



Jatropha expert meeting

Perspectives of Jatropha production and processing for small-scale producers

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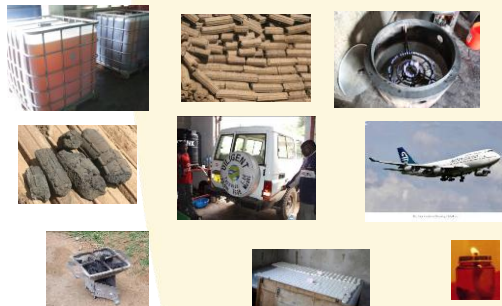
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Outline

- Variety of jatropha choices
- Results of CBA and sensitivity analyses from several studies
- Ongoing research



Range of products and uses



Processing choices

- Centralised or decentralised processing
- Different scales of operation (factory capacity)
- Transport distances to factory (expensive!)
- Quality control (in rural setting difficult to obtain good quality oil)
- Transport distances to market (for domestic production)
- Biodiesel or SVO
- Further processing of byproducts



Business model choices

	Smallholders	Plantation	
Socio-economic areas of concern:			
Economic impact	Positive but relatively low	+ Except when harvest is mechanized ($-3 \text{ M\$ ha}^{-1}$), the NPV is positive but relatively low	+/-
Local prosperity	Large outreach but lower contribution per person, more non-economic impacts.	+ Contribution to employment can be substantial.	+
Labour and working conditions	Difficult to regulate at farmers level, no irregularities	+ Possible to regulate, no irregularities except exit strategy	+
Land ownership and land rights	Low direct effects	+ Large risk of negative impacts, loss of land rights after discontinuation (very negative)	--

(Van Eijck et al. to be published, Biomass & Bioenergy)

Cultivation choices

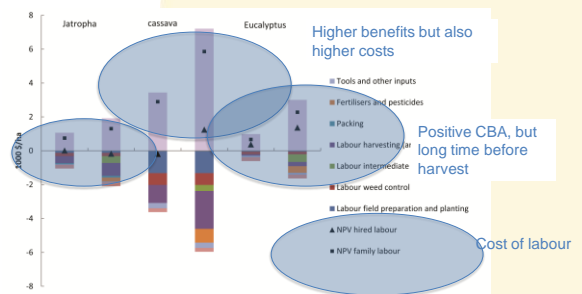
- **Propagation**, direct seeding, seedlings or cuttings
- **Way of planting**, fence, plantation or intercropping
- **Pruning**, can increase yield
- **Weeding**, extremely important in first years
- **Harvesting**, very time consuming, only manually to date



Main factors that influence financial feasibility of jatropha

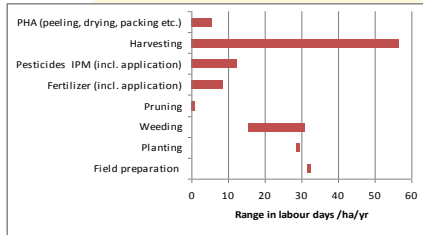
- Yield
- Labour costs
- Opportunity costs
- Input level (low, intermediate or high)
- Cost of production (land lease costs etc.)
- Price received for seeds
- Value of byproducts (if processing is included)
- Costs and benefits of alternatives

Comparison with other crops



(Van Eijck et al. 2012, GCB Bioenergy)

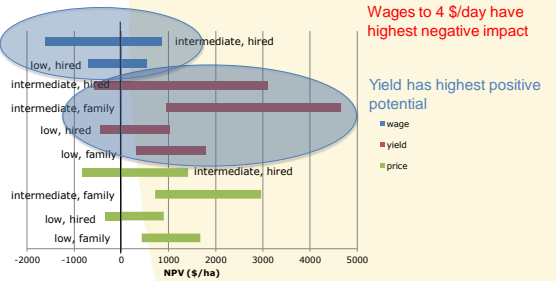
Labour demand for cultivation



Harvesting is the most labour intensive task

(Van Eijck et al. 2012, GCB Bioenergy and Franke et al. 2012)

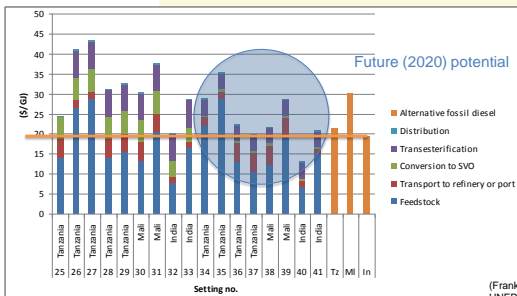
Sensitivity analysis jatropha



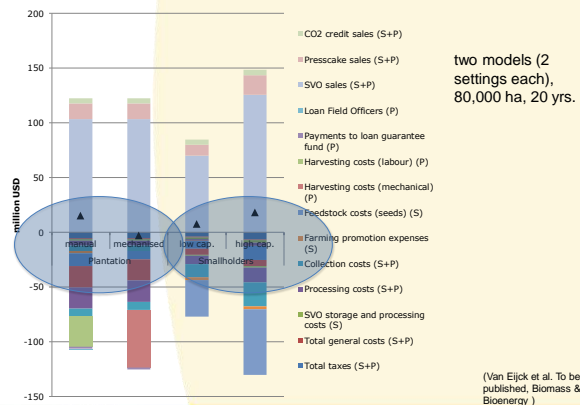
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Price per GJ Jatropha oil

Calculated cost price

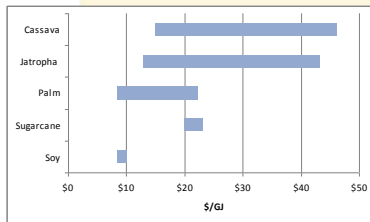


(Franke et al. 2012, UNEP report)



(Van Eijck et al. To be published, Biomass & Bioenergy)

Cost of some alternatives



Improvements

Improvements required in

- Yields
- Value of byproducts
- Only viable if opportunity costs are low (for land, labour and alternative crops)
- Choose businessmodel that fits local circumstances

Ongoing research



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PLANT RESEARCH INTERNATIONAL
WAGENINGEN

TU/e

Technische Universiteit
Eindhoven
University of Technology

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- Dr. Ir. Raymond Jongschaap
- Dr. Ir. Frank de Ruijter
- Dr. Henny Romijn
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Data collection

- Tanzania (finalised) Mainly smallholders
- Mozambique (finalised) Mainly plantation companies
- Mali (delayed) Only smallholders

Questions in format

- General
- Agronomy
- Economic
- Social
- Environmental

Some early results

- Environmental impact: minimal
- Social impact: expectations not met (negative), improved energy access (very positive), increased attention (positive), impact on food security seems minimal
- Economic impact: positive feedback from smallholder if planted as additional crop and stable market (but low value)

End

Questions?

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