



## Queensland University of Technology

### Submission on the Growing for Queensland Discussion Paper

QUT welcomes the opportunity to provide input on the *Growing for Queensland Discussion Paper* and contribute to the development of an industry development strategy for Queensland's agribusiness and food sector.

Our comments and recommendations follow the list of questions in the discussion paper. Prior to this, QUT makes the overarching comment that innovation opportunities exist across the agriculture sector and in all aspects of agribusiness and production. Thus, the industry development strategy for Queensland's agribusiness and food sector would benefit from an interoperable and holistic appraisal of the innovation ecosystem, expanding on the discussion paper's more linear perspective.

### Responses to discussion questions

- 1. What outcomes are most important to you?**
- 2. What improvement would you like to see in relation to these outcomes over the next five years? How would we measure that improvement?**

The most important outcomes of a new industry development strategy are tied to the sector's direct challenges. Queensland must increase exports in the agribusiness and food sector to maximise our potential, as growth within Australia is limited by national population growth. Additionally, the impact of climate change on crops requires Queensland to develop resilient agricultural systems, which means we need to resource and empower scientists to undertake more research into the field of climate-resistance in order to protect the industry's future.

Queensland's sugar industry, which overwhelmingly dominates sugar production in Australia, faces significant fluctuations in demand and the impact of international commodity price variations. The sugar industry would benefit from an industry specific diversification strategy in parallel with the *Queensland Biofutures 10-year Roadmap and Action Plan*. A strategy which encourages transitioning from exclusive reliance on sugar production to the development of additional revenue streams from by-products and biorefining has the potential to provide significant additional economic and employment opportunities in regional Queensland.

- 3. What initiatives are delivering most value for you or your industry? What initiatives are not working, and why?**
- 4. What are the key gaps that are not currently being addressed, or that require greater focus?**

The *Land Restoration Fund* lacks clarity in terms of investment strategy and criteria for investment. The Fund should aspire to a concrete research, development and extension (RD&E) agenda that aligns with national and international carbon initiatives as avenues for producing income streams.

*Advance Queensland* provides good opportunities for research in the agricultural sector that deliver downstream benefits to producers, manufacturer and exporters, and therefore warrants the maintenance and expansion of investment through this initiative.

The *Queensland Biosecurity Strategy* is a key and highly successful platform for keeping agricultural produce safe from pests and diseases. However, the current approach to allocating funding does not enable timely responses to emerging threats – for example, as is required for the pasture dieback problem. A more agile approach is needed.

The *Queensland Biofutures 10-year Roadmap and Action Plan* provides opportunities for research in the agricultural sector, focused significantly on biofuels, but it does not take sustainability issues sufficiently into account.

Gaps exist in supporting the transition of graduate students into the regional workforce. The decline in Queensland Government investment in regional agricultural research significantly reduces the opportunity for growing regional economies, especially through industries in transition whose success is reliant upon applied, locally-focused research.

## **5. What is the most appropriate role for government in Queensland agriculture? What roles or actions should be left to the private, academic or other sectors?**

The Queensland Government needs to actively participate in RD&E as an investor and enabler. Currently, agricultural RD&E has a limited scope and is quite insular, with the Queensland Alliance for Agriculture and Food Innovation (QAAFI) as the main instrument. This reduces innovation and opportunities for other RD&E providers. Queensland broadly lacks the E of RD&E (extension). Divestment by the state and insufficient graduate numbers have negatively impacted the sector's ability to translating R&D into E. Graduate cadetships should be considered to encourage increased employment in regions.

Nationally, research and implementation within the agricultural sector has been delegated to the Rural Research and Development Corporations. There is a distinct lack of overarching strategic framework, a gap which the Queensland Government could beneficially play a role in filling.

Government should promote an innovation culture by:

- Increasing funding for agribusiness and food sector RD&E. Insufficient funding stifles the sector's ability to innovate and develop its cultural norms around research, development and extension.
- Investing in recruitment and retention of talent. Recently, there has been a focus on building capacity in policy-making while decreasing staff with strong expertise and understanding of 'on the ground' processes.
- Build connectivity, both internally and externally. Agribusiness cannot be isolated from other sectors, and is stronger when connected.

## **6. How have you experienced impacts of climate change in relation to agriculture and food? How have you adapted or acted to reduce emissions?**

## **7. What are the key opportunities to reduce emissions in the sector and increase carbon management on the land?**

The Federal Government previously invested large amounts into climate change RD&E. Extension material (funded by the Federal Government) exists for all agricultural industries, but has not been utilised.

The Queensland Government now relies solely on modelling of agricultural production systems to provide climate change adaptation and mitigation strategies, but there is a significant lack of

baseline and current information (e.g. State of the Environment and high spatial-resolution soil properties data) across all sectors.

Past investments by the Queensland Government in climate modelling had proven to be successful. However, despite the current condition of greater uncertainty in our near-term climate predictions this modelling has not been maintained: this decision has had major negative impacts on our capacity to plan and act. The Government should move from a 'wait and see' approach to an active support and promotion stance in the climate change RD&E space.

Key opportunities exist in the land sector for increased revegetation, reduced methane emissions from livestock, and better management of nitrogen fertilisers, not just in some sugarcane catchments but in all sectors. The Queensland sugarcane sector is the highest emitter (per hectare) in Australia of nitrous oxide, a greenhouse gas 300 times as potent as CO<sub>2</sub>. These emissions are currently understated but will soon impact significantly on the industry and its relationship with global markets, where production with a low carbon footprint is being preferred. Thus, the future of this sector relies on our ability to research, develop and implement lower-emission industry methods.

**8. What is your experience of adopting digital technology? What was your motivation for the change, how did it happen, what helped or hindered the change?**

**9. How can we accelerate adoption of digital technology in the sector?**

There are many companies promoting digital agriculture and generating data. However, data are often presented without interpretation and are not used downstream by the intended end-users. If industry cannot see the benefits in terms of profitability, they will not adopt digital technology.

Blockchain is only one of the many available technologies, and government should maintain a more general focus on 'trusted digital networks'.

**10. How have you, or your industry, responded to increased international demand and competition?**

**11. As international trade in agriculture and food increases, how can we mitigate risks and facilitate trade to take advantage of opportunities?**

Global connections are crucial to research providers as they provide an opportunity to build international partnerships and attract external expertise and funding. The Queensland Government's longstanding commitment to international exposure and collaboration – such as through its engagement with the BIO World Congress on Industrial Biotechnology and AgTech – has been a conspicuous success, and should be sustained and extended. With our agricultural sector poised to make significant research-led advances, further efforts in collaboration with the Commonwealth Government on industry attraction will bring significant benefits to regional Queensland.

Most Queensland crops are grown in a tropical climate. We enjoy a global competitive advantage in research-enabled tropical agriculture as most other countries producing crops in tropical regions are developing rather than developed economies, generally lacking significant research capacity. Consequently, there is an opportunity for Australia to entrench and develop its standing as a research leader in tropical agriculture.

**12. What is important to you in relation to improving sustainable management of natural resources?**

**13. How can we make the most of opportunities that arise from improving environmental outcomes, and build on Queensland's 'clean and green' image?**

Sustainable management of natural resources requires a state-wide strategy for recycling organic materials in the agricultural sector and improving the condition of the soil. Improving soil condition by increasing carbon inputs and ground cover leads to greater tolerance to drought and climate change, reduced runoff of nutrients and less pollution of waterways. These are all key areas which will have a major impact on agricultural production throughout the state.

Current efforts to improve environmental outcomes include the establishment of a biofuels industry in Queensland. This is an important part of growing the bioeconomy of the state, but biofuels require a sustainable low-emissions feedstock and this has not yet been addressed in policy. A full life cycle approach is required to ensure the reduction in greenhouse gas emissions associated with biofuels is not compromised by a feedstock produced with a significant greenhouse gas footprint (e.g. seed crops), which could endanger the economic viability of these products in international markets where clean certification is a key element.

The market alone will not be sufficient to achieve sustainable management of natural resources. Government policies are needed to drive investment in protection and sustainable use. Calculating and factoring in the value of natural capital is required.

**14. What changes have you experienced in consumer demand, and how have businesses and industry responded?**

**15. How can we respond to changing consumer preferences and promote consumption of healthy, safe Queensland foods?**

In addition to nutritional and environmental concerns, consumers are placing increasing importance on the geographical origin of their products, an awareness extending beyond 'Australian made' towards becoming a regional question. Marketing is an important driver of consumer preferences and this should be considered in the value supply chain.

**16. What changes have you seen in relation to the nature of work in the sector, and how have these affected you, your business or community? What further changes are you anticipating and how might you respond?**

**17. What can we do to prepare for changes in the sector and the impacts on jobs, businesses and rural communities?**

Climate change, as well as market demand, will affect the types of crop farmers can grow, so transformative strategies are required to help rural producers to switch crops and diversify revenue streams by other means (e.g. turning waste into high-value products).