



is often used to treat minor skin problems, especially on children.

Organic fertiliser The waste material after expelling will be partially returned (50% of the weight of the nuts sold to BERL) to the grower to maintain fertility for the trees. This enables the trees to be self sustaining without additional inputs. By processing the material further a valuable organic fertiliser can be made for use on other crops.

Basic Fuel The crude oil can be used in basic diesel engines to run a generator, maize mill or water pump. Alternatively with preheating the crude oil can be used in old model diesel engines. This is done by modifying the fuel filter to take hot water from the cooling system. With refining it can be used as a blend with mineral diesel in motor vehicles.



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Fresh seeds

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What is Jatropha and who is BERL?

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INTRODUCTION

This leaflet provides some background information about the company, Bio Energy Resources Ltd. (BERL) and their business approach. It also provides information on the plant, *Jatropha curcas* and its products.

BIO ENERGY RESOURCES LTD (BERL)

Is a Malawian company promoting the planting of *Jatropha curcas* as feed stock for the production of biodiesel. This production is through contract growing with growers of various sizes from Smallholders in clubs through to Farm Associations and Commercial Growers.

Ultimately the oil and biodiesel will be sold to petrol companies for blending and sale in existing fuel stations. Being a new technology and industry in Malawi, BERL is looking to ensure a complete chain of production and marketing, and to do so in the most responsible way. This will give confidence to potential growers and buyers of the products. BERL plans to remain close to the grower throughout the growing and production process with continued support.



Partially ripe fruits



RESPONSIBLE GROWING

A specific objective of BERL's is that *Jatropha curcas* is grown in a responsible manner. The cultivation models should be based upon good practice:

- No competition with food (i.e. no competition for land and labour)
- Minimise negative impact on natural resources
- Minimise negative impact on biodiversity
- Stimulate local development
- Positive labour conditions
- No use of genetically modified organisms
- Use of internationally accepted standards for carbon credit certification
- Ensuring sufficient CO2 reduction

JATROPHA CURCAS

Jatropha curcas is a tree of the Euphorbiaceae family native to Central America which was carried over most of the sub tropics by Portuguese traders. The common name of *Jatropha curcas* is Physic or purging nut, also a reference to its medicinal history. It grows in most parts of Malawi from Nsanje to Ntchisi, in varying altitudes and climates. In Chichewa it is called "nsatsi manga", in Tumbuka called "mono". The trees are fairly drought tolerant and quickly shed their leaves at the end of the rains in the absence of soil moisture. They respond positively to organic material incorporated in the soil and prefer well drained soil. Heavy clays and waterlogged soil restrict growth. On the basis of data collected from *Jatropha curcas* grown in India, trees produce between 0.5 and 2.0kg nuts / tree in plantations or 0.8 - 1.0kg nuts / per meter of hedge*. Of interest to BERL is the production of the nuts for oil. This can be burnt as fuel without being refined, like paraffin, or refined to produce biodiesel.

* From websites.jatropha.org and jatrophaworld.org and Satish Lele



BIODIESEL

Biodiesel is a fuel made from biological sources, which can be used (blended with conventional petrodiesel) in unmodified diesel-engine vehicles. It is a renewable form of energy. Local production of the biodiesel will increase fuel security in Malawi and reduce dependency on imported fuel.



Trees on L Mfitiziyendelana's plot

OTHER PRODUCTS FROM JATROPHA

With locally based processing there are opportunities for off farm rural employment and the manufacture of basic products for the local market. These include soap, solid fuel, organic fertiliser and crude oil.

Lighting The crude oil is flammable with a wick and may be used straight from expelling. The best form of lamp is one where the flame is on a short wick close to the oil.

Cooking As above the crude oil can be used in a stove for cooking. It works best where the oil is pressurised and pre-heated before burning. This gives a hotter flame. Modified stoves are available in Tanzania.

Soap *Jatropha* oil makes a popular soap due to its cleansing and excellent dermatological properties. It