

Media Coverage

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The image is a screenshot of a news article from ABC Rural. The header features the ABC Rural logo and navigation links: Home, Programs, News, Features, Events, and Message Boards. The article title is "Micro-algae - future fuel for rural Australia" by David Cloughton, dated Wednesday, 12 October 2011. Below the title are social media sharing icons and a comment count of 3. The main image shows a bio-reactor setup with several vertical cylindrical tanks containing green liquid, situated under a white tent-like structure. A caption below the image reads: "alternative fuel source micro-algae being grown in a bio-reactor at James Cook University in Queensland. (Susan Ponds, University of NSW)".

Imagine using algae to fuel and feed our world.

Research is underway and vast ponds are under construction to test what has been described as 'the world's best hope for a replacement for fossil fuel'.

Those are the words of Professor Susan Ponds, a former managing director of pharmaceutical company Johnson and Johnson.

There are 40 000 species of micro algae and they are the world's fastest growing plants.

"They're everywhere. They account for half the biomass, they take up millions of tonnes of CO₂, they can clean up polluted water, and they love to make oil that can be made into fuel," says Professor Ponds.

Professor Ponds is now researching biofuels at the United States Study Centre at the University of New South Wales, but it is her past experience in cutting edge research in human health that leads her to believe that a solution to the looming oil crisis can be found.

"I'm a physician. I've looked after patients with many diseases, made inventions of my own, including treating people with HIV.

"During my time I've marvelled at the success at sequencing the human genome, we've discovered the DNA double helix, and we do have the ingenuity to solve some of these problems."

In Queensland, MBD Energy Ltd and James Cook University have a joint research and development facility at Townsville that is using carbon dioxide captured from coal fired power station smoke stacks to feed algae, which in turn produce both biodiesel and feedstock.

MBD Energy has agreements with three of Australia's largest coal fired power generators to build test facilities in Queensland, Victoria and at the Eraring Energy in News South Wales.

The company says each of the three Bio CCS algal synthesiser projects has the potential to grow to 80 hectare commercial plants.

Each is capable of producing 11 million litres of oil for plastics and transport fuel, and 25,000 tonnes of drought proof animal feed and expanding to eventually consume more than half of each power station's problem flue-gas emissions.

Late last year Murdoch University and the University of Adelaide formed a partnership with SQC Pty Ltd, to set up an open pond pilot plant in Karratha in WA.

That was followed by a U.S. Company, Aurora Algae Inc, doing the same thing.

According to Aurora the combination of a "perfect climate and the right blend of resources including abundant seawater, industrial CO2 and skilled labor, made north western Australia an ideal location" for their facility.

So what does this potentially massive shift into production of algae for fuel and food mean for farmers in Australia?

Ben Mason, senior policy officer with the NSW Farmers Association has been looking at microalgae to see if it's something farmers can benefit from.

The Association supports any fuel source that makes Australia self sufficient and reduces costs for farmers.

He says Australia is facing a growing dependency on imported fuel which is expected to grow from 55 to 80 percent in less than 10 years and lead to a \$25 billion deficit unless another source can be found.

He thinks micro-algae is promising but the cost of removing the water from the algae is currently \$4/litre which makes it too expensive.

"But if recycling is involved the picture changes."

"There are synergies with electricity generation. If you've got carbon and heat and you can add nutrients from sewage, then using industrial waste streams could be promising."

Ben Mason has done some rough calculations to work out what it would take to produce Australia's diesel fuel requirements from micro-algae grown in ponds.

"In 2009 the total diesel consumption was 19,000 megalitres. Algae can produce between 70 000 and 160 000 litres of bio-diesel per hectare, so one hundred per cent of the country's requirements will need 120,000 to 270,000 hectares or two to five per cent of the winter crop this year."

There is plenty of evidence to support Professor Ponds enthusiasm for micro algae as a possible solution to the oil crisis.

"Since 2008 there have been planes that fly with algae."

A research paper on the industry, put together by Ponds, quotes figures from the Algal Biomass Organization estimating the private sector has invested \$2 billion into the algae industry. The bulk of this investment is by multinational corporations such as Exxon Mobil, Shell, BP and Chevron.

She thinks Australia will be at the forefront of microalgae science and production.

"It's a fledgling industry, but it's taking off. The question is what land area will we need, will it work financially, and finally, how many barrels a second can we produce."

Professor Susan Ponds also director of the Australian Nuclear Science and Technology Organisation, the Australian Academy of Technological Sciences and Engineering and Commercialisation Australia. Before joining the USSC, Dr Pond was a senior executive with Johnson & Johnson, serving as Director of Pharmaceutical Research for six years and Managing Director for the next six years of its Sydney-based biotechnology company, Johnson & Johnson Research Pty Limited (JJR). From 2004, Dr Pond was Director and, from 2007, Chairman of the Australian biotechnology industry organisation, AusBiotech Limited.