

OPTIMA OF AFRICA LIMITED MORINGA OLEIFERA SEED PRODUCTION IN TANZANIA

Creighton W.

OPTIMA OF AFRICA LIMITED
PO Box 60617, 255 Vikawe Street, Dar Es Salam (Tanzanie)
tel : (255) (0) 22 2700690 email : optimadar@raha.com

Honourable Ministers, Regional and District heads of local government, invited delegates, ladies and gentlemen,

Optima of Africa became a reality for four Swiss and French investors in 1996. These gentlemen, Yann Poirier, Patrick Sellier, Roland Cramer and Jacques Callet formed Optima Environment which is registered in Geneva Switzerland, with the aim of promoting environmentally friendly products and derivatives from the *Moringa oleifera* tree. Optima of Africa are the Tanzania subsidiary of Optima Environment.

Having seen articles in the press on the ability of *Moringa oleifera* to purify water these gentlemen embarked on a 5 year investment plan here in Tanzania to establish *Moringa oleifera* as a genuine cash crop alternative for local farmers with a view to securing a source of raw material – Moringa seeds – for processing into a protein which would be a genuine replacement for Aluminium Sulphate and other toxic chemicals in the field of water treatment. This goes by the name of Phytofloc™.

Other speakers will delve deeper into the abilities of *Moringa oleifera* and its effectiveness in water treatment but I should like to give some background information into how the efforts have begun, progressed and what has been achieved to date.

Initially the company set up its own estate, which some of you may visit during your stay in Tanzania, some 2,000 hectares of which 62 is developed to *Moringa oleifera*. This was done in order to prove to farmers that *Moringa oleifera* would actually grow in Tanzania and also to be used as a demonstration farm, research and for training local farmers and government officials in the growing and managing of *Moringa oleifera* as a crop.

Moringa oleifera does grow “wild “ in Tanzania having most likely been introduced by Indian and Arab traders through a number of centuries. In a number of areas in Tanzania the tree leaves and pods are known for their edible properties and a number of local “bush doctors” use the leaves, leaf powder, bark and roots for herbal treatments. The tree can be found in most regions of Tanzania ranging from the almost desert conditions of Shinyanga and Singida to the cooler and wetter areas such as Arusha and Moshi. It grows best however in what is called the coastal strip which runs from Tanga in the north to Mtwara in the south and about 200km inland.

This strip has ideal conditions seemingly for *Moringa oleifera* – temperatures range from 17C to 40C, with approximately 1,200 mm of rainfall annually in a bimodal pattern. The “short rains” of November/December are usually heavy accompanied by storms and are during a hot period of the year. The “long rains” are from April to July and are prolonged showers during a cooler period in the year. In between we have spells of hot and dry weather (Jan to March) and cool dry weather (August to October).

The soils are mainly red laterite with pockets of black cotton and sandy loams, all of which will grow *Moringa oleifera* provided there is good drainage.

Moringa oleifera is known in the tropics from India to Indonesia and Niger to Nicaragua as a food and vegetable crop with some of the attributes of the oil and cake known and used. However with the exception of

India where *Moringa oleifera* is grown mainly for the vegetable pods using different varieties of *Moringa oleifera* no one is producing the oil or oilcake on a large or commercial scale.

To do this on the expected levels that *Moringa oleifera* would like requires an infrastructure which takes time to set up and work. *Moringa oleifera* grows fast but changing peoples minds and cropping systems takes time. In effect Optima of Africa are creating a new commodity, one which, hopefully, one day will be traded in much the same way as beans, maize, coffee, cashews etc. There are no guidelines to follow and no absolute guarantees of success, other than a commitment by the company to develop its products and to market them in Tanzania and beyond.

Optima of Africa have a number of products, which they will develop from the *Moringa oleifera* tree – these are

1. Edible oil
2. Oils for cosmetics and soap
3. Oilcake for Phytofloc™ production
4. Oilcake as animal feed, fertiliser and solid fuel
5. Moringa Leaf Powder as a food and nutrition supplement

So how to establish the *Moringa Oleifera* tree in Tanzania as a viable alternative cash crop. Government support and encouragement has been essential. The emphasis has been on the agriculture, no trees = no seeds = no oil = no oilcake. Therefore a campaign of promotion and education has been underway in a number of regions in Tanzania. Optima of Africa offer *Moringa oleifera* as an alternative cash crop or as a complement to existing crops which farmers are growing.

Optima of Africa will first approach the Regional Commissioners and introduce the company and the crop.

Thereafter and with the support of Regional Agricultural Officers the company will go into Districts and then on to Divisions and Wards and finally to villages. The Tanzania local government system allows for the trickle down effect of Regional offices to reach each and every person in their area and for the feedback from those people to reach back upwards again to government leaders.

Regional and District Officials are spoken to in seminars, are brought to the Optima estate to see for themselves *Moringa oleifera*, and are trained during a 1 week live in course in how to establish and maintain *Moringa oleifera*. This in order that the first port of call for help on behalf of the farmer will be his local agricultural officer and not a distant company which might for him be difficult to get hold of.

The topics covered are :

- How and when to plant *Moringa oleifera*
- How and when to thin seedlings
- How and when to prune the trees
- How and when to weed and mulch the trees
- How and when to harvest

Training is in every sense a hands on effort and Optima of Africa quite happily use trainees as cheap labour for the estate while trainees get genuine hands on experience.

Literature is available in both Swahili and English and this is made available to all involved in growing *Moringa Oleifera*. In addition posters are put up in villages, Regional and District Agriculture Offices to remind people of how to grow the tree. An instructional video is currently in production, financed by the CDE, and this will be widely available to the above offices.

Optima of Africa representatives will then visit villages with Regional and District officials to introduce the tree to the farmers. This usually takes the form of a meeting with the village committee and a number of farmers, usually around 60. A fairly lively discussion will then take place and if willing a village will begin to grow *Moringa oleifera* with a number of farmers then contracted to the company. Villagers will often ask to visit the estate and a number of farmers from the village will visit and will also be trained. The major concern of farmers is the market – if they put in the effort to grow they need to be reassured that the seeds will be bought. To this end each and every farmer has a contract growing agreement with Optima of Africa that the company will buy the seeds produced.

There are a number of criteria which Optima of Africa are looking for when establishing *Moringa oleifera*. Please bear in mind that Optima of Africa are a commercial company and this has to be a factor when calculating costs of this venture.

The criteria are :

1. The areas where *Moringa oleifera* is to be grown should not be more than 50km from a tarmac road to facilitate transport.
2. There has to be a number of villages close together with at least 50 acres or 20 hectares of Moringa grown per village
3. Regional, District and village officials should be trained at the Optima estate

Each farmer has his own contract with the company and a copy of this is kept also by the company and the village committee.

During the growing period there are regular follow up visits made to the villages to check on number of trees, pruning, weeding and finally to seed purchase. When seeds are ready the company will announce seed collection centres where farmers can bring their seed for sale. Seeds are weighed, checked for quality and cash is paid for the seeds same day.

Other seed purchases are made from farmers who bring their seeds direct to the processing unit in Dar Es Salaam.

Optima of Africa have established some 11,300 hectares (28,000 acres) involving approximately 17,500 farmers in their targeted regions. The aim now is to consolidate this area and not to actively promote the tree but to allow the area to increase through natural means as neighbouring farms and farmers see that there is a commercial return from growing *Moringa oleifera*. A number of the larger commercial farmers have been adopting a wait and see policy before developing larger areas of Moringa. With Optima of Africa being the sole purchaser and processor of Moringa there have been concerns as to price paid to farmer and how long Optima of Africa would survive in the business.

These concerns are diminishing as farmers see a cash return for their seed and company products increasingly sold through out Tanzania, thereby proving a market.

On the agricultural side Optima of Africa are confident now that the plant spacing, pruning techniques, harvest forecasts, costing etc are correct depending on how a farmer manages his crop. Separate costing and yield information is attached but it is fair to say that the following figures err on the side of caution

1st year 0.2 kg per tree
2nd year 1.2 kg per tree
3rd year 2.0 kg per tree
4th year 3.3 kg per tree

Trees are planted at 2.5 x 2.5 x 6 meter spacing in a double row configuration giving some 800 trees per hectare or 320 trees per acre. Different farmers may want to plant in a single row spacing wider apart at say 4 x 4 or 5 x 5 to allow for mechanical field cleaning. It should be pointed out at this stage that *Moringa oleifera* is currently grown in average of 1 hectare plots and it is Optima of Africa opinion that beyond 5 hectares a "family farm" option needs to import labour and beyond 20 hectares mechanical field cleaning is necessary. In this way Moringa lends itself both to large and small scale farming. With intercropping a small scale farmer can utilise land for his cash crop – *Moringa oleifera* – and his food crop e:g maize. Trials have yielded up to 20 bags of maize per hectare when maize is intercropped with Moringa. Bee keeping is also on trial at the Optima estate as *Moringa oleifera* is said to yield a light, clear, sweet honey.

Fertilisers at present are not suggested as a requirement for farmers other than to spread the pods of the tree around the base to provide fertiliser, and mulch to suppress weeds and retain moisture. As far as possible the aim is to keep the tree manageable for small scale farmers. Organic manures are recommended if available.

It should also be pointed out that while the Moringa tree is seen as drought tolerant it has been the Optima of Africa experience that it is not drought resistant and in fact responds well to water and rainfall. Yields are adversely affected by prolonged exposure to drought conditions.

Moringa oleifera contributes to the re afforestation of an area – Optima of Africa have currently some 12,000,000 trees under contract. Optima of Africa also are aware of the social responsibilities when working in developing countries and villagers are educated as to the health and nutrition benefits of eating the leaves and pods of the tree as a vegetable as well as being shown how to purify water in a village situation using powdered seed.

The aim of Optima of Africa is to establish trees and a network of farmers sufficient to produce oil of some 8,000 tons annually (approx 5% of Tanzania consumption) and oilcake of approxima-tely 28,000 tons for the above uses.

The edible oil is equivalent in every way to Olive oil with similar health benefits and will be produced at a price much less than Olive oil and therefore more affordable for the population of Tanzania.

Cosmetic oils are used in skin care and massage preparations at present and a pure natural soap is also made and marketed under the name Behen.

By processing in country the added value of the finished products will be kept in country. Too many developing countries export raw materials for processing elsewhere and end up having to re import the finished goods. Cashew nuts are a good recent example of this where due to export markets the raw nuts rose to over 1 US\$ per kg in 2000 and fell to less than 0.25 US\$ in 2001.

By processing in country the price to farmers should remain stable.

Optima of Africa as well as working with the national, regional and district governments are also working with a number of Non Governmental Organisations most notably Africare in the Tabora region. This NGO has recognised the benefits of tree planting with a multi purpose and use tree such as *Moringa oleifera* and has incorporated it into their development programme.

For the future Optima of Africa expect to produce as follows

2002 – 1,200 tons seeds =	216 tons oil
2003 – 6,000 tons seeds =	1,080 tons oil
2004 – 12,000 tons seeds =	2,160 tons oil
2005 – 21,000 tons seeds =	3,780 tons oil
2006 – 36,000 tons seeds =	6,480 tons oil

Optima of Africa are currently developing finance partners to invest in the future development of infrastructure, machinery and equipment so as to be able to process the expected seed production of the *Moringa oleifera* tree.

It is an exciting time not only for Optima of Africa but also for the Moringa Oleifera tree as evidenced by the international nature of this seminar. *Moringa oleifera*, the most ancient of trees is hopefully on the way to becoming a modern commodity.

Thank you.