

# **Bio-diesel production from *Jatropha* in developing countries: life cycle and relevant impact categories.**

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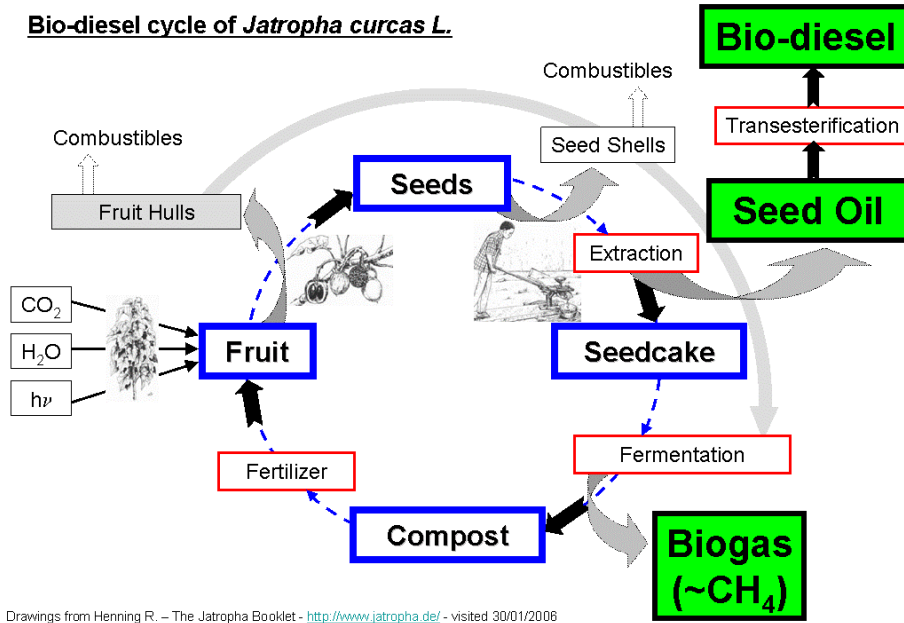
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*Jatropha curcas* L. (JCL) (*Euphorbiaceae*) is an oil bearing shrub/small tree which occurs in arid and semi-arid climates. The plant is traditionally used for medicinal purposes, but is also useful for the prevention and control of soil erosion, as living fence, and also as producer of oil which can be converted to bio-diesel which meets the standards of the USA (ASTM D 6751), Germany (DIN 516006) and the European Standard Organization (EN 14214). JCL is easy to propagate by direct seeding, pre-cultivation of seedlings and direct planting of cuttings. JCL suffers few diseases and pests and grows in a wide range of rainfall regimes, from 200 to 1500 mm per annum. The cultivation cycle needs low inputs and management and is mainly dependant on rainfall and nutrient deficiency. Also the bio-diesel production cycle, with a surplus of possible biogas production, is quite straightforward. The seed production ranges from about 0.4 to over 12 t per ha per year, after 5 years growth. The seeds have an extractable oil content of 31-37%. These properties of JCL attract a lot of project developers. At present many projects start implementing the JCL system in developing countries on large scale although few is known about the energy and greenhouse gas balance, and the environmental, land use (soil, water, vegetation and biodiversity) and socio-economic impact of the system. Therefore we started a VLIR-UOS funded research in collaboration with the World Agroforestry Centre (ICRAF) in Nairobi, which will focus on the life-cycle analysis (LCA) of the crop and the bio-diesel transformation from JCL in developing countries, focusing on the above-mentioned relevant impact categories.

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**Bio-diesel cycle of *Jatropha curcas L.***



Drawings from Henning R. – The Jatropha Booklet - <http://www.jatropha.de/> - visited 30/01/2006