News Release

JOil sees tripling of Jatropha productivity over next eight years through application of biotechnology

- Scientific findings and process on biofuel crop presented in a paper delivered at INSULA (International Scientific Council for Island Development) / RSB (Roundtable for Sustainable Biofuels), Conference in UNESCO, Paris

SINGAPORE, 9th January 2012 -- JOil (S) Pte Ltd, a scientific bioenergy crop developer of New Generation Jatropha, discussed cutting edge science and biotechnology processes that could increase the present productivity of Jatropha from the less than 1 ton of oil/hectare to 3 tons/hectare using breeding, tissue culture and genetic engineering processes.

These developments and findings were presented by Dr Hong Yan, Chief Scientific Officer, at the INSULA/RSB conference "Jatropha: State of the Art" held at UNESCO Headquarters, Paris on 14th and 15th December 2011.

New Potential for Next Generation Jatropha

Dr. Hong demonstrated in his presentation that biotechnology is the core science required to address the present low yield of Jatropha. He was candid in his assessment of the current views on Jatropha as a biofuel saying, "There was initially great excitement surrounding the use and commercial potential of Jatropha in the early 2000s but this was followed by a wave of disappointment in India, Central America and Africa with poor yields as early plants were from seeds collected from wild accessions and had greater vulnerability to pests than anticipated."

"The yield and better pest resistance of Jatropha can be realized with biotechnology overtime. At JOil, we are applying breeding, tissue culture and genetic engineering to develop a continuous pipeline of improved Jatropha varieties. We are also seeing very good field trial data for our new varieties with traits like better uniformity, improved self-branching, early flowering and higher productivity. More than 2 tons of seeds per ha was achieved for the first year in field trials on marginal land plots in Southern India. Such continuous efforts on Jatropha improvement will move the average productivity of Jatropha from 1 ton of oil per hectare to about 3 tons of oil per hectare over the next 7 - 8 years.

Mr. Sriram Srinivasan, Chief Financial Officer, added, "The demand for Jatropha-derived biodiesel already exists among airlines and motor fleet operators. It is the supply-side of the equation that is holding up the adoption rate of biofuels. We believe the turning point will come when Jatropha plantation becomes commercially viable with the adoption of improved Jatropha varieties and better agronomic practices.

In his paper, Mr. Srinivasan presented several scenarios of Jatropha viability and showed how the right genetics and package of practices have significant impact on the economics

of Jatropha adoption. If low quality planting material and low care is taken, the Internal Rate of Return (IRR) could be less than 10%, whereas with good quality planting material and good care, the IRR will be more than 25% He also mentioned that with revenue from by-products from Jatropha for high end uses like animal feed, the IRR can significantly improve.

The Need for a Global Jatropha Forum

The international participation at this conference also included representatives from UNESCO, RSB (Roundtable for Sustainable Biofuels), INSULA (International Scientific Council for Island Development), Lufthansa, Neste Oil, Eco Carbone, TERI (The Energy Research Institute), Cosmo Biofuels, University of Bern, ADECIA and Empa. Delegates discussed in detail the need for a global forum to address issues specific to Jatropha such as growers, land use, extraction and application and standardisation.

Mr. Pier Giovanni d'Ayala, Secretary General of INSULA, who chaired the workshop, said that he was very happy with the high-level of interaction at the workshop and looked forward to the success of Jatropha as a crop despite the present challenges faced.

Mr. Haye Sebastian, Manager – Environmental Affairs of RSB, who was instrumental in coordinating the international workshop commented that the issues raised during the workshop including land rights and sustainability, need to be taken up in more detail by all the players globally.

ABOUT JATROPHA

Jatropha curcas, also called physic nut, is a drought-resistant plant which has been used for years as a hedge plant to protect food crops from animals. Its seeds, when crushed, result in Jatropha oil which can be processed to produce a high-quality biodiesel to be used to fuel airplanes, diesel cars, and stationery machines like generators. Since Jatropha can be grown on poor land and as a hedge for existing gardens and fields, it does not compete with land used for food crops, unlike edible oil and feedstock like soybean and palm oil. The Jatropha plant is native to Africa, North America and the Caribbean.

ABOUT JOIL (S) PTE LTD

Based in Singapore, JOil (S) Pte Ltd ("JOil") is a joint venture company incorporated by Temasek Life Sciences Laboratory, Tata Chemicals (through its wholly-owned subsidiary, Tata Chemicals Asia Pacific Pte Ltd) and other investors in 29 August 2008. Its main business activities include the development, propagation and sale of elite Jatropha seedlings and improved genetically-modified seedlings for commercial cultivation as well as to engage in agronomy research and provision of agronomy advisory. JOil is positioned as a responsible company that provides a sustainable (both economically and environmentally) solution to the use of plant resources as a feedstock for biofuel.

SOURCE JOil (S) Pte Ltd