



Cleantech 100 case study: Green Biologics

The Green Biologics store cupboard of microbes has the potential to transform agricultural waste in to fuel for our cars

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Ethanol is controversial because it has been seen as taking away land and agricultural resources, such as sugar cane, from food provision Photograph: Bloomberg/Bloomberg via Getty Images

UK-based Green Biologics has a store cupboard of 900 different micro-organisms which could end up changing the way we power our cars. These microbes have been cultivated and developed to break down agricultural waste so fast and effectively that one of the potential end-products, butanol fuel, could become 30% cheaper than petrol.

By the end of this year, the microbes will be working in a pilot trial in Songyuan, China for Chinese chemicals company Laihe. The Chinese company plans to move into commercial production in 2012.

Green Biologics, located in Abingdon, has had people working out in the People's Republic for three years. "There are a number of companies out there who have identified the biobutanol opportunity but simply don't have the technology to make it work," says Green Biologics' chief executive Sean Sutcliffe. Biobutanol, butanol fuel

made from biomass, has yet to prove itself as a vehicle fuel in the way that ethanol has done. It has not been tested or used to the same degree as ethanol has been but, nevertheless, BP and DuPont are among the companies working on its production. There is also a view that biobutanol could be more efficient and cheaper than ethanol, now well-proved as a fuel, when production processes are perfected. Ethanol, however, has disadvantages which butanol fuel may be free of. For instance, biobutanol is so similar to petrol that it can use the same pipes while the more corrosive ethanol needs its own infrastructure.

Ethanol is also controversial because it has been seen as taking away land and agricultural resources, such as sugar cane, from food provision. The great attraction of the Green Biologics fermentation processes, however, is that it works very effectively on the waste. Sutcliffe says: "When plants are grown we only eat a very small part of them. If microbes can access the rest, it's much cheaper and it won't impact food production." The Chinese plant, for instance, will be using the waste from corn as the basic feedstock.

Other key markets for Green Biologics include Brazil and India where feedstocks are plentiful in the form of waste from sugar plantations. The US is another interesting market because of its demand not just for biobutanol, but also for the other chemicals that could be produced. The Green Biologics store cupboard of microbes gives it a global potential, covering different climates and agriculture types. Sutcliffe says: "Having a wide range of strains gives us the opportunity to work with a wide range of feedstocks."

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