

Agribusiness into the Future



Regional
Development
Australia

GREATER WHITSUNDAYS



What do you picture when you think of Agriculture



Maybe we need to picture this

Case Study - Green Houses and Growth Structures

- The growing season!
- Technology that ensures optimal conditions for plants to produce delicious tasting fruit and vegetables all year round.





Case Study – The Changing Landscape of Protein Production

- Animal agriculture is under more community scrutiny than ever before. Social license issues have arisen on everything from livestock's contribution to climate change through to shifting animal welfare expectations.
- These institutional risks are driving industry change. Understanding consumer trends towards alternative proteins and industry implications are key to proactively engaging with, and responding to, these changes.
- For Australia the alternative protein market size in 2030 is estimated A\$4.1B (domestic) and \$2.5B (export).
- The market for alternative meat, eggs, dairy and seafood products could reach at least \$290 billion world- wide by 2035 and make up 11% of the overall protein market in a base-case scenario, according to a report released by Boston Consulting Group and Blue Horizon Corp in 2020 titled "Food for Thought: the protein transformation"



- By 2030 the food industry will look dramatically different from how it looks today. One of the key disruptors for this change is the rise of “Alternative Protein.”
- There are seven basic categories we define as alternative protein.
 1. Plant-based protein,
 2. Cultured meat,
 3. Cultured fish,
 4. Insect protein
 5. Fermented protein
 6. Mycoprotein
 7. Algae

Did you know some of these are already being developed in the MIW region and the proponents are eager to expand operations in the region.



The Canadian government invested \$103 million into Merit Functional Foods to establish a canola and pea protein extraction facility, which will be the first in the world to produce food-grade canola protein safe for human consumption.

the New Zealand Ministry of Business, Innovation and Employment, together with the Agency for Science, Technology and Research announced the launch of the New Zealand-Singapore Bilateral Research Programme on Future Foods, an investment of \$10.2 million (NZ\$11.8 million) over three years.

A keynote address by Woolworths Group chair Gordon Cairns at the Food Agility Summit on 15 March 2021. Cairns said the Group saw a 60 per cent increase in plant-based protein sales in 2020, as more people put greater emphasis on their health and wellbeing.

In November 2020, [Unilever](#) announced its Future Foods initiative. At its centre was a €1 billion (\$1.63 billion) sales target for plant-based meat and dairy alternatives within the next five to seven years.

New research reveals the growing amount of money being invested into the alternative meat sector.

The FAIRR Initiative – an investor network composed of members with \$40 trillion in assets – published a report with input from institutional investors to identify environmental risks linked to business activities – in this case, activities involving intensive livestock and fish farming systems.

FAIRR included firms like Unilever, Nestlé, Tesco, and Sainsbury's in the report.

The report found that 7 of 25 (28 percent) global food retailers and manufacturers have specific objectives to grow their alternative protein portfolio. For context, three years ago, none of the companies had such targets.

Private investments in the alternative protein space were at an all-time high in 2020. In total, \$3.1 billion was invested in plant-based, fermentation-based, and cultured meat technologies.

This marks an increase of more than 300 percent compared to 2019.



Algae Farm Production



<https://spectrum.ieee.org/new-tech-could-turn-algae-into-the-climates-slimy-savior/particle-1>

Algae production at a glance

- Farmed algae produce 10-13t of protein/ha/yr while pulse legumes produce 1.5-1.8 t of protein/ha/yr.
- Algae produces 50% of the earth Oxygen but comprise less 1% of plant biomass.
- Algae can remove CO₂ at a rate 400 times higher than terrestrial plants.
- 1 ha of farmed algae ponds produces up 50t (dry wt.) of algae per annum - some reports claim up to 100t (dry wt.) /annum
- Sold as human food source - \$20-\$30/kg wholesale and \$100-\$200 kg retail.
- Industry avg stats confirm on average 2kg of Co₂ is utilized to produce 1kg algae – therefore 1 ha of algae farmed can utilize 100t of Co₂ p.a.

Algal Production Business Opportunities

- Qld transport data indicates Qld passenger car and light SUV travel on avg 13,699 km per annum and emit 2.048 tonnes Co2 per annum.
- 1 ha of algae farmed can sequester the Co2 produced from 50 cars per annum.
- Qld transport data - 90,000 registered passenger cars in MIW region in 2020 – so a 500ha algae farm could sequester the equivalent CO2 produced by almost half the passenger vehicle in the MIW region in 12mths.
- 500ha algae farm could produce 25,000t of algae yielding \$625M/annum in gross sales.
<https://www.nrel.gov/docs/fy16osti/64772.pdf>
 - Capital Development Costs (approx.) \$2,000/t
 - Variable Costs - (approx.) \$140/t
 - Fixed Operating Cost (Approx.) \$60/t
- Carbon price as of 5th July 2021 was \$20/t Co2eq = \$1M /annum in gross sales.
- Currently the largest algae farm operating in the world is in Western Aus - 740ha

What is happening in MIW region

Agave plantation in Bowen – Making Australian White Spirit and Tourism product

Bio Futures and Bio Foods in Mackay – proteins from sugar

Coral Fishery - a new farmed industry

Aquaculture Expansion - 5-fold increase in annual production planed over next 5 years

Protected Cropping

Province Food - local production and consumption - less food miles and fresher produce.

Export Facilities and Connected Markets- Global Export Hubs via Air and Sea Freight and semi- processed food.

New food process technology and use to reduce market barriers and increase shelf life – cold press technology

Opportunities for Isaac Region

Retired Mine Sites and regions with METS and Aligned Skills

- Climate
 - Low Cyclone Risk
 - Lower Rainfall than coastal areas
 - Consistent Radiation – lots of sunny days
- Investment
 - Interest from private and public investors toward Sustainable Agriculture new industries
 - Qld Investment Corporation- has specific focus on new sustainable agriculture. – links to \$200M Qld gov support program.
 - Mining corporates have critical scale investment capacity.
- Infrastructure
 - Road and Rail Access
 - Power supply
 - Access to water and wastewater - \$185,000ML of mine water in MIW region currently unused.
 - Land Availability
- People
 - Workforce access - scientists, construction, engineering and maintenance, transportation and shipping, marketing, and other key positions along the value chain.
 - New Farming Knowledge and Skills are in the region