

Research begins on jatropha as biofuel

S'pore firm hopes to develop a better, more productive strain of the plant

By JESSICA CHEAM

ON A small new research farm in Singapore's rural district, the seeds of a so-called wonder plant, jatropha curcas, have just taken root.

The sprouting of these hardy plants – touted as the “fuel of the future” – could mark a new chapter for Singapore's fledgling biofuels industry.

Scientists in Singapore hope to develop a superior and more productive strain of jatropha at the 1.7ha farm, located near Sungei Buloh Nature Park.

The plant has caused a stir in the scientific community worldwide, as its seeds could emerge as a rival to leading biofuel feedstocks such as palm oil, whose price has been soaring in tandem with that of crude oil. Biofuels are made from plant matter.

Firms around the globe are also fast getting involved in jatropha plantations – and Singapore aims to get ahead of the pack with this research.

Home-grown research organisation Temasek Life Sciences Laboratory (TLL) has set up the farm – which will eventually grow 3,000 plants

– using land allocated to it last year-end by the Singapore Land Authority (SLA).

SLA said the three-year lease is renewable up to 2015.

TLL's director of plant biotechnology, Dr Hong Yan, who is spearheading the jatropha research in Singapore, said that there is “no single plant which has received so much attention in such a short span of time”.

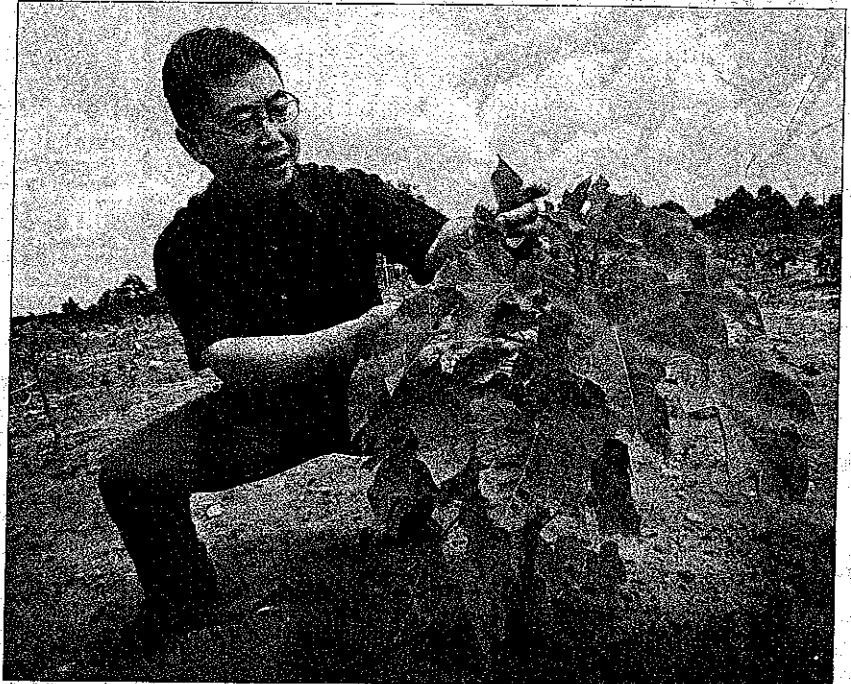
Spurred by growing climate change awareness and rising crude oil prices, global biofuel industry revenue hit US\$20.5 billion (S\$28.6 billion) in 2006 and is set to reach US\$80.9 billion by 2016, says United States research firm Clean Edge.

Biofuels are seen as less pollutive than fossil fuels as they emit less carbon dioxide when used to power engines.

But many critics argue that biofuels have led indirectly to deforestation and rising food prices, as farmers around the world switch to growing more lucrative biofuel crops.

Jatropha is widely seen as a solution to this problem. The plant is not edible and grows on semi-arid land unsuitable for food crops. It can grow up to 5m tall and has long been a source of lamp oil and soap. Some studies show the big, leafy shrub outperforming other feedstocks such as palm oil.

Despite the keen interest in jatropha, very little research has been done – so the



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POSSIBLE SOLUTION: Temasek Life Sciences Laboratory's project on the jatropha plant, which has begun with a 1.7ha farm that will boast 3,000 plants eventually, is being spearheaded by Dr Hong.

plant's yield is unpredictable and mass cultivation methods have not been proven.

“This is why we're going big on this, in researching all aspects of jatropha. We hope to develop a superior strain that yields big quantities of oil for biodiesel,” said Dr Hong.

TLL chief operating officer Peter Chia said the farm will eventually serve as a showcase: “Renewable energy has always been a big area of focus for us. We want to secure the know-how and eventually export this Singapore technology.”

TLL's jatropha research is another boost for Singapore's clean energy drive – an area singled out as a major engine of growth by Prime Minister Lee Hsien Loong last year.

Recently, Finnish oil refiner Neste Oil announced it will build the world's biggest biodiesel plant in Singapore at a cost of \$1.18 billion. Mean-

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while, Australia's Natural Fuel, which has a biodiesel facility in Singapore, also recently switched the feedstock it used from palm oil to jatropha oil.

Publicly listed GKE International, which recently bought over Van Der Horst Biodiesel – which has acquired land in neighbouring countries to grow jatropha –

will also stand to benefit from the next phase of Singapore's biofuels research.

The biggest challenge now is to demystify the plant, said Van Der Horst chief executive Peter Cheng, who confirmed that he was in talks with TLL to collaborate on the quest for the best jatropha strain that could make mass biodiesel production a reality.

“Many biodiesel factories are hungry for feedstock,” said Dr Hong. “They are waiting for the first breakthrough.”

However, he said that while jatropha could be the answer the biofuels market – and the world – is looking for, there are still a lot of questions that need to be answered. “We'll just have to wait and see,” he added.

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