia.

Ethiopia has an ample scope to expand the Moringa production. For, Instance, India is the largest producer with an annual production of 1.1 to 1.3 million tons of tender fruits from an area of 380 km². Among the states, Andhra Pradesh leads in both area and production (156.65 km²) followed by Karnataka (102.8 km²) and Tamil Nadu (74.08 km²). In other states, it occupies an area of 46.13 km². Tamil Nadu is the pioneering state in so much as it has varied genotypes from diversified geographical areas and introductions from Sri Lanka. More generally, moringa grows in the wild or is cultivated in Central America and the Caribbean, norther countries of South America, Africa, Southeast Asia and various countries of Oceania.

During 2005, World Summit on Social Development identified sustainable development goals, such as economic development, social development and environmental protection. Thus, the Moringo has an emerging horticulture product which combines the three pillars of sustainability in Ethiopia.

Sub-Saharan Africa has the world's largest proportion of low wage paid workers. In 2007, before the international financial crisis, 51 percent of employed people lived on less than \$1 a day, measured in terms of purchasing power parity. The 2007 average for developing countries was 20 percent, representing a sharp drop from 1997, when it stood at 31 percent. Progress in Sub-Saharan Africa was much slower: in 1997, 56 percent of employed people lived on less than \$1 a day. These figures suggest that working conditions rather than access to work are behind sustained poverty rates in Sub-Saharan Africa reported by Phillippe De Vreyer of World Bank 2013 in his work on Urban Labor Markets in Sub-Saharan Africa. Thus, moringo will create many jobs in the existing situation.

Even in Ethiopia, rural population income is less than 2 dollars per day reported by OSSREA. Ethiopia is the fast developing countries with a rapidly growing population must give some attention to the importance of horticulture products. Today, a half of the world's population (3.5 Billion) lives in urban areas, according to UN estimation, 2/3 of the population will in cities by 2030. Thus, it may be one of the urban horticulture produce soon.

Many African countries and urban centre's has pull factors (urban way of living and White color jobs) and poor living conditions in rural areas (push factors) impact on migration. Thus, These Moringo can be a part of urban horticulture if we tried. For instance, Moringa is grown in home gardens in Odisha is the one of East Indian State and as living fences in southern India and Thailand, where it is commonly sold in local markets. In the Philippines, it is commonly grown for its leaves which are used as food. Moringa is also actively cultivated by the World Vegetable Center in Taiwan, a center for vegetable research. In Haiti, it is grown as windbreaks and to help reduce soil erosion

During 2003, Becker and Siddhuraju studied on Antioxidant Properties of Various Solvent Extracts of Total Phenolic Constituents from three Different Agro climatic Origins of Drumstick Tree reveled that, Moringa is relatively inexpensive as a source of nutrition packed food and supplement for humans and animals and is rich in health-promoting photochemical, various vitamins and minerals.

Moringa is useful for several purposes for example, vegetable, medicine, ornamental and as a source of oil Other non-common uses included firewood, coagulate, fencing, in construction of traditional huts, making rope and as fodder for livestock.

Moringa is a sun- and heat-loving plant, thus does not tolerate freezing or frost. The moringa tree is grown mainly in semiarid, tropical, and subtropical areas, corresponding in the United States to USDA hardiness zones 9 and 10. It grows best in dry sandy soil and tolerates poor soil, including coastal areas.

Moringa is particularly suitable for dry regions, as it can be grown using rainwater without expensive irrigation techniques. Flowering begins within the first six months after planting. In seasonally cool regions, flowering only occurs once a year between April and June. In more constant seasonal temperatures and with constant rainfall, flowering can happen twice or even all year-round. The fruit is a hanging, three-sided brown capsule of 20–45 cm size which holds dark brown, globular seeds with a diameter around 1 cm. The seeds have three whitish papery wings and are dispersed by wind and water

Moringa leaves have a characteristic distinctive, strong, mustard-like taste; they are a good source of provitamin A, vitamins B and C, minerals (particular iron) and the sulphur containing amino acids methionine and cystine, and are eaten as a supplement to the major staple foods. In the Northern part of Nigeria, the cooked leaves of Moringa are frequently eaten as the principal ingredient of a sauce. These leaves are generally harvested from trees found within household gardens or planted as part of hedges around gardens.

Mozambican Federal Ministry of Economic Co-operation and Development (BMZ) conducted a study on Small entrepreneurship success story on the production and Marketing of Moringa.. A small company was interviewed in Beira, which had started its Moringa business in 2010. The company has three hectares of Moringa plantation in Beira and employs 10 workers. In the rainy season, the production capacity of Moringa leaves is up to 40 kg a month, while it is only around half that volume during the dry season. The Moringa leaves are picked from the tree, washed with running tap water and dried in a small shed, which was constructed for this purpose. The drying period is usually three to four days. However, it may take substantially longer in colder, less sunny periods. Leaf-harvesting is regularly halted due to the low capacity of the drying shed. To process the leaves, the same mill is used, as the one for milling corn. The leaf powder is then dried again before being packed and sealed in bottles and transparent

plastic bags. These are acquired from the local market and are labeled, citing the name of the company. Packages of 100 grams and bottles of 200 grams of Moringa Leaf Powder are sold to retailers in Quelimane and Maputo. The transport of the product is paid for by the buyer. Most buyers from Maputo sell their product in South Africa, where higher revenues can be achieved. The company participated in the Maputo International Trade Fair (FACIM), where the products were also sold.

Global trade statistics are only available in an aggregated form for exotic vegetable oils. Besides Moringa Oil, which constitutes a minor proportion, this product group also includes apricot kernel oil, cupuacu butter, argan oil, baobab, papaya seed oil, shea butter and others. Moreover, these data do not allow distinguishing between fully natural products and chemically refined products. Therefore, this chapter is limited to analyzing the general market trends for exotic vegetable oils, which includes Moringa Oil.

The European Union is the largest market. In 2011, the EU accounted for almost half (49 per cent or USD 666.7 million) of global imports of exotic vegetable oils. The market of the USA accounted for 7 per cent or USD 97.6 million. The remaining share of 44 per cent, or USD 595.9 million, was made up by imports to Asian countries, most importantly Japan, Malaysia and Singapore reported by Mozambican Federal Ministry of Economic Co-operation and Development.

The volume of global imports of exotic vegetable oils was at a high level in 2007 (approximately 700,000 tons) and maintained a quite constant level during 2010 and 2011 (approximately 600,000 tons). The single most important importer was the EU, which imported around half of the volume from Developing Countries (DCs). The value of global imports of exotic vegetable oils increased from around USD 1.05 billion in 2009 to almost USD 1.4 billion in 2011. This shows that exotic vegetable oils are an increasingly attractive high value added commodity reported by BMZ.

The moringa tree, *Moringa oleifera*, has probably been the most popular plant in ECHO's seed bank of underutilized tropical crops. The tree is native to India but has been planted around the world and is naturalized in many locales. Moringa goes by many names. In the Philippines, where the leaves of the moringa are cooked and fed to babies, it is called "mother's best friend" and "malunggay." Other names for it include the benzolive tree (Haiti), horseradish tree (Florida), Nébédáy (Senegal) and drumstick tree (India).

In many warm-climate countries today, health workers are now treating malnutrition in small children and pregnant and nursing women with moringa leaf powder. The results have often been dramatic and very large numbers of moringa trees are being planted.

Experiments at the University of Baroda in India revealed that cooking moringa leaves with oil helps retain beta carotene and enhances the conversion of beta carotene to vitamin A in the body. These studies also showed that, because vitamin A is unstable under acidic conditions, beta

carotene is reduced when moringa leaves are cooked with tomato products.

Pregnant and breast-feeding women, moringa leaves and pods can do much to preserve the mother's health and pass on strength to the fetus or nursing child. One 100 g portion of leaves could provide a woman with over a third of her daily need of calcium and give her important quantities of iron, protein, copper, sulfur and B-vitamins and during pregnancy and breast-feeding, women are most at risk of suffering from nutritional deficiencies the percent of the RDA of various nutrients for a nursing mother eating six rounded tablespoons (about 50 g) of leaf powder daily. It also shows the percent of the RDA for a 1-3 year old child with one rounded tablespoon of powder added to his food, three times daily.

Ethiopia has environment conduciveness and labor potential country. Many products can associate in market for economy. For example, Moringa leaf Powder, Moringa leaf powder in Teabag, Moringa fortified fruit juice/honey, Moringa in capsule/tablets, Moringa fortified confectionaries and Moringa fresh leaf and so on. Moringa seeds are effective against skin-infecting bacteria. The leaf juice has a stabilizing effect on blood pressure. The leaf juice controls glucose levels in diabetic patients. Fresh leaves and leaf powder are recommended for tuberculosis patients because of the availability of vitamin A that boosts the immune system. If leaf juice is used as diuretic, it increases urine flow and cures gonorrhea. Leaf juice mixed with honey treats diarrhea, dysentery and colitis (colon inflammation). Fresh leaves are good for pregnant and lactating mothers; they improve milk production and are prescribed for anemia. Paste made from bark treats boils. Paste from ground bark can be applied to relieve pain caused by snake, scorpion and insect bites. Oil is sometimes applied externally for skin diseases.

Ethiopia has to popularize the Moringa tree for indigenous agro-forestry and a multiple-use species with similar potential to other species. Markets for Moringa leaf exist at both the local and international levels. Thus, Moringa product has ample scope for economic development in Ethiopia.

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