



FACT Foundation

FACT promotes the development and use of bio-fuels in developing countries for local communities

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Dear Reader,

The staff of the FACT Foundation sends you season's greetings and best wishes for a sustainable 2008!

This is the sixth newsletter from the FACT Foundation. If you want to share your findings on biofuels for local development with us, please contact us by e-mail: newsletter@fact-fuels.org.

Garalo Illuminated

The first locally produced Jatropha oil has been used in the generator sets in the FACT Mali project. This has resulted in a beautifully illuminated village in the evening. Education can now take place in the evenings.

The system has a capacity of 300 kW and is powered by shipping engines with generators attached. Electricity is distributed by a local grid. About 12 liters of Jatropha oil provided the 10'000 capita village with one hour of electricity. The pressure of injection has been increased from 230 bar to 250 bar resulting in more complete combustion. The expectation is that with an injection pressure of 270 combustion will further improve resulting in less smoke emissions.





European Commission Expert meeting

On the 7th of December the Directorate General Research of the European Commission organized an expert meeting in Brussels with the purpose to exchange knowledge on recent developments in biofuels and particularly in Jatropha. FACT Associate Winfried Rijssenbeek was present. The meeting aimed to discuss to what extent research supported by the EU could contribute to sustainable development of *Jatropha curcas* L.

A first conclusion of the meeting is that EU supported R&D in Jatropha can be justified for two reasons:

- The EU Biofuels strategy implies import of biofuels from other countries, and therefore requires R&D to develop the system and chain.
- EU contribution to Millennium goals: poverty alleviation is one of the main carriers and since Jatropha qualifies as a crop that can be beneficial for small farmers, the EU might give due attention to R&D for production and use of Jatropha.

The presentations held on the topic gave a realistic picture toward the potential of Jatropha. Similar to the position paper of the FACT Jatropha seminar in Wageningen (March 2007) the Jatropha experts present, concluded that **for small scale farmers the crop can be beneficial**. This is even more so if they become part of the chain (rural electricity production or local fuel supply) or if they can convert the raw material to added value products, like lamp oil or soap.

For small scale production and use a number of R&D priorities are identified:

1. R&D on stand alone plantations, hedges and intercropping systems
2. Demonstration of systems (production and use, complete chain)
3. Local knowledge centers in African countries, and networking with other R&D centres
4. Set local criteria for sustainable production
5. Disease and pest resistance and biological control
6. Study the yield under different climatic and soil conditions (in Africa)
7. Nitrogen fixation for Jatropha

For **large scale** production **much more scientific research** is needed to overcome a number of current hurdles. Solutions are needed to reduce crop variability in the field and between fields, low crop yield predictability, pest and disease pressure, harvesting and pruning costs, low flower ratio's m/f, long flowering periods, etc. Currently production costs for high yielding Jatropha are higher than those for palm oil per litre. These hurdles are the incentives for R&D in both genetics and agronomic practices, as listed above.

A **bio-refinery concept** is to be promoted for Jatropha as a species: R&D for products needs to be carried out and Jatropha's competitiveness for such products needs to be evaluated. Large scale production of Jatropha can be suitable for production of such bio refinery materials in special markets (e.g. cosmetics, insecticides), when requiring high standards and substantial volumes. Small scale production of Jatropha can be interesting for small special markets (e.g. fair trade soap).

Detoxification of the Jatropha cake can have benefits for small- and large scale production of Jatropha and R&D is to be encouraged. It will provide a higher added value for the cake, as fodder.

For large scale production of Jatropha **sustainability criteria are different** as for small scale. Large investments by EU players require strict application of criteria with respect to labour conditions, biodiversity, etc. Therefore it is recommended to set out different sets of criteria and have these developed and tested.

Finally it is recommended to study the **CDM effects and mechanisms** that can be supportive for both small scale and large scale investments.



Co-fuelling Jatropha oil and biogas in a diesel engine

FACT is investigating the combined use of biogas and Jatropha oil in a diesel engine in cooperation with Technical University Eindhoven. Previous scientific research has proven that combined use of diesel and biogas is possible.

Positive results could open up new market for biogas from Jatropha press cake. First results are expected in March 2008.

FACT Publications

All publications by FACT can now be found more easily on our website. Simply go to the overview on the website under menu item "Research Programme" or follow the link below:

http://www.fact-fuels.org/en/FACT_Knowledge_Centre/FACT_Publications?session=gq5ei7he5ssli8ucq10u99ap7

Recently added work:

"Claims and Facts on Jatropha curcas L."

This publication by Raymond Jongschaap (Plant Research International) describes the claims found in grey-literature and publications, and aims to give the answers to these claims, using hard data that amongst others were provided in the Jatropha Seminar held by FACT in March 2007. It brings the expectations for Jatropha back to realistic levels. It also allows the reader to make a picture on what is still to be investigated to realize the potential of Jatropha.

"Screw pressing of Jatropha"

This study by Peter Beerens describes how oil recovery, energy input and cost of Jatropha seed expression in screw presses can be optimized while retaining a quality that complies with international fuel standards. Related is an article titled "Jatropha seeds pressing" about pressing efficiencies that is included in our online library. It was written by Jakob Rietzler & Hans-Gerd Brandt from the Universities of Magdenburg and Poznan.

Jatropha in Texas

Colorado-based Blue Sun Biodiesel has proposed four-year Jatropha biodiesel project to the US Department of Energy (DOE). The expected project output is over 200 million gallons of Jatropha-based biodiesel. For more information visit:

http://www.bluesunbiodiesel.com/news_article.php?id=45