



Centre for
Agriculture
and the
Bioeconomy

Centre for Agriculture and
the Bioeconomy

Gardens Point campus
GPO Box 2434

Brisbane Qld 4001 Australia

Phone + 61 7 3138 1655

cab-admin@qut.edu.au

www.research.qut.edu.au/cab

Wednesday, 26 June 2024

Committee Secretary
House Standing Committee on Industry, Science and Resources
PO Box 6021
Parliament House
Canberra ACT 2600

RE: Question Taken on Notice- 13 June 2024.

Sugarcane is one of the most important agricultural crops in Australia. In Australia, the sugar industry supports around 23,000 jobs in coastal regions of Queensland and NSW with an economic contribution of \$4 billion to the Australian economy. However, the profitability and viability of the sugar industry over the past few decades has been challenged by low sugar prices, increasing production costs, pests and disease and changing consumer preferences. While sugarcane is already used for food and energy products, the emerging bioeconomy is creating new opportunities to increase industry profitability and regional employment by producing advanced biofuels and high-value bioproducts for growing markets.

The emerging bioeconomy offers a significant opportunity to create new renewable energy products for transportation fuel use, new food and beverage products to support food production and new materials including bioplastics, while also contributing to skilled job creation in new biomanufacturing industries in regional communities. Biomanufacturing transforms low-value agricultural by-products and residues into higher-value biofuels, foods, biochemicals and other valuable bioproducts in manufacturing facilities known as biorefineries. Biomanufacturing technologies are improving rapidly with key developments in the fields of synthetic biology, green chemistry, industrial biotechnology and bioprocess engineering and further development in these areas offer the opportunity to vastly improve the competitiveness of these products.

QUT is undertaking leading research in this field through the **Centre for Agriculture and the Bioeconomy**.

- Working with Brisbane company **Bioproton** to develop Astaxanthin – an antioxidant supplement for animal feed and aquaculture industries to develop a bio-based Astaxanthin from sugarcane molasses and juice to replace products currently produced from petrochemicals.
- Partnering with Queensland company **Kenon Corporation** for the utilisation of sugarcane fibre residues (bagasse) as a substrate to support and expand exotic mushroom production in Australia through the development of advanced technologies with the support of the **Future Food Systems CRC**.

- Other research includes the development of high value nutritional fats and oils, bioplastics such as polyurethane, enhanced digestibility animal feeds, functional oligosaccharides, and hydrogen from sugarcane fibre residues.

Australia's capacity to scale-up production of novel food ingredients and respond to surging global demand depends on commercial access to world-class infrastructure. Building on significant federal, state, and university investment, the **QUT Mackay Renewable Biocommodities Pilot Plant (MRBPP)** based on the site of the **Mackay Sugar Ltd, Racecourse Sugar Mill** in Mackay is undergoing a ~\$17 million upgrade to support the scale-up production of novel foods and food and beverage ingredients via precision fermentation.

The upgrade will enable companies to fast-track product development by providing unique capability to undertake early-stage scale-up and will reduce both cost and timeframe for product formulation, regulatory evaluation, and sensory trials. This upgrade is supported by funding from the **Australian Government Regional Recovery Partnerships Program, Queensland Government Industry Partnerships Program, the Food and Beverage Accelerator (FaBA) and QUT**. The upgrade is currently expected to be completed in September 2024.