

**WINNER: MBD Energy Ltd**

- **Innovation in New and Emerging Industries Award
(sponsored by the Rural Industries Research and Development Corporation)**

Launched in 2006 with a handful of private seed investors, Australian-based MBD Energy Ltd (MBD) has grown to become a world leader in piloting the capture and recycling of carbon dioxide and other emissions into high value algal biomass for animal feed, human food supplements, fertilisers and biofuels.

MBD's commitment to innovation in this emerging field is based on several trends, including:

- Australia's commitment to reduce emissions, which can also be offset by the feedstock produced
- Reducing the use of farming land for the production of biofuel crops (the algal production should require a fraction of the space and will typically use low-value buffer land around the emitter)
- The need for new non-rainfall dependent sources of nutrition for animals.

The company has developed a proprietary 'BAGS' membrane system for use in large scale emitters such as coal fired power stations, smelters and cement plants. This is currently growing micro algal biomass at the company's R&D facility at twice the international benchmark yield of 20 grams per metre per day.

Drawing on trials at James Cook University in Townsville, MBD has confirmed it can consistently select an optimum strain of algae (local to any given industrial emissions site, therefore posing no threat to local biodiversity) and propagate that strain from a single cell to large-scale production (with the algae typically doubling in mass every 24-48 hours).

A full range of commercial applications is possible from the company's demonstrated ability to remove 95 per cent of water without damaging the cellular structure of the biomass.

Trials using *Bos indicus* cattle in Townsville indicate that when fed a diet including portions of protein rich algal meal the cattle emitted less methane whilst exhibiting excellent growth, weight and overall health and condition. In addition to wet and dry cattle and pig feed, the company has produced cattle licks and pellets for potential commercial applications in poultry production and aquaculture.

Samples have been produced of various exotic algae suitable for human consumption, such as the Japanese food market, and Omega 3 and Omega rich alga for potential applications in the nutraceuticals industry.

MBD has also applied its technologies to water bioremediation. A project has commenced using nutrient-rich waste water from an aquaculture facility near Townsville to grow high-value macro-algae food supplements worth up to \$250,000 per tonne, which MBD has won export approval to supply to the tsunami affected Japanese food market.

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