

# Squeezing new life out of wonder oil crop that wasn't



JOil chief operating officer Sriram Srinivasan, seen here with JOil chief scientific officer Hong Yan, says jatropha (above) can benefit many communities in multiple countries who could use it as a crop for sustainable agriculture. Jatropha grows in more places than cash crops such as palm oil. ST PHOTOS: DON WONG

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**Singapore scientists persist and develop hybrids of plant most had given up on - these produce fruits early and in abundance**



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Jatropha was once hailed as a wonder crop that could solve the world's thirst for oil. Not only could it produce more oil compared with other crops such as soya bean and corn, it was also believed that *Jatropha curcas*, which is native to the Americas, could grow on even dry and degraded soil.

But about a decade ago, after many failed projects, it was found that the plant - which has oil that can fuel jet planes at about a third of the carbon footprint compared to fossil fuels - did not live up to the hype. While it was indeed true that the plant survives on poor soil, it cannot thrive and harvests are poor.

Most of the world gave up on it. In 2009, oil and gas giant BP pulled out of a deal involving some 200,000ha of the crop in Africa, India and South-east Asia - about a quarter of all crops planted at the time.

But for some Singapore-based scientists, persistence has paid off.

Scientists from JOil, a global bioenergy firm linked to the Temasek Life Sciences Laboratory, have successfully developed two jatropha plant hybrids - JOS1 and JOH2 - that share some key traits, including how they can produce fruits at an earlier stage of the life cycle, and in abundance.

Typical jatropha plants can produce fruits only from the third year, and no more than two tonnes of them. The jatropha varieties developed by JOil fared better, with JOS1, for instance, yielding 4.5 tonnes in its fourth year during field trials in southern India.

In April this year, the Intellectual Property Office of Singapore (Ipos) extended protection to both hybrids. This gives the breeder exclusive rights to the new plant

## TWIN BENEFITS

**A lot of degraded land exists in this region. If local communities are able to reap a source of livelihood on such land, it will benefit them while at the same time reducing the pressure to clear forests.**

MR TAN YI HAN, founder of PM.Haze, on jatropha's potential to help Indonesia's local communities.



variety and can prevent other people from producing, selling, importing or exporting this protected variety.

JOS1 and JOH2 are the first two to be protected since Ipos in 2014 expanded the list of plant varieties to protect all genera and species, as part of an effort to encourage investment in the research and development of new plant varieties that have economic potential for Singapore.

"JOil's story is a case in point, and the start of Singapore's journey into these untapped 'fertile grounds' for furthering our economic development through IP," said an Ipos spokesman.

The scientists are now studying the interplay of genetic and environmental factors, to see if more oil can be produced with less input such as fertiliser, water and insecticide.

Both hybrids have since been planted in India and in African countries, where they are grown by poor communities living on land unsuitable for growing other types of crops for commercial use. Other than selling the seeds or oil, the communities can also extract valuable items from the jatropha plant, such as honey from its flowers.

Explaining why the firm did not lose faith in the crop when the world did, JOil chief operating officer Sriram Srinivasan said: "Jatropha grows in more places than cash crops such as palm oil.

"If it works, it will benefit many communities in multiple countries who could use it as a crop for sustainable agriculture."

Volunteer group People's Movement to Stop Haze (PM.Haze) noted that rural communities in Indonesia may sometimes clear forests to grow crops when land becomes barren. Its founder, Mr Tan Yi Han, applauded JOil's discovery, saying: "A lot of degraded land exists in this region. If local communities are able to reap a source of livelihood on such land, it will benefit them while at the same time reduce the pressure to clear forests."

But he added that as jatropha is not native to the region, care must be taken to evaluate its impact on local ecosystem, and on whether it could become an invasive species.