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Desert 'carbon farming' to curb CO2



By Matt McGrath

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Scientists say that planting large numbers of jatropha trees in desert areas could be an effective way of curbing emissions of CO2.

Dubbed "carbon farming", researchers say the idea is economically competitive with high-tech carbon capture and storage projects.

But critics say the idea could have unforeseen, negative impacts including driving up food prices.

The [research has been published](#) in the journal Earth System Dynamics.

Seeds of change

Jatropha curcas is a plant that originated in Central America and is very well adapted to harsh conditions including extremely arid deserts.

It is [already grown as a biofuel](#) in some parts of the world because its seeds can produce oil.

In this study, German scientists showed that one hectare of jatropha could capture up to 25 tonnes of carbon dioxide from the atmosphere every year. The researchers based their estimates on trees currently growing in trial plots in Egypt and in the Negev desert.

"The results are overwhelming," said Prof Klaus Becker, from the University of Hohenheim in Stuttgart.

"There was good growth, a good response from these plants. I feel there will be no problem trying it on a much larger scale, for example ten thousand hectares in the beginning," he said.

According to the researchers a plantation that would cover three percent of the Arabian desert would absorb all the CO2 produced by cars and trucks in Germany over a 20 year period.

The scientists say that a critical element of the plan would be the availability of desalination facilities. This means that initially, any plantations would be confined to coastal areas.

They are hoping to develop larger trials in desert areas of Oman or Qatar. Prof Becker says that unlike other schemes that just offset the carbon that people produce, the planting of jatropha could be a good, short term solution to climate change.

"I think it is a good idea because we are really extracting carbon dioxide from the atmosphere - and it is completely different

between extracting and preventing."

According to the scientist's calculations the costs of curbing carbon dioxide via the planting of trees would be between 42 and 63 euros per tonne. This makes it competitive with other techniques, such as the more high tech [carbon capture and storage](#) (CCS).

A number of countries are [currently trialling this technology](#) but it has yet to be deployed commercially.

Growing jatropha not only soaks up CO2 but has other benefits. The plants would help to make desert areas more habitable, and the plant's seeds can be harvested for biofuel say the researchers, providing an economic return.

"Jatropha is ideal to be turned into biokerosene - it is even better than biodiesel," said Prof Becker.

But other experts in this area are not convinced. They point to the fact that in 2007 and 2008 large numbers of jatropha trees were planted for biofuel, especially in Africa. But many of these ventures [ended in tears](#), as the plants were not very successful in coping with dry conditions.

Lucy Hurn is the biofuels campaign manager for the charity, Actionaid. She says that while jatropha was once seen as the great, green hope the reality was very different.

"When jatropha was introduced it was seen as a miracle crop, it would grow on scrubland or marginal land," she said.

"But there are often people who need marginal land to graze their animals, they are getting food from that area - we wouldn't class the land as marginal."

She pointed out that jatropha is highly toxic and can pollute the land it is grown on, even in a desert. And she also had concerns about the fairness of the idea.

"It is still somebody else's land. Why go in and grow these massive plantations to deal with a problem these people didn't actually cause?"

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