

Moringa: “The Miracle Tree” Mozambique



Moringa oleifera

*“Moringa is one of the world’s most useful plants and nutritious crops.”
(Asian Vegetable Research and Development Center, 2003).*

Moringa may well be unheard of to most of the western world; but it is far from foreign to those residing in Asia, Africa, India and the West Indies. Moringa plantations have been growing successfully in these regions for centuries. The tree was also highly valued in the ancient world; with the Romans, Greeks and Egyptians extracting edible oil from the seeds for the purpose of perfume and lotion. Moringa is now widely cultivated and has become naturalised in many locations in the tropics.

A rapidly-growing and drought-resistant tree, all parts of Moringa are edible and can be used for oil, fibre, medicine or water purification.

Moringa has adopted many names; from the drumstick tree to the horseradish tree, “mother’s best friend” and the ben oil tree. However, researchers, development workers and scientists agree that its phenomenal properties more than justify it being labelled the “miracle tree”.

Three non-governmental organisations – Trees for Life, Church World Service and Educational Concerns for Hunger Organisation – advocate Moringa as “natural nutrition for the tropics”.

This is due to the fact that the tree is being used to combat malnutrition in poverty-stricken countries especially among infants and nursing mothers. More recently, the tree has gained the attention of practitioners seeking alternative therapies in the prevention of cancer.

The nutritional and medicinal benefits are undisputable, and now the oil extracted from Moringa seeds is also being used as a source of second generation biodiesel.

With a higher recovery and quality of oil than other crops, no direct competition with food crops (as it is an edible source of fuel and does not suffer the toxicity issues of other sources such as jatropha), and no direct competition with existing farmland (as it can be grown for both purposes at the same time); this multi-dimensional tree is already being grown for this purpose in a number of countries including West Africa, the Philippines and other parts of Asia. Whilst Moringa is a relatively new player in the alternative fuel market, the global potential is massive. Already, Moringa is projected to be Japan and Korea’s dominant source of biodiesel for automobiles within the next fifty years.



Growing Moringa

“Moringa oleifera is the most widely distributed, well-known and studied species of the family moringaceae.” (Current Protocols in Microbiology, IG.2.1, 2010).

Moringa oleifera is the best known of the thirteen species of the genus moringaceae. This slender evergreen tree grows extremely fast in the tropics and in semi-arid tropical and subtropical areas. Moringa grows also on semi-nutritious land, saline land and even waste land without ample rainfall or additions of fertiliser. The tree can survive blistering heat, desiccating dryness and destitute soils which require only minimal water to survive.

Moringa commonly reaches four metres in height just ten months after the seed is planted and can bear fruits within its first year. Of particular importance to those countries suffering from a lack of food-supply, Moringa is in full leaf at the end of the dry season when other foods are typically scarce. Furthermore, Moringa thrives in those regions where malnutrition is a biggest threat to its population (see map to right).

Map indicating where Moringa can thrive



Cultivating Moringa

- » Can be easily grown from seed or cuttings
- » Seeds have no dormancy period
- » Trees can be seeded directly and grown anytime during the year
- » Prefers neutral to slightly acidic, well drained, sandy or loamy soil
- » Minimal watering required and will flower and produce pods whenever there is sufficient water available
- » Will generally grow without adding very much fertiliser
- » Will tolerate up to 48 degrees in the shade and can survive a light frost
- » Resistant to most pests.

Map indicating presence of global malnutrition



Moringa's Uses

“Moringa is one of the fastest growing biomasses on the planet, when properly nourished...”
(moringafarms.com)

All parts of the Moringa tree are edible and have long been consumed by humans.

Most parts of the plant are used as a medicine which is why it is no surprise that many believe the greatest contribution of Moringa to health is its nutritional value (as evident by its commercial capability).

In the West, one of the best known uses for Moringa is the use of powdered seeds to flocculate contaminants and purify drinking water.

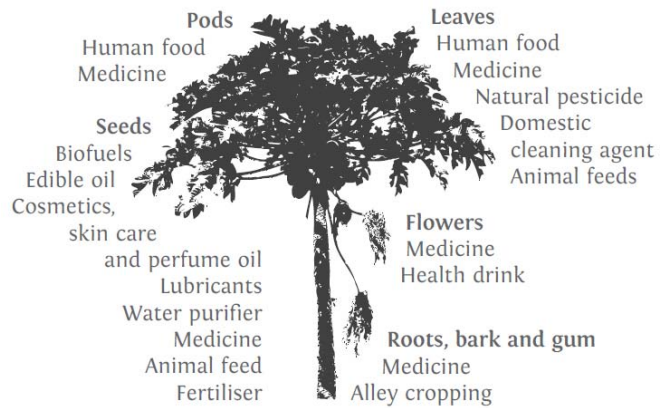
Applied as a simplified, point-of-use, low-risk water treatment, Moringa is helping rural and peri-urban people living in extreme poverty who are presently drinking highly turbid and microbiologically contaminated water.

Furthermore, the Food and Nutrition Unit at the Ministry of Agriculture has identified nutrient-rich Moringa, as a potential solution to vitamin A deficiency in povertystricken Malawi.

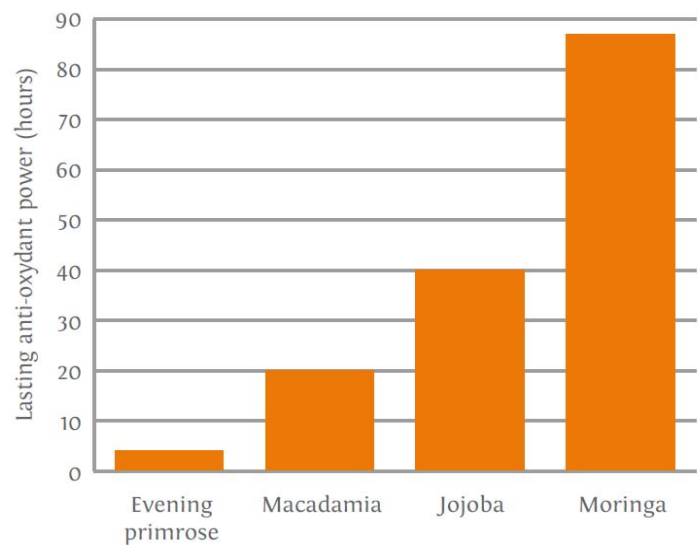
Celebrities see the value of Moringa too: WBO Welterweight Champion, Manny Pacquiao, reportedly eats Moringa as part of his training regime (source: examiner.com) and Madonna planted a Moringa tree in Malawi in October 2009 as part of her Raising Malawi charity organisation (source: New York Post).



Moringa Tree Uses



Anti-oxydant power



Global Demand: Commercial

“Moringa leaves in particular are a rich, inexpensive source of micronutrients.”
(Dr. C. Gopalan, President, Nutrition Foundation of India)



Health: Yelixir Moringa Capsules

Manufacturer and retail giant, Grenera Nutrients, saw the massive health potential of Moringa and created the brand Yelixir to introduce its 100% Moringa leaf powder capsules product to the market. Loaded with vitamins, minerals, antioxidants and phytonutrients; the capsules reportedly aid in the fight against more than 300 diseases. Each 120 capsule bottle retails at approx \$15.

www.moringacapsules.com



Retail: Zija

Zija is the first commercial drink of its kind using Moringa. The product specifically uses Moringa leaf powder, leaf puree, seed cake, fruit powder and fruit juice. In every can, there is 30 grams of Moringa which reportedly improves digestion, vision, mental clarity, and overall well-being. Plus reduction in symptoms associated with fatigue, diabetes, high blood pressure, arthritis, and aging! A case of 30 cans of Zija costs US\$ 105 (plus shipping). www.drinklifein.com



Body Butter/Scrub/Lotion

Beauty store giant, The Body Shop, have released a full product line of body scrub, body butter, body lotion, shower gel and soap using Moringa seed oil. Claiming that the products moisturise and protect the skin, each product retails upward of \$4 each with hampers and gift boxes selling for \$72. www.thebodyshop.co.uk

The global popularity of Moringa is booming. This has opened the health market “door” in more ways than one.

From health to beauty and retail; Moringa seeds, leaves and oil are contributing to the production of numerous products available direct to consumers. The health industry has a global market of US\$6.9billion and leaders in this sector are constantly seeking alternative products to whet the appetite of big business retailers.

It is for this reason that many are confident in the long-term livelihood of Moringa in terms of commercial viability and the biofuel market.



Fresh leaves

Gram for gram, fresh Moringa leaves contain:

4 times the vitamin A of carrots

7 times the vitamin C of oranges

4 times the calcium of milk

3 times the potassium of bananas

3/4 the iron of spinach

2 times the protein of yoghurt



Dried leaves

Gram for gram, dried Moringa leaves contain:

10 times the vitamin A of carrots

1/2 times the vitamin C of oranges

17 times the calcium of milk

15 times the potassium of bananas

25 times the iron of spinach

9 times the protein of yoghurt



Global Demand: Biodiesel

“Biofuels provided 1.8% of the world’s transport fuel in 2008”
(United Nations Environment Programme, 2009)

Biodiesel production

Bioenergy, defined as energy produced from organic matter or biomass, has recently become one of the most dynamic and rapidly changing sectors of the global energy economy. Accelerated growth in the production and use of bioenergy in the past few years is attracting interest from policy makers and investors around the globe.

In simple terms, biofuels are fuels that are derived from biological sources such as cereals and grains, organic waste and oil-seed crops such as sunflower. In as early as 2005, global biodiesel production reached 3.8 million tonnes of which approximately 85% was derived from the European Union (The Futurist, 2007).

Biodiesel is commonly produced from a variety of natural crops including rapeseed, soybean, mustard, flax, sunflower, canola, palm oil, hemp and waste vegetable oils. In the United States, soybean oil alone accounts for 90% of all fuel stocks. Current production however, is not sufficient to replace liquid fossil fuel use. If using only traditional food plants, most nations do not have sufficient arable land to produce biofuel for the nation’s vehicles.

A key concern in poor rural areas is the competition of biomass energy systems with the present use of biomass resources in applications such as animal feed and bedding, fertiliser, and construction materials. These may be of higher priority to rural populations, as alternatives may not exist.

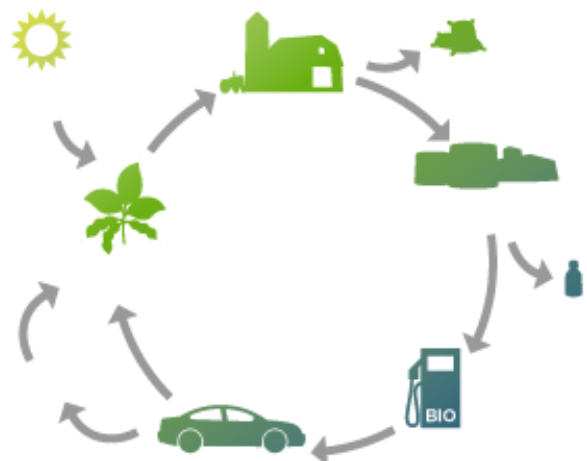


Supply does not meet demand.



Importance of biofuels

- » Energy Security: Biofuels can readily replace petroleum fuels and, in many countries, can provide a domestic rather than imported source of transport fuel
- » Environment: Biofuels are generally more climate-friendly than petroleum fuels, with lower emissions of CO₂ and other greenhouse gasses
- » Fuel quality: Refiners and car manufacturers have become very interested in the benefits of biofuels in order to boost fuel octane
- » More sustainability in transportation: Biofuels are derived from renewable energy.



Global Demand: Biodiesel

“Initial results confirm the drought tolerance of Moringa and especially the quick growth rate. Positive results in terms of yields will lead to real landscape changes and the production of large, continuous and reliable quantities of biodiesel.” (www.agric.wa.gov.au)

Moringa as a biofuel

- » Higher recovery and quality of oil than other crops which allows for lower cost processing while producing the highest grade of Biodiesel and Glycerine by-product
- » No direct competition with food crops as it is an edible source of fuel
- » No direct competition with farm-land as it can be grown for both purposes at the same time and it thrives in land where most agricultural produce would not survive.
- » The oil from the Moringa tree is considered to be a more sustainable biodiesel feedstock than jatropha oil by those who argue that sustainability is better served by feedstocks that can yield both food and fuel (source: Biodiesel Magazine).

Global market price

Whilst a global market price for Moringa oil is in its infancy, Dr Henry G Brockman (Project Manager of the Bio-Fuel Division of the Department of Agriculture in Western Australia) foresees prices equal to that of crude soybean oil (currently US\$871* per MT) for bio-diesel or Crude palm oil (currently US\$798* per MT).

Marawi Plant

“The Department of Agriculture-Biotechnology Program Office in Marawi City has setup a system to develop the Moringa plant’s seed (scientific name: Moringa Oleifera) for use as feedstock in the production of biofuels. In the Philippines the Moringa plant is more commonly known as “Malunggay” or “Malungai”. The Moringa Oil Manufacturing Plant of SECURA in Marawi meanwhile is intending to use the oil harvested from the moringa seeds to produce biodiesel which they are then planning to export to the United States. The plant is expecting to produce 150 million gallons of malunggay seed oil per year. Initial capacity of the feedstock plantation is 30,000 hectares then eventually going up to 100,000 hectares.”



Moringa Oil

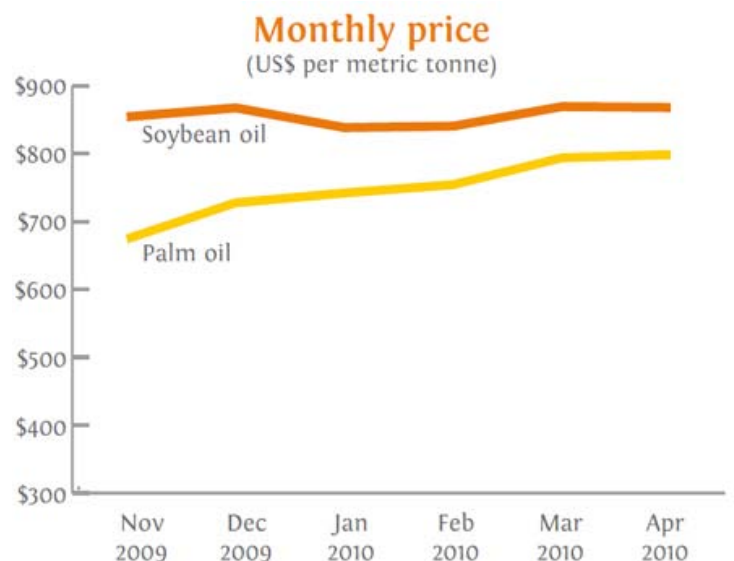
Whilst moringa oil is already being used as a source of second generation biodiesel; it wasn’t considered to be an oil source by many because it has so many food sources.

Experts such as K. Shaine Tyson, a strategic planning, biodiesel technology evaluation and market development consultant for Rocky Mountain Biodiesel Consulting LLC, has conducted extensive research on Moringa and advocate its use as a viable and sustainable biodiesel feedstock.

“Moringa can yield about 3 tonnes of seed per hectare. The seeds contain 30 to 40 percent oil that is high in oleic acid and the meal yields about 61 percent protein.

Moringa has better oxidative stability than biodiesel made with most other feedstocks and the seeds are relatively easy to crush using non solvent-based crushing techniques.

I believe it’s better than sunflower oil.”



(indexmundi.com)

Mozambique

“Mozambique is developing a biofuels industry with the hope of contributing to 15 percent of the national fuel consumption in the next five years” (Biodiesel Magazine, 2009)

Location

Situated on the Indian Ocean coast of Southern Africa, the Republic of Mozambique is an emerging market and is growing rapidly compared to its developed counterparts. Boasting stunning beaches, lush national parks and colonial era architecture, Mozambique is quickly growing to be one of the continent’s top tourist destinations.

Its rich soil, fertile coastline and long-standing position as one of the major mineral suppliers, adds to its potential to be a superpower in alternative investments such as agriculture, fisheries, minerals and bioenergy.

The economy

Once considered one of the world’s poorest countries, since 1987 Mozambique’s government has embarked on a series of macroeconomic reforms designed to stabilise the economy. These steps, combined with donor assistance and political stability following full democratic elections, have led to dramatic improvements in the country’s growth and stability.

Foreign investment

According to the United National Conference on Trade and Development: “The liberal economic reforms pursued by the Government of Mozambique have laid the ground for profitable investment in a number of areas: cash crops, manufacturing, financial services, export processing (cashews, aluminium) and others.”



Biodiesel Market

Mozambique is currently positioning itself as a major biofuels producer. Mozambique’s investment promotion centre started approving biofuel projects in the country in 2007, and so far, foreign companies have invested approximately US\$710 million in producing 440 million litres of ethanol a year, mainly from sugarcane. The government has recently signed a huge US\$10 million investment agreement with the London Stock Exchangelist Central African Mining and Exploration Company to produce biofuel.

Investment

“Investors will enjoy a 14.5% return within 18 months”

The Project

Whilst the commercial sustainability of Moringa Oleifera has proven itself over the past decade, this investment project is the first of its kind for Moringa oleifera. We are the first to offer an investment in the Moringa tree which confidently projects returns of 14.5% for the harvest and sale of the crop.

We work first-hand with Platinum Management Associates Ltd. who are responsible for the plantation, cultivation, harvest and sale of the Moringa seeds. Quite simply, once you invest, your land can be managed for you.

An abundance of labor supply means we are in the unique position where we can ensure you receive returns based only on how your land performs i.e. the number of seeds produced by your hectare/s is weighed, recorded and reported. Your return is based on the number of seeds we are able to sell on the market on your behalf.

Summary

- › Land price: US \$1,750 per hectare
- › Plantation payment: US \$970 per hectare (one-off)
- › Trade payment: US \$530 per hectare (one-off)
- › 14.5% return on investment
- › 50-year lease
- › Initial return within 18 months
- › Annual income payments
- › Global energy company committed to purchasing seeds post-harvest for biodiesel production facility
- › Legal fees subject to number of hectares purchased (one-off)
- › All monies paid sent to an independant and highly respected UK law firm with fidelity insurance for investor security
- › Land managed by experienced leaders in the agricultural and biofuels sector in Africa via Platinum Management Associates Ltd.
- › Ability to transfer land use rights to a third party
- › All parts of the tree remaining after sale of the seeds to be donated to the local villages and workers.

How it works



Platinum Management Associates Ltd.

“We are committed to the miraculous capabilities of this wonder crop: Moringa.”

Platinum Management Associates Ltd. is a highly respected and experienced operator within the African Agriculture and Biofuel sectors. Its key personnel are acknowledged as some of Africa’s leading experts in these areas.

Platinum’s most recent project, Crude Oil in Guinea, attracted in excess of \$7.5 million of equity funding. And in 2008, the project successfully produced biodiesel in Guinea for the first time. Building upon their early success, production capacity has now reached a substantial 43,800 tonnes of Crude Palm Oil per annum which represents a potential gross revenue in excess of \$32 million per annum.

- › **Moringa oleifera**
- › **Elaeis guineensis (palm)**
- › **Jatropha curcas**

The key responsibility of Platinum Management Associates Ltd. for the Moringa: “Miracle Tree” project in Mozambique is to ensure the highest productivity and yield for our investors whilst maintaining the upmost standard of care and respect for the land and its local workers.

Management Company duties:

- › Providing on-site farm management from plantation to harvest
- › Monitoring of the field
- › Soil conservation
- › Storage and transportation of produce
- › Profitable and timely sales
- › Insuring the land and the harvest
- › Employment of local workers
- › Distribution of un-sold produce to local villages.
- › Distribution of all ‘green matter’ to local communities, aid organisations and workers



Elaeis Guineensis Plantation



Field Transport



Doti Mill & Refinery



First Biofuel Station in Africa





Social Responsibility & Ethical Investing

Our commitment to Mozambique

In addition to creating hundreds of jobs, and in line with our responsibilities and commitment to the region of Mozambique, all produce (other than the seeds sold) will be donated to the workers, local villages, aid organisations and charities. This will equate to approximately 600 Metric Tons of 'green matter' per hectare which research indicates will aid dramatically in the fight against severe malnutrition in the region.

According to Trees for Life, a US-based charity, Moringa leaves provide unrivalled nutritional value when compared to other crops. In fact, Moringa produces 350% more Vitamin A than carrots, over 7 times the Vitamin C value of oranges, in excess of 3 times the calcium content of cow's milk, nearly 3 times as much potassium as bananas and more than double the protein of yoghurt!



All products must meet our core values

Ethical

We value both the needs of the investor as well as those of the local communities where our projects are based. With this in mind, an integral factor in our project planning and development is a verifiable local community plan that clearly enhances and advances the standard of living of the local communities. We equally do not believe in destroying natural resources nor using food-growing lands for commercial gains, whatever the profit available in doing so. To this end, we ensure that our projects benefit the environment, providing added value from top to bottom .

Sustainable

We believe in renewability – hence our interest in projects that serve sustainable needs such as food supply, biodiesel production and nutritional supplements rather than sporadic and transitional 'boom' market opportunities.

Diverse

We believe in diversification outside of the standard vein of investment opportunities available. This is clearly illustrated in our interest in Vineyards, Biofuels and Mineral Exploration, as well as affordable housing and forestry for carbon offsetting purposes.

Security

We scour the globe, not only to identify profitable opportunities, but also to find investment security that gives confidence to our clients.

To this end, we ensure that all opportunities are housed and structured under UK Law (offering additional protection) and that all opportunities offer contractually guaranteed returns.