

# Mackay–Isaac–Whitsunday Reef Resilience **Final Report**

By Emma-Kate Rose  
May 2021

**The  
Next  
Economy**

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Mackay-Isaac-Whitsunday Reef Resilience Project

Prepared for Sustainable Table

Thanks to the generous support of the Morris Family Foundation and Bloomberg Philanthropies Vibrant Oceans Initiative

Final Report

by Emma-Kate Rose, May 2021

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## Acknowledgement of Country

We wish to acknowledge the Ngaro, Yuwi-bara, Koinjmal, Gia and Wiri Traditional Owners of the land and sea in the Mackay-Isaac-Whitsunday Region, and pay respects to their Elders past and present.

We also wish to acknowledge the thousands of years of traditional farming and fishing practices in the region, and offer our solidarity and support to facilitate reparations through our work. Sovereignty was never ceded.

## About The Next Economy

Communities and organisations all over the country are feeling the burden of economic change, often bearing the brunt of policies that don't appreciate the true value of regional economies. Change is inevitable, and with that comes great anxiety. But it also comes with great opportunities. We work alongside communities, industries and governments to harness those opportunities that will work for people and the planet on which we all depend.

Find us at: [www.nexteconomy.com.au](http://www.nexteconomy.com.au)

## Acknowledgements

The findings presented in this report were collated through a series of consultation activities undertaken by The Next Economy between February 2020 and March 2021. The consultation was led by Emma-Kate Rose (The Next Economy), with assistance from Tegan McBride, Jodi Clarke and Cassie Duncan (Sustainable Table) and Amy Huva (Morris Family Foundation) also provided excellent support during the community engagement activities.

We'd also like to acknowledge all the participants listed in Annex B for their time and contribution to this important work.

# 1 Introduction

In recognition of the importance of the food and agriculture sector and its impact on the resilience of Queensland's iconic Great Barrier Reef, Sustainable Table (funded by the Morris Family Foundation) commissioned The Next Economy to undertake the Mackay-Isaac-Whitsunday Reef Resilience Project.

The project has three broad objectives, which are to:

1. Provide a deeper understanding of current challenges and enablers for the food, agriculture and land use transition in the Mackay-Isaac-Whitsunday region;
2. Establish a range of priorities to inform the Sustainable Table Fund (formerly Ripe for Change); and
3. Identify broader investment opportunities.



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## 1.1 Project Background

As part of this work, The Next Economy was contracted to:

- Undertake a community engagement process to analyse the local food and land use sector and its impacts on the Great Barrier Reef;
- Undertake a mapping exercise of existing land use, food production and processing in the region;

- Identify programs already in place to eradicate negative impacts and create positive environmental and economic outcomes; and
- Identify investment opportunities to support the sector to improve practices.

## Project purpose

The aim of this project was to ensure that a place-based, community-led approach to systems change underpins any efforts to transform the Mackay-Isaac-Whitsunday region's food, agriculture and land use practices.

The Next Economy undertook a community engagement workshop and a number of key stakeholder interviews across all levels of government, non-government, industry, small businesses and academia, to supplement background research activities.

The community engagement workshop was initially planned to be held across three locations at the end of 2020, however, due to impacts of the pandemic the workshops were postponed and consolidated into one, which was held in March 2021 in Proserpine.



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The workshop was held on 25 March 2021 at the Proserpine Community Centre and brought together farmers, fishers, producers, traditional owners, processors, technical assistance providers, government representatives and food sector industry leaders.

## Definitions

### Regenerative Agriculture

It's important to note that the term regenerative agriculture is used widely in this report as a deliberate way to refer to methods of land management that holistically approach ecological, social and cultural renewal. This is different to the way the term sustainable agriculture is used in many mainstream reports, which mainly pertain to minimising environmental damage or doing “less bad” to ecosystems.

The “Blueprint for Impact” report defines regenerative agriculture as follows:

*“Regenerative agriculture refers to systems approaches to farming which go beyond minimising and reducing negative impacts to ‘restoring, improving and enhancing the biological vitality, carrying capacity and ecosystem services’ of landscapes (Electris et. al 2019). In other parts of the world the language of agroecology is used for farming systems of this nature, but in the USA and Australia the term regenerative agriculture has gained traction (Open Food Network 2020). As a holistic approach to farming systems, the realm of regeneration is often extended ‘beyond environmental outcomes to include enhanced human communities’ (Burgess et al. 2010: 8; see also General Mills 2020 and Regenerative Organic 2020).”*

### Bio-Futures

Bio-futures broadly refers to the industrial biotechnology and bio-products sector, which focuses on the development and manufacturing of products from sustainable organic and/or waste resources, rather than fossil fuels. Bio-futures are one component of the increasingly talked about circular economy model of development. The circular economy is a generic term for an industrial economy that is producing no waste and pollution, by design or intention.<sup>1</sup>

#### Future Foods

As a subset of the bio-futures industry, Future Foods purports to address the challenges of climate change and sustainability in food production. It relies on the premise that a transformation of the way food is currently manufactured and consumed is necessary to feed an ever-growing population whilst limiting its environmental impact.<sup>2</sup>

### Aquaculture

Aquaculture is defined by the Food and Agriculture Organization of the United Nations as the farming of aquatic organisms including fish, molluscs, crustaceans and aquatic plants with some sort of intervention in the rearing process to enhance production, such as regular stocking, feeding and protection from predators.<sup>3</sup>

<sup>1</sup> <https://sourceable.net/bio-futures-a-path-to-sustainability/>

<sup>2</sup> <https://www.journals.elsevier.com/future-foods>

<sup>3</sup> <https://www.agriculture.gov.au/fisheries/aquaculture>

## 2 Detailed Findings

### 2.1 MIW's Economic Profile and Land Use

The Mackay-Isaac-Whitsunday ("MIW") region's agricultural sector contributes a gross value of around \$1.393 billion to the Queensland and Australian economies.<sup>4</sup> According to ABARES, agricultural land in the MIW region occupies 79,800 square kilometres, or 89 per cent of the region.

Areas classified as conservation and natural environments (nature conservation, protected areas and minimal use) occupy 6,600 square kilometres, or 7 per cent of the region.

The most common land use by area is grazing native vegetation, which occupies 42,500 square kilometres or 47 per cent of the MIW region.<sup>5</sup> Figure 1 below shows the distribution of various land use types across the broader region.

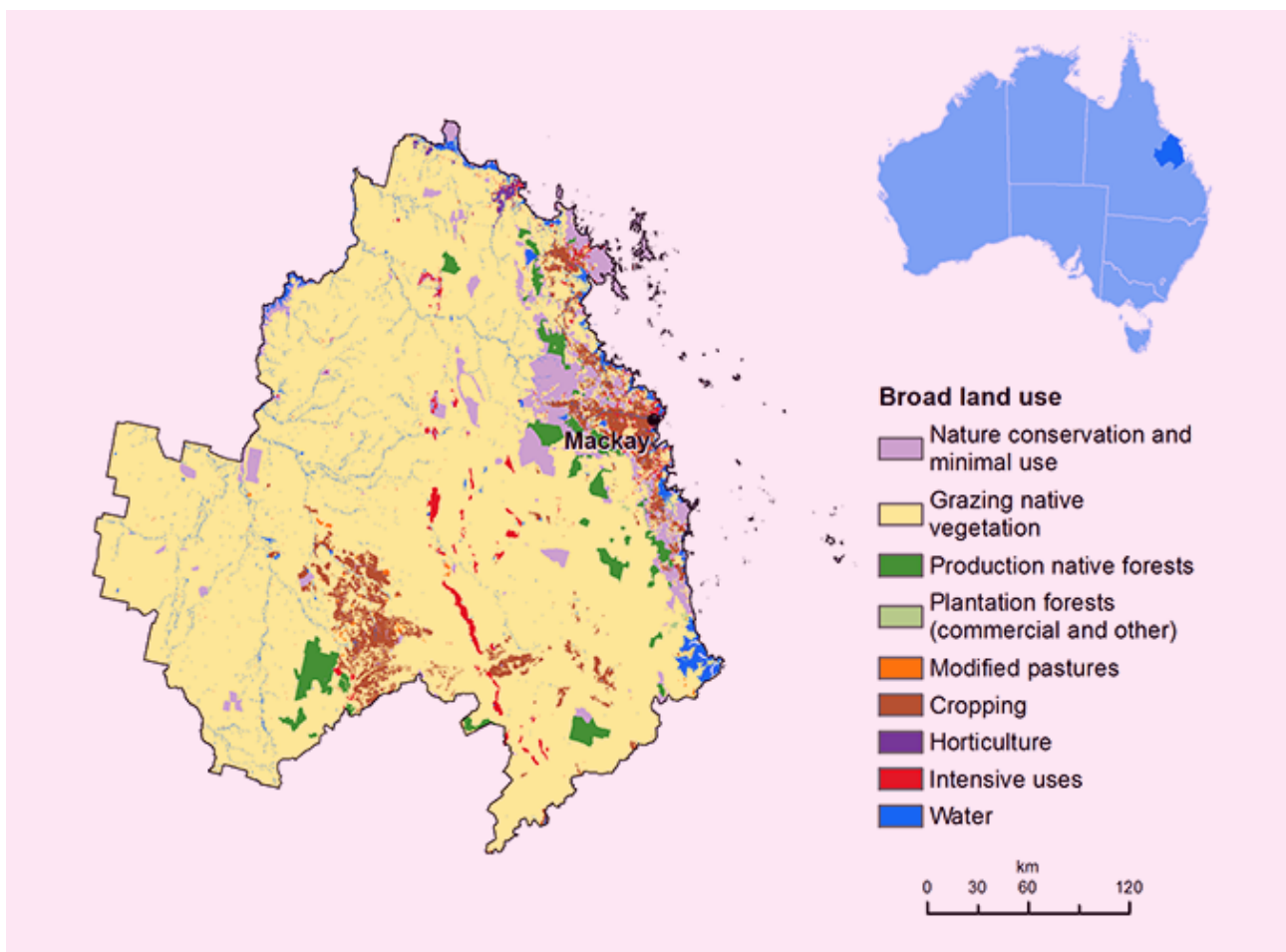


Figure 1 – ABARES Broad Land Use

<sup>4</sup> Planting the Seed, 2016

<sup>5</sup> ABARES 2016

The Greater Whitsunday Report notes that the most common commodities in the region based on the gross value of agricultural production were livestock (\$622 million), followed by sugarcane (\$460 million), vegetables (\$193 million) and pulse crops (\$74 million). These commodities contributed almost 91 per cent of the total value of agricultural production in the region. As outline in Figure 2 below:

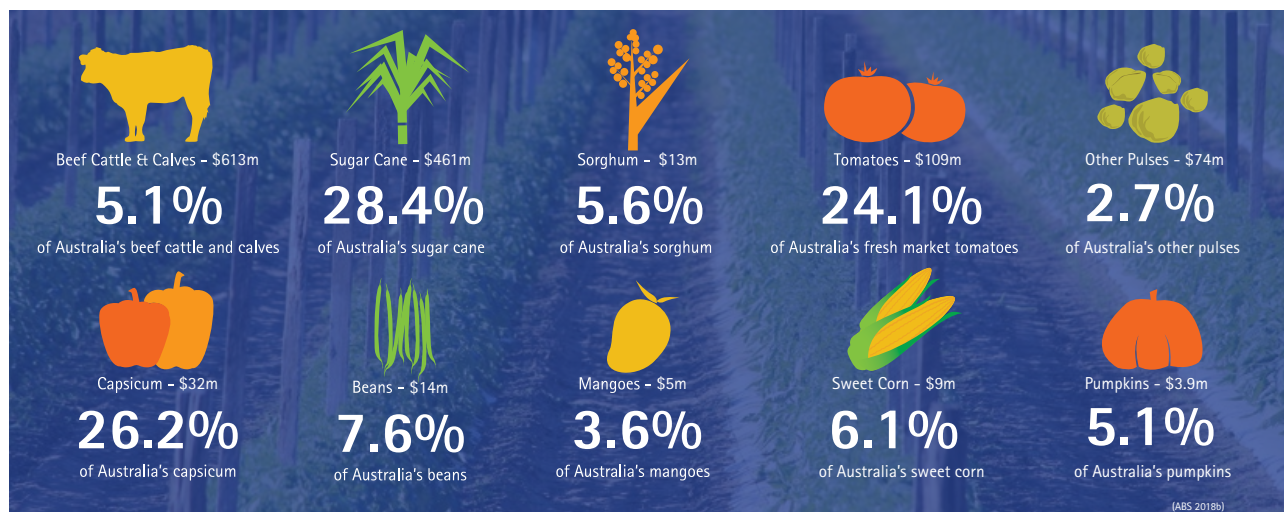


Figure 2 – Source: Planting the Seed report<sup>6</sup>

ABS data indicate that in 2017–18 there were 1,713 farms in the MIW region with an estimated value of agricultural operations of \$40,000 or more. The region contains 10 percent of all farm businesses in Queensland.

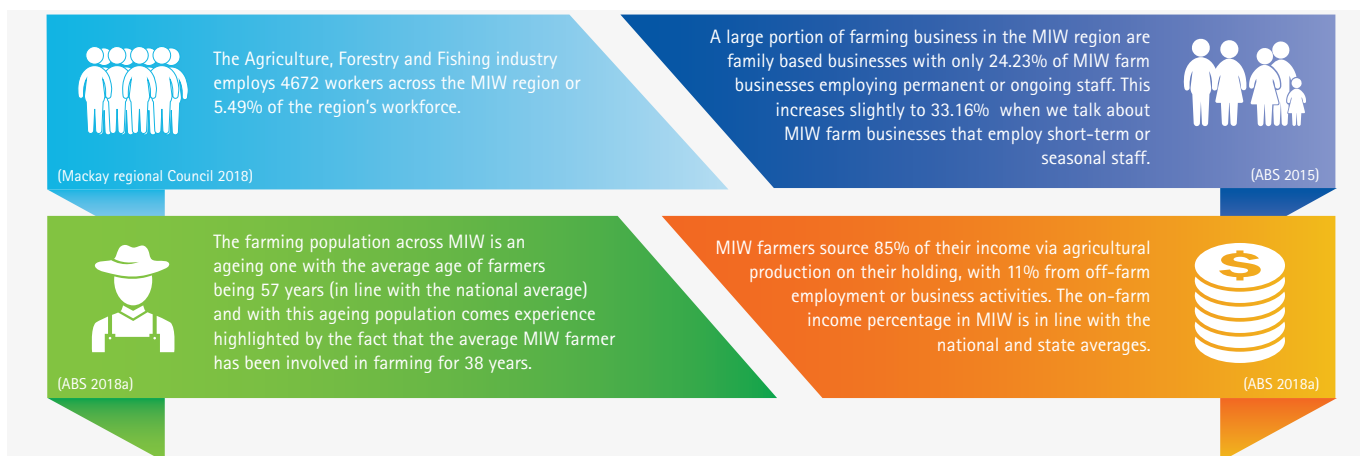
Industry classification	Mackay – Isaac – Whitsunday region		Queensland	
	Number of farms	% of Region	Number of farms	Contribution to state total %
Sugar Cane Growing	983	57.4	2,939	33.4
Beef Cattle Farming (Specialised)	538	31.4	8,288	6.5
Other Grain Growing	51	3.0	985	5.2
Vegetable Growing (Outdoors)	45	2.6	639	7.1
Other Fruit and Tree Nut Growing	28	1.6	761	3.6
Grain-Sheep or Grain-Beef Cattle Farming	26	1.5	821	3.1
Other	42	2.5	2,915	1.4
<b>Total agriculture</b>	<b>1,713</b>	<b>100</b>	<b>17,348</b>	<b>9.9</b>

Table 1 – Source: ABARES<sup>7</sup>

6 Planting the Seed, 2016



The sector is a relatively low employer, with the agriculture, forestry and fishing sector employing around 4,000 people, representing 5.5 percent of the region’s workforce. Figure 3 below also shows the ageing population of farmers, as well as the ownership and income mix.



**Figure 3 – Planting the Seed Report<sup>8</sup>**

A number of reports have explored the potential for agricultural sector growth in the region. Economic development reports highlight the “proximity to the burgeoning Asian market, equable climate, fertile soils and current agricultural supply chain infrastructure” as being positive attributes to grow agricultural production in the region and increase its capacity to value-add.

The recent commencement of GW3’s Agribusiness Futures Alliance collaboratively led by government and industry representatives aims to provide the framework for the MIW agricultural industry to reach its potential in coming years.

Additionally, the global pandemic has focused the attention of Queensland Government and Regional Councils to create more resilient regional economies with new business opportunities. There is a renewed commitment to projects that are able to withstand global disruptions, particularly in producing, processing and distributing food locally, and some of which is also able to be exported across the world due to its unique value to those markets.

## 2.2 Food and Agriculture

Food and agricultural activities form a large part of the region’s geographic and economic activity, with growth in agritourism, local food initiatives, and increased interest in provenance and value-adding to raw produce.

**Greater Whitsundays Food Network (GWFN):** An Incorporated Not-For-Profit Association, the GWFN was born out of a number of people (chefs, growers and eaters) interested in local food production and consumption approximately six years ago. Funding has been secured through a variety of sources including local government, with Mackay Regional Council a significant contributor, and in 2019, funding was secured through the Local Buying Foundation (an initiative of BHP which holds a number of mining assets in the region) for an agri-tourism Project officer role.

<sup>8</sup> Planting the Seed, 2016

The network includes smaller, direct-to-consumer growers and makers normally excluded from mainstream markets. They host an accredited farmers market, weekly on Wednesday morning in Mackay serving approximately 1,000 customers. Prior to COVID-19, they also hosted a monthly Friday night twilight market including food and produce with an estimated 4,000-5,000 visitors per event. There are plans to broaden their activities to Moranbah and potentially Bowen or the Whitsundays area due to increased demand from smaller towns in the region. Their public engagement has also included annual farm to plate events, and they're currently working on a self-drive map for agritourism opportunities.

**Central Queensland Soil Health Systems:** is a volunteer-run group of 40 farmers interested in soil health, working peer to peer, with support from Reef Catchments. The work they are doing is leading edge, however limited funds are stifling progress on a wider scale.

According to the Queensland Department of Agriculture and Fisheries, the six main industries in the agriculture sector repeatedly identified in reports for further development and investment in the region include: aquaculture, beef and livestock, bio-futures, cropping, horticulture and sugar.

**Aquaculture:** The MIW region currently produces 1,471 tonnes of mainly prawns on 89ha of ponded area, which gives a yield of 16.53 tonnes per hectare. This is the second highest yield in the state and is almost two times the state average. The total aquaculture production value in the MIW region is \$20.9 million. It's predicted that by 2026, the Mackay-Whitsunday Tassal Group facilities could be producing a combined output of about 10,000 tonnes of prawns annually for domestic and developing export markets, effectively doubling current production.

The Australian Prawn Farming Association (APFA) is supportive of the Reef Guardian program and has members of its board sit on Local Marine Advisory Committees (LMAC's). APFA acknowledges on its website that any new developments in the Great Barrier Reef Region must demonstrate how they will contribute to the successful delivery of the targets and objectives described in the Reef 2050 Long-Term Sustainability Plan which has set water quality targets.

**Beef and livestock:** There are approximately 1021 beef cattle operations in MIW running predominantly Brahman and Brahman cross breeds. Beef cattle operations stretch from the coast to the west of the region, with several larger graziers situated over the range. A number of feedlots can be found within the region and the beef cattle industry is currently the largest agriculture income producer in the MIW region.

The region is home to one large meat processing facility (Thomas Borthwick and Sons), with plans afoot for several smaller niche operations in the region. Additionally, there is a small abattoir in Kuttabul, north west of Mackay, which allows small producers to sell direct to consumers. This important piece of infrastructure allows producers to value-add their product, providing direct market opportunities separate to the conventional wholesale markets.

**Bio-futures:** The Greater Whitsunday Alliance (GW3 – made up of the three regional councils) has been actively progressing a bio-futures agenda for the MIW region by leading the Mackay-Isaac-Whitsunday Bio-Futures Steering Committee. The MIW region currently has five sugar factories, an ethanol distillery, a cogeneration plant, a small biodiesel plant and a biocommodities pilot plant. Several bio-futures facilities identified for expansion include Wilmar Ethanol Distillery at Sarina; Mackay Sugar Cogeneration Plant at Racecourse Mill (Mackay); Mackay Port (NQBP) and other entities considering establishment of processing plants.

In addition, GW3 also leads a Regional Entrepreneurial Accelerator Program (REAP) through QUT and MIT to focus on establishing bio-futures as an industry in the region. Queensland Waste to Bio-futures Fund and the Queensland Resource Recovery Industry Development Program are supporting the development of bio-futures projects.

**Future Foods:** More recently, the bio-futures conversation has expanded to future foods which focuses on synthetic biology derived food products. The Queensland government has identified that the Mackay-Isaac-Whitsunday region could partner with multinational companies to invest in an advanced biomanufacturing facility in Mackay.

Promoters advocate that benefits to the region include diversified business opportunities, potential new income streams for farmers, and job creation. It is proposed that manufactured products be sold to domestic markets and exported predominantly to Asian markets.

**Cropping:** There are approximately 1143 operations in the MIW region growing a range of broadacre crops. Pulses are the dominant cereal crop in MIW and are widely grown in summer. Additionally, sorghum and wheat are also produced in the region.

**Horticulture:** The region is a major provider of winter vegetables including tomatoes, beans, capsicums, melons and mangoes. Bowen now has the largest organic farm in Australia, producing some of these products utilising leading edge technology for sustainability. Demand for organic horticulture is increasing in domestic and global markets.

**Sugar:** Whilst cereal and oilseed crops are the dominant broadacre crops in the west of the region, sugarcane is the dominant broadacre crop across the wider MIW region with around 1058 growers and 130,000 hectares of production area. Sugarcane is generally harvested between July and December and transported via rail and road to the various mills dotted across the region.

Over 1.07 million tonnes of sugar was produced in the MIW region in 2018 from 7.37 million tonnes of sugarcane.

The MIW region continues to see farm production below 70 tonnes of cane per hectare, which is the lowest yield per hectare across Australia. This decline in production per hectare is an ongoing trend for the past 25 years. Closer analysis of production trends highlights an increasing range of yield between the top producers and the remaining producers across all soil and climate types. This indicates that the decline in production is not solely climate based and in part relates to husbandry practices and activity.

## 2.3 Ecosystems

### The Great Barrier Reef and Water Quality

The Great Barrier Reef is an international icon and one of the nation's cultural and ecological treasures. It is home to a breathtaking array of life, worth \$6 billion a year to the Queensland and Australian economies and supports over 69,000 jobs. Governments at all levels have invested heavily in programs to enhance regulations to ensure clean water for a healthy Great Barrier Reef, driving positive change on-farm.

Agricultural practices and water quality are well understood by many stakeholders in the region, particularly after more than ten years of efforts to educate and encourage transition to sustainable land management practices that reduce or eliminate fertiliser, pesticide and sediment runoff into water catchments. Many growers have been engaged through various programs with varying results, and some interviewees stated that the sheer number of initiatives is challenging for many landholders to navigate.

A list of programs and initiatives is listed at Appendix A.

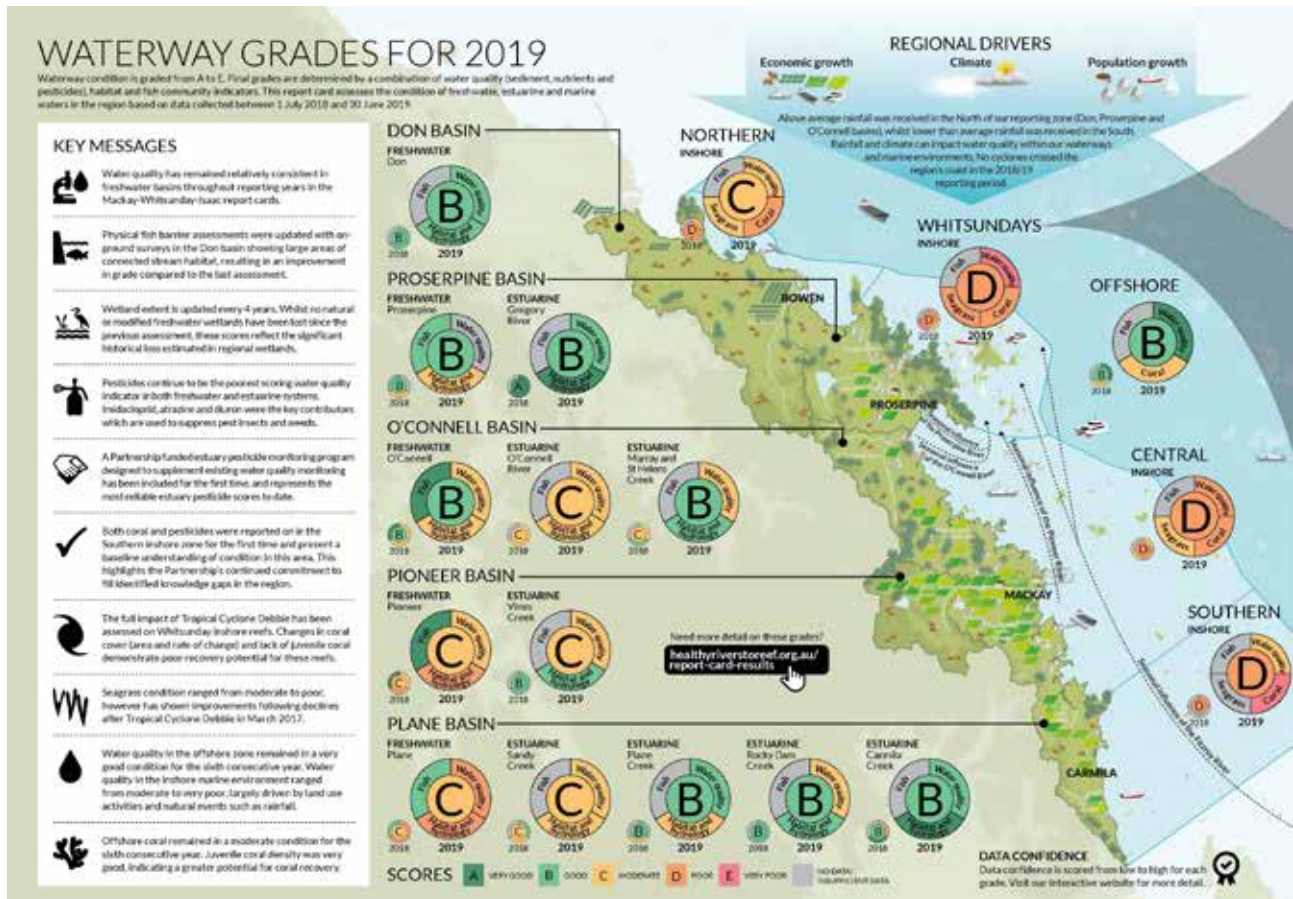
The Australian government's Reef Trust Programs 1, 2, and 3 that were initiated in 2016 is one example of a successful program designed to address key threats to the Great Barrier Reef. The Mackay-Isaac-Whitsunday Cane Regional Working Group provided the project with appropriate industry input and guidance, and a strong regional collaborative effort played an integral role in assuring each project's success:

- 244 growers farming 34,800 hectares of cane took part in planning and extension activities to improve their herbicide and nutrient management practices, striving for better quality water leaving the farm, combined with increased crop production efficiency;
- \$311,382 in small grant funding was provided to growers for activities related to improved nutrient and herbicide application;
- 92 major grants to the value of \$804,111 were provided to growers to upgrade their equipment and accelerate practice change to improve water quality and farm production efficiencies. This was supported by a \$1,537,540 grower cash in-kind contribution;
- Five cane extension positions were funded over the life of the project to provide one-on-one planning and extension services to growers.

One area of weakness with many programs has been the lack of socio-cultural programs to address long term uptake of new methods of sustainable agriculture. Little investment has been made in monitoring for long term change, however there is more work being done now relating to the human dimensions of practice change, and the impact of socio-cultural influences.

Regarding water quality results, the annual waterway health report card is produced by 31 partner organisations in the Mackay-Isaac-Whitsunday Healthy Rivers to Reef Partnership. The Partnership is a collective that includes local, state and federal government, conservation, ports and coal, tourism, agriculture, Traditional Owners and others.

The latest report card shows overall scores across the region, ranging from D (poor) to B (good) for freshwater, estuary, and marine areas. The grades are made up of a wide range of waterway health indicators scored in the region's annual waterway health report card including freshwater fish community health, water quality, seagrass and coral. Areas that scored poor to very poor correlate strongly to the presence of pesticides. See below for scores for each catchment area:



### Healthy Rivers to Reef Report Card 2019<sup>9</sup>

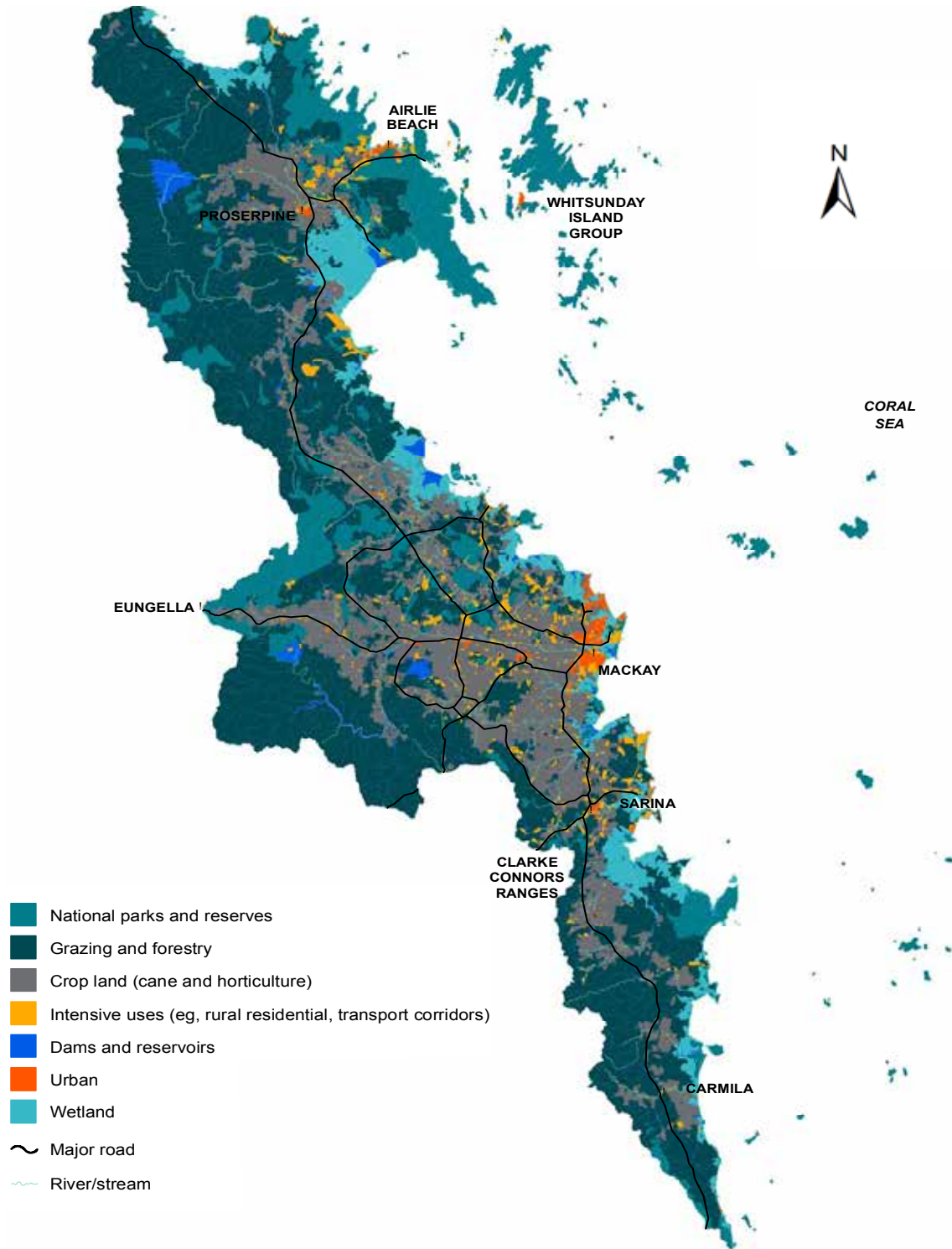
While the ecological imperative is well understood, it is evident that there's a small proportion of stakeholders who are resistant to change or transition and remain sceptical about the science behind sustainable methods of farming. Most interviewees put this down to deeply embedded cultural barriers to change and have accepted that things will move with generational handover.

It was noted that over half the existing cane farmers in the region intend to sell or retire in the next five to ten years. We are now at a critical point in time where careful management of this generational transition is required for the long-term health of the region's ecosystems. The need to attract landholders willing to change and to assist them with the right advice at the right time has been identified by several stakeholders as a gap.

<sup>9</sup> [https://healthyriverstoreef.org.au/wp-content/uploads/2020/07/hr2r\\_2019-report-card-250620-view\\_reduced.pdf](https://healthyriverstoreef.org.au/wp-content/uploads/2020/07/hr2r_2019-report-card-250620-view_reduced.pdf)

The land use map in [Figure 4](#) below has been provided by Reef Catchments, and doesn't include Bowen and surrounding areas, which belong to a separate catchment area in the Burdekin Dry Tropics. The region's land use is dominated by agricultural activity, mainly grazing, cane and horticulture.

**Figure 5 – Reef Catchments**



# 3 Stakeholder Engagement

While it was difficult accessing some key representatives of the larger industry groups, we spoke with as many stakeholders as we could as represented in our stakeholder map below:

A full list of stakeholders engaged in our project is listed at Appendix B.



## 3.1 Interviews

A number of stakeholders were interviewed as part of the project, including representatives from various farming sectors, local and state government, and natural resource management organisations and other NGOs. There were a few key farmers who weren't available for an interview but indicated they would attend the in-person events.



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## Points of Strong Agreement

Across all stakeholder interviews, there was strong agreement expressed regarding a range of issues, including the need to transition to regenerative agriculture to address reef health, diversifying the regional economy to withstand future economic shocks, and the need for additional support from various government levels as well as new investment models.

**Support for reef protection:** Stakeholders broadly supported efforts to protect the reef, and the importance of long-term protection of the region’s ecosystems with respect to the sustainability of local livelihoods and the tourism industry.

**Support for practice change / transition to sustainable farming methods:** While there was some disagreement relating to various definitions of sustainable practices, there was broad agreement on the need to develop a comprehensive transition plan to manage practice change, attract investment, while protecting industries and the reef.

**Sugarcane industry is in long term decline:** Stakeholders, including leaders of sugarcane industry bodies, expressed a common view that sugar cane prices and changes in consumption and export demand indicate a slow decline in viability for the industry.

Poor succession planning, an ageing workforce, and rigid industry rules also contribute to the industry’s woes.

*“What we need is to use these cases as an economic analysis – compare input costs and farm gate prices over five years. No one is doing this.”*

~ JULIANE KASISKE, REEF CATCHMENTS



**Workforce planning:** A number of stakeholders raised concerns regarding attracting seasonal workers and young farmers, with over 50% of cane farmers indicating an intention to leave the industry or retire in the next 5–10 years. Advocacy is needed for long-term planning and skills development that involves all relevant parties, including education institutions, industry, government and workers.

**Mining and agriculture can co-exist:** There was broad agreement that the mining industry in the region can co-exist with agriculture and tourism as there is no pressure on the Artesian Basin in terms of competition over access to water. Additionally, the mining sector was seen as a huge contributor to the region's wealth and its ability to enhance economic resilience, particularly during the pandemic.

One example given was that some groups working on reef health are often beneficiaries of mining industry donations, often filling funding gaps. Anecdotal evidence also points to a number of regenerative farmers subsidising incomes in the mining sector.

**Expanding food manufacturing and processing at a regional level:** Significant support was expressed for expanding the food processing and manufacturing capacity across the region. A number of industry representatives noted that one impetus for expanding manufacturing was to increase domestic and export demand for regional, sustainably grown products.

The Bio-futures report highlights the circular economy in agricultural waste as a key priority for the region.

**Importance of consistency across Federal and State and NGO programs:** Participants regularly cited the importance of local, state and federal government initiatives aligning with NGO priorities to minimise conflict / misunderstanding while supporting regional development and industry to innovate and adapt to change.

**Build on local assets and strengths in a sustainable way:** Given Queensland's history with boom and bust cycles, there was strong consensus that development should build on existing industries and strengths, and that new initiatives should be developed for the long-term economic resilience of the region. To take advantage of local strengths, regional authorities require greater resources and support to coordinate the transition that is already underway.

**Investment and support are required:** New food and agriculture industries and initiatives are emerging and will benefit from efforts to develop the infrastructure, market and businesses over the long-term, especially with regards to local, sustainable produce and value-added products (for example: the Greater Whitsunday Food Network), but should also complement reef health programs.

Economic development officers also encouraged Sustainable Table to consider becoming an active member of the Agribusiness Futures Alliance committee run by GW3.

**Role of Government, Industry and Philanthropy/Impact Investment:** There was a high level of agreement among interviewees regarding the responsibilities of government and industry in managing the transition. Participants agreed that the role of government was to provide leadership and vision; develop plans and appropriate legislation; generate bipartisan support; facilitate cross-sector participation and investment; and encourage community confidence.

Participants saw the role of industry as scaling changes through cross-sector participation; improving farming methods; setting industry standards and keeping the sector accountable; attracting investment in new technologies and water management systems; and developing supply and value chains.

Philanthropy and Impact Investment already plays a key role in the region, specifically to support reef protection and its integral relationship to the agriculture and land use sectors. Many acknowledged the growing importance of the catalytic role these types of funds can play in the transformation of the industry. Members of the GW3 Agribusiness Futures Alliance indicated that they would welcome representatives from Sustainable Table on the committee to better understand the investment opportunities currently identified.

## Group Divergence

While stakeholders expressed very strong points of agreement, it is worth noting that there were several areas where opinions diverged or lacked consensus.

**Motivations for change:** The main difference in opinion expressed during the interviews related to the reasons why things need to change. While some advocated for the need to address the climate emergency and reef health, others emphasised the need to adapt to emerging technological and economic/market trends.

**Support for reef regulations:** Many stakeholders disagreed that planning and regulation was fit for purpose, with some stating the reef was over regulated and others wanting more consistency and enforcement of existing regulations.

**Level of investment in transition strategies:** Stakeholders differed greatly on the funding for transition available to landholders. Many working in reef health stated that growers have been funded adequately for training, education and tools, while some industry stakeholders indicated that there has been a lack of consistent support over the long term.

**Reliability of organic / regenerative production methods:** Another area where people differed was the level of trust they had in the reliability of sustainable farming methods to provide the volume targets indicated in business plans, with many blaming the lack of adequate scientific communication and economic analysis relating to the costs to benefit ratio during transition. Some mentioned that the mere term 'regenerative agriculture' was a turn off and preferred to use the term 'precision farming' to appease certain groups of growers. This can be problematic as one term refers to holistic approaches to farming, and the other presents an incremental change in existing monoculture systems, or a "less bad" way of doing things.

*“Growers have lost patience with consultants and plans. How much of the funding will find its way to growers on farms as a genuine leg up to implementing further change?”*

~ CANEGROWERS MACKAY CHAIRMAN, KEVIN BORG.

**Diversification of crops on cane farms:** One method of addressing a reduction in income from sugar commodities, is to diversify crops grown in the off season. Various cover crops such as rice, pumpkin, macadamias, and hemp are being trialled by many growers to reduce soil disturbance. However, there is some concern that these operations don't jeopardise the cane volumes as sugar mills are highly dependent on minimum volume targets in order to maintain viability.

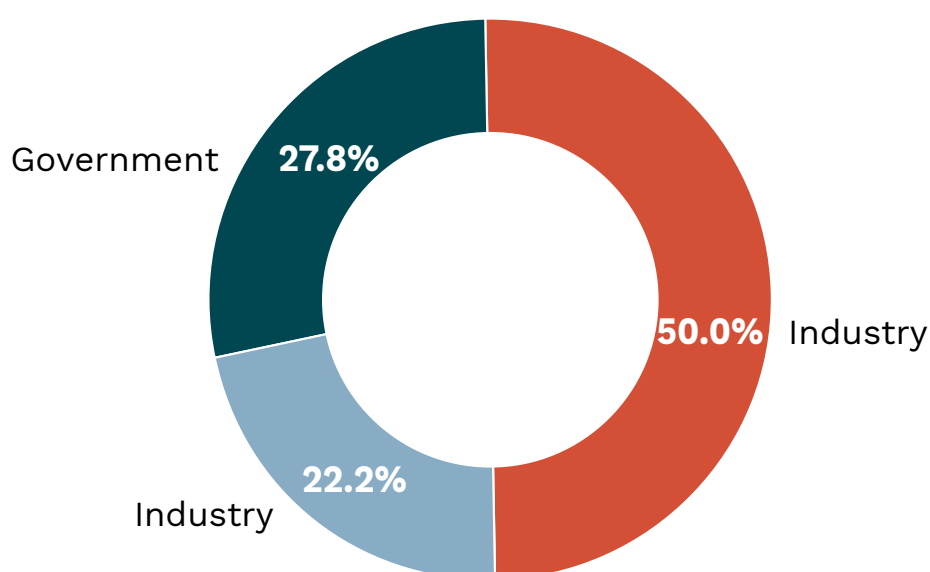
### 3.2 Workshop Outcomes

This report provides a summary of the input received from stakeholders and a review of reports and initiatives in the region. It also identifies patterns, differences and economic opportunities identified by the stakeholders, and makes a series of recommendations to inform Sustainable Table's priorities for funding and activities in the region.

Due to a series of lockdowns in Melbourne, Victoria preventing attendance by representatives from Sustainable Table and Morris Family Foundation, the original three workshops were postponed and eventually combined as one workshop, which was held in Proserpine in late March 2021. The Next Economy worked closely with Ripe For Change representative in Mackay, Tegan McBride to organise two workshops in Proserpine and Moranbah, however the Moranbah event was cancelled due to a number of limiting factors such as conflicting events and meetings happening at the same time. The facilitation team decided to use the available time to instead make a number of site visits which are detailed below.

On Friday the 25th of March, 22 growers, fishers, traditional owners, government and industry representatives met at the Proserpine Community Centre to discuss the range of economic opportunities and challenges in the region's food and agriculture sector. Of the growers in attendance, at least half identified as practicing regenerative methods or in the process of practice change. A full list of participants can be found in Appendix B.

The group was represented by the following sectors:



To frame the discussions, The Next Economy presented the findings from the stakeholder interviews and background research, followed by a short open discussion. The presentation covered elements of a resilient food system and the opportunities currently emerging in the region. Areas of agreement were presented, along with gaps and divergence of views. Participants then worked together on the opportunities and challenges related to changes in their region, as well as how they can stimulate the regional economy by embracing the changes.

## Visioning Activity

Participants were then invited to work with others at their table to describe their vision for the region's food and agriculture sector. They were asked to work on the following questions:

1. What does it look like if we're producing good food sustainably that supports healthy soils, waterways and reef?
2. What does it look like if people are able to access this food locally and affordably?
3. What does it look like when people working in the food and agriculture sector are looked after?
4. What would it look like if we could add value locally through processing and manufacturing?

Participants were then asked to report back their responses, and a number of themes emerged as follows:

**Energy and resources** – a healthy food and land use system uses renewable energy and builds soil health to be resilient in the face of climate shocks. Waste is re-purposed and value added to provide an alternative revenue stream.

**People and workforce** – build a deeper connection to the land through a change in mindset and relationships within industry, traditional owners and local communities. Growers form peer groups to help each other transform their mindset and practice change. Mental health is prioritised through connection and collaboration. Work is rewarded fairly for each person's contribution, and seasonal workers are supported through cross-sectoral collaboration. Food and agriculture is seen as an attractive career path. Education institutions include regenerative food and land use in curriculums to provide pathways and build knowledge.

**Biodiversity** – increase on-farm diversity to reduce run-off, protect water catchments and build biodiversity. People take pride in their land and the way they manage it, especially Traditional Owners. The influence of multinational chemical companies on agricultural practice is reduced.

**Markets** – authentic farmers markets, ethical value chain coordination, localised sourcing, marketing and distribution to allow access to good food for all. The influence of multinational food companies is reduced, and a regional brand / identity is developed and promoted, and creates a drawcard to tourism operators. Money is circulated in the local economy to build economic resilience, and much of this is facilitated through regional institutional procurement policies.

## Local Concerns about Food and Agriculture

Working in small groups, participants were then asked to identify challenges and/or concerns they had about achieving this vision for the region's food and agriculture sector.

**Production:** The main concerns from participants centred on the burden of regulations relating to reef health and a general lack of understanding that growers have very limited time and ability to collaborate to learn and apply regenerative agriculture. One canegrower mentioned that working with neighbours would be the most effective way to achieve change.

**Processing:** Attempting to do this on-farm (eg. canning facilities for tomatoes) can be costly and makes it difficult to compete with the 'big guys'. The big retailers demand consistency and don't deal well with unreliability. AgTech gets a lot of funding / investment but doesn't address systemic needs.

**Access:** The local food sector is seen as a niche, and often dismissed as doing the "cute stuff". Issues such as cost of local food is perceived as a barrier, as well as a lack of convenient location or distance from public transport. There was a perception that there have been many reports written and committees to work on issues, but no one is joining the dots. There is no cold storage available in town centres that is available for small producers to store produce short term and supply to local markets.

**People / Work:** The main concerns from participants centred around current issues such as skills shortages, particularly regarding seasonality and the precarious nature of farm work, and limited acknowledgement of small growers. It was noted that career advisors don't understand some of the opportunities well enough (e.g. not just horticulture, but other industry careers like agroeconomist), and children don't get access to the opportunities in agriculture.



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## Economic Opportunities in Response to Changes

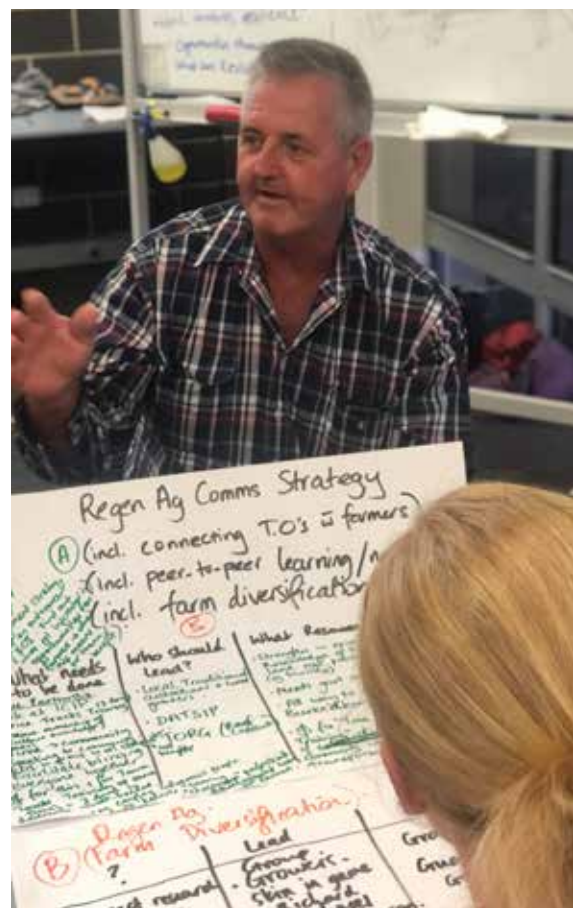
During the same activity, participants were also asked to identify opportunities that were emerging in the region. These included:

### Production:

- Increasing production and diversity of operations through co-farming and land sharing;
- Exploring alternative winter crops during the down season (e.g. soybean) to increase income by subsidising upskilling in crop rotation;
- Build a platform to host conversations with local Traditional Owners to utilise ancient practices of caring for country;
- Education for regenerative practices for those wanting to make changes. They are the real leaders/ innovators, and many don't have access to mentors or training opportunities;
- The region has a unique environment and context, that is world recognised, and has strict environmental conditions for producing great quality products.

### Access:

- Regional distribution centre (need volume, consider geography, population/demand). Coolrooms in town needed to support local food distribution;
- Regional branding – e.g. heart of reef (globally known) – connecting to big retailers;
- The demand for local food is growing;
- Utilise “seconds” produce that's wasted to feed marginalised people;
- Expand education programs to cover:
  - Eating seasonally
  - School gardens
  - School cooking programs
  - Integrate education about local food, where food comes from into existing programs like Deadly Choices
  - Exposure regarding food miles and their relationship to carbon emissions
- Hospitals, aged care, restaurants, prisons, army, universities – could be sourcing local food and establishing procurement policies (eg. implementing the State government's Buy Queensland campaign)



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- Build evidence that procuring locally can create jobs and benefit the local economy
- Local/regional distribution points needs to be linked to resilience for disruption to supply chain, fuel supply, pandemics, weather events:
  - GWFN market doubled sales during the first month of COVID
  - It's the right time to build on that story of the need to support local

#### **People:**

- Utilise existing work and past reports to bring the key stakeholders together to make this information relevant and plan for the future
- COVID changed/improved people's attitudes towards local food
- Lack of seasonal workers difficult to address, but we need to plan to pay well for this work and work across sectors to keep workforce in the region. For example, Australian Prawn Farms identified the seasonal nature of their work could complement other work in horticulture which Bowen Gumlu Growers Association are finding difficult to source
- Storytelling between producers and consumers – eg. regenerative agriculture has a refreshing impact on the way people see agriculture, a way to feel positive about the system, and in control
- Education
  - Working in schools around career development in agriculture
  - Ag tech education – farming is sexy for young people! Farmers are the new rockstars
    - Ag tech innovations are working well. Bringing farming into today's world
    - Integrate Ag tech into agricultural education
  - Demystifying misconceptions around farming processes and opportunities
  - Enrolments in agriculture are increasing, universities are upping the ante due to a lack of international students post-pandemic

#### **Processing:**

- High value in processing tomatoes to use as food colouring. Lots of research happening but needs commercial partners
- Freeze drying and dehydration of food also identified as an opportunity for investment but not happening on a commercial scale as yet
- Manufacturing facility geared towards taking waste and processing for pharmaceutical products under the Bio-Futures strategy. Feasibility is still underway
- AgFutures Alliance partnership between three tiers of government, sees the need to prioritise agriculture because coal and gas mining is in long term decline
- Food incubator – value adders collaborating together in shared facilities to reduce costs. This has commenced in Bowen at Limes and More, and the Sarina Sugar Shed has established itself as a local food processing and tourist attraction

## Priorities & Actions

The following priorities and actions were identified by workshop participants to catalyse regional food and land use initiatives to ensure long term economic resilience while maintaining a healthy reef. Four themes were selected to target priorities, which all address unique leverage points in the system.

<b>1. Production</b> <ul style="list-style-type: none"><li>• Access underutilised farmland (share farming models)</li><li>• Establish a body to easily navigate regulations affecting growers</li><li>• Support for on-farm diversification education (including Mills)</li><li>• Connect Traditional Owners with growers to learn land management practices</li><li>• Partner with universities for innovative pilots</li><li>• Fund a regionally specific regenerative agriculture communications strategy to de-stigmatise change.</li></ul>	<b>2. People</b> <ul style="list-style-type: none"><li>• Peer-to-peer learning and networks</li><li>• School career pathways</li><li>• Growers succession planning (not only limited to family members)</li><li>• Seasonal workforce and job security through cross sector collaboration</li></ul>
<b>3. Processing</b> <ul style="list-style-type: none"><li>• Utilise waste streams to value add</li><li>• Manufacturing hub, eg dehydrating waste for pharmaceutical use</li><li>• Explore on-farm processing and tackling red tape (eg micro/mobile abattoir)</li><li>• Fund infrastructure to encourage locally owned processing facilities</li></ul>	<b>4. Access</b> <ul style="list-style-type: none"><li>• Create infrastructure for local food distribution</li><li>• Institutional procurement policy and practice for local food</li><li>• Collective of advocates – strategic marketing and branding, eg. “love reef”</li><li>• Food literacy and education</li><li>• Food business incubator</li></ul>

## Planning for Change

To allow enough time to create meaningful action plans together, participants were asked to prioritise all the actions identified down to just three or four projects, and to work in groups to develop the plans for action. The following plans were put forward by the groups as having the most interest and potential for transformational change, while also considering benefit sharing with marginalised communities, and encouraging economic diversification.



## Project 1: Connecting Regenerative Agriculture and Traditional Custodians

Develop a way for growers, landholders and Traditional Owners to collaborate on regenerative land management, knowledge and practices, and communicate the work to mainstream audiences.

Action	Who	Resources
Allocate a Project Manager and conduct an Expression of Interest process to determine interest and appetite for the project	Deadly Weavers, Reef Catchments Traditional Owner Reference Group, DATSIP, Growers & Landholders	Funds to support collaboration activities and project management
Develop a marketing and engagement strategy at the end of the Expression of Interest process	Project Manager	Funds for marketing and communications activities.
Develop a true partnership model to ensure protection of cultural knowledge	Project Manager	Use the model 'True Tracks' developed to assist IP for Traditional Owners
Organise a two day event to collaborate on opportunities and provide professional development training for landholders and growers	Project Manager	Transport for elders Funding to organise and host the event True Tracks trainers fees

## Project 2: Peer-to-Peer Learning On-Farm Diversification

Encourage the region's growers and landholders to learn from each other on how to diversify on-farm activity and increase rates of regenerative agriculture practices.

Action	Who	Resources
Identify growers not currently connected with regional regenerative agriculture activities	Regional regenerative growers group	Growers groups and networks
Providing exposure of the long term economic gains of diversification through a communications strategy	Communications experts	Supporting organisations (eg Reef Catchments) and funds for communications roll out
Engaging young growers and ag colleges	Ag colleges and universities	Grants
Identify existing farms as pilot farms, organise field days to encourage peer to peer learning	Reef Catchments and Growers	Support from partner organisations
An event with guest speakers who talk about regen ag in cane and horticulture	Growers and Reef Catchments	Guest speakers to support growers, spark people to attend, flesh out opportunities, and facilitation of connections and networks

## Project 3: Regional Food Incubator

Establish a regional food incubator or shared use kitchen to encourage producers and entrepreneurs to value-add raw produce grown locally. Note: this project had already been earmarked for development by the Queensland State Development Department.

It should be noted there was some feeling in the room that there were enough commercial kitchens already in existence but not used to their full potential that could provide this infrastructure in the region. Support for connecting resources with community members seeking to value-add maybe a better investment. For example, Limes and More in Bowen already have a purpose-built facility and need help attracting users.

Action	Who	Resources
Engagement step where they engage with industry stakeholders	Economic development bodies, local councils, GW3	Being run by the Qld Government State Development department so far and from the steering group they will take ownership and run it
Expression of Interest process to get understanding of demand and establish a need	Producers and value adders	
Detailed engagement – interviews face to face and what they need the kitchen for	Steering group	
Scope existing facilities and required infrastructure in the kitchen	Steering group	
Develop a project plan and establish a steering group	Steering group	
Investigate funding options and models and services and work out who would administer/ run the kitchen	Steering group	

## Project 4: Local Food Infrastructure

Establish and /or identify shared infrastructure and locally run logistics, such as a local food hub, micro/mobile abattoirs, community-owned sugar mills for the region to ensure small, diverse growers are supported to aggregate, market and distribute their product locally.

Action	Who	Resources
Research options and models that have worked elsewhere and develop a business plan	GrowCom and GWFN	Short term funds to develop business plan, project plan and partnerships like councils Timeframe of 2months
Develop accreditation frameworks and eligible farmers	GWFN	Framework
Develop branding and marketing collateral	GWFN	Support through local councils
Identify points of sale and potential anchor contracts with local institutional buyers	Local council, universities, hospitals	Contract and tender expertise

### 3.3 Site Visits

The facilitation team visited three key sites in the region to assist with understanding the regional context on the ground.

#### Greater Whitsunday Farmers Market, Mackay

The Greater Whitsunday Farmers' Markets is held every Wednesday at Bluewater Quay on River Street in the Mackay City Centre. Their vision is to facilitate and empower stronger connections from agribusiness through to the consumer to enable a community more closely connected and advocating for locally grown and produced.



The weekly market gives locals and visitors alike the opportunity to buy direct from small-scale regional farmers. The market showcases the region's diverse array of produce giving farmers and value adds an opportunity to help grow the local food culture. We spoke to a number of member-growers and stall holders who expressed enthusiasm for the markets, and how it was able to ramp up to meet a huge increase in demand caused by supply chain shocks during lockdown in the Covid-19 pandemic. However, there are limitations to its long term success with low foot traffic, sparse growing seasons, and a limited number of stalls. Access to weekend markets would address many of these challenges, as well as investment in marketing and capacity building for organisers.

#### Sarina Sugar Shed

The Sarina Sugar Shed is one of the most popular tourist attractions in the Mackay region. Located next to the Wilmar Sugar Mill, the venue showcases the local sugar industry, offering guided tours where tourists can watch sugar cane being pulverised and pummelled into product during 'crushing season' from late-June to early-December. It was noted that many of the employees at the Sugar Shed were previous employees of the Mill, who moved jobs because the seasonal work was not adequate to provide permanent employment.



Tastings of their house-made fairy floss, sauce, liqueur, schnapps and ginger beer are offered and a boutique shop is open to the public. The business has won many tourism awards over the years and is a great example of value adding to benefit local employment and economic benefits, as a separate activity to the global commodity industry attached to it. There was a clear sense of pride in the local sugar industry on the part of the tour employees, and the prominent identity the whole region draws from the sugar industry as a whole. This highlights the embedded cultural challenges in any sort of economic transition.

## Michael Attard, Cane Grower, Mackay

Michael is a biological cane grower based in Eton, just outside of Mackay who recently switched from conventional growing to regenerative methods. The decision was brought about by an economic crisis where the per tonne price for cane was at \$1, and his input prices were escalating. By learning to make his own fertiliser through worm castings, attending soil health workshops he was able to save over \$12,000 in chemical inputs per year, saving the business from closure.

Michael's new farming practices have created increased biodiversity on farm, reducing the need for synthetic pesticides, and his yield and quality has increased steadily over time. His neighbours have not converted to similar practices, however he is enthusiastic about support for peer-to-peer, or neighbour-to-neighbour learning in the region, as he felt this would facilitate deeper and longer term cultural change.



## Third Ground

In the heart of Sarina, a small cafe has been operating for over five years with a mission to connect people with each other, and with great food. Owners Phil and Alex Marshmann operate a cafe, community garden, homesteading school and community 'produce swap' marketplace. With a staff of 26, they recently handed over management of the cafe to brother and sister team, Skye and Wesley Bailey.



Rejecting the idea of accepting 'average' food experiences in regional Queensland, they opted for a locally sourced menu, and applied business practices based on permaculture principles. The team also run homesteading workshops, cooking classes and a podcast to reach a wider audience. The business and all associated activities are currently self funded.

## 4.0 Analysis of Key Findings

The following represents a summary of our findings from all projects activities. There was a high degree of consistency across the findings from background research, stakeholder interviews, workshops and site visits.

### 4.1 Key Challenges

Stakeholder engagement and research explored economic challenges and/or concerns in relation to the food and agriculture system and the ongoing health of the reef. The following is a summary of overall barriers to transformation and future resilience of reef health.

- Economic drivers in the region position the importance of mining over a ‘declining agricultural sector’. Despite recent efforts by local, state and federal governments to support and leverage innovative projects and initiatives in the food, agriculture and bio-futures industries, they are yet to challenge this rhetoric.
- The sugarcane industry is at risk of losing volume due to growers exiting the industry and increasing pressures to convert to sustainable agriculture practices in order to meet regulations on reef health and water quality. This is exacerbated by issues relating to socio-political attitudes, landholders feeling ‘over consulted’, poor succession planning, low prices and reduced demand for export. Many stated that for canegrowers, reef health is a political hot potato, often exploited by the louder voices of major industry bodies.
- Additionally, there was the general feeling that canegrowers are tied to the industry due to the demand on volume by the mills and the impacts of reduced or changed production on neighbours and the community in general. Changing land use risks becoming an outlier and losing social inclusion.
- Further, the nature of cane growing and the uniqueness of the bioregion and it’s inherent benefits to flexibility and lifestyle presents a challenge when considering incentives for diversification and soil remediation activities on-farm. Using the off-season to extend farming year-round may present a reduction in work/life balance not found elsewhere in the profession.
- More generally, superannuation and personal wealth is tied up in farm equipment and land ownership and creates challenges for farm business cashflow.
- There is not enough common agreement among all stakeholders to accelerate the changes required, and to ensure it is managed well. Trust issues, particularly between growers, government and ‘consultants’ are alive and well. Conflicting views regarding regulation exacerbate progress regarding improved water quality and leads to polarised viewpoints. The Proserpine workshop made a meaningful effort to ensure the good work that’s being done can be leveraged to generate broader acceptance.
- Many identified the difficulty in accessing grants to participate in carbon credit and reef credit schemes. Green Collar is one of very few groups that offer brokering services and measure outcomes, however this can be a time consuming and expensive process.

- A number of people questioned the effectiveness of regenerative agriculture. There is a lot of misinformation about regenerative agriculture (particularly in conservative groups and some industry bodies) and while more needs to be done to engage communities to help them accept and manage change, current efforts should focus on priorities identified through the Sustainable Table Fund’s grants program, and documenting success stories. Additionally, the training organisation, Resource Consulting Services has a suite of case studies from landholders in the region which could be promoted more broadly. For more information, see Appendix C.
- Stakeholders are concerned about current and future workers in the agriculture sector (especially made more difficult during the pandemic), and economic development officers accepted that more needs to be done with regards to workforce planning and new training opportunities, particularly considering the mining sector’s offer of high salaries draining the agriculture sector of workers.
- There is not enough planning and investment to adequately engage Traditional Owners, particularly to support business development to stimulate new enterprises related to regenerative land management.
- Similarly, local food systems are often viewed by economic development and planning agencies as “niche” and ignore their value to the local economy.
- Regulations and certification are expensive and often duplicate bureaucratic effort.
- There is a perception that the region has received a lot of state and federal investment over the last 10-12 years. Despite good intentions of landholders and industry bodies, changes in government priorities can create a lack of consistency. Additionally, varying levels of support from agencies has, at times, led to wasted effort and money.
- Investment in AgTech is often geared towards export commodity markets and ignores the value-add potential for the regional economy.



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## 4.2 Key Opportunities

Engagement activities and research identified key opportunities emerging because of practice change and recent regulations governing the food and agriculture sector. The main opportunities identified were:

- Many growers are increasingly accepting the reality of the need to change their practices, and require meaningful engagement and access to expertise, grants, equipment & machinery
- The need for more successful case studies with profitability analysis, business case and cost benefit model demonstrated for farmers to make the switch
- Major industry bodies advocated that sugarcane is climatically well suited for this region, and there was interest in pivoting to feed into the bio-futures strategy without risking too much change in operations.
- Others suggested that many farms could be used to convert to other uses, such as hemp production and regeneration projects, particularly along marginal lands and waterways
- There are opportunities to use existing infrastructure of rail, road and power on farms and old mine sites to convert to bioenergy and horticulture operations. For example, there are operations with five-year forestry and hemp projects, and examples like Myrtlevale Finger Limes which are diversifying their existing cane operations
- Organic and/or regenerative certification of mills and sugar farms presents a good opportunity for export operations to diversify and increase revenue, while protecting waterways and reef health
- Regionalised food system infrastructure, such as cold room storage, aggregation facilities and distribution systems could encourage increased revenue generation and a diversified food value chain
- Agritourism is a growing market in the region and requires investment to support for growers, GWFN growers and local makers to initiate experiences
- Public awareness campaigns centred on regional branding could stimulate market demand for local food, combined with positive messages and storytelling about its impact on a healthy reef and low food miles
- Public education regarding seasonality and nutrition literacy is needed in schools and in across communities
- Institutional buying could provide necessary anchor contracts to support a resilient local food system;
- Circular economy projects such as the Bio-futures strategy could address on farm waste and localised energy generation;
- Food and Fibre Plus is a collaboration between Central Highlands and MIW to understand wider regional opportunities;
- GW3's Agribusiness Futures Alliance has a mandate to work with all levels of government, engaging and collaborating across industries and other regions, which is considered essential for delivering economic benefits for the agribusiness sector during Stage 2 and

3 of the GGWA initiative. Engagement activities should also focus on the progress of the remaining stages and what, if any, changes are being made, post-pandemic. Specifically:

- Stage 2: ‘Cultivating Opportunity’ calls for the development of Ten-Year Roadmaps and Action Plans for each industry sector to consolidate key information and continue stakeholder engagement to ensure that opportunities identified are industry led.
- Stage 3: ‘Harvesting Success’ recognises that a number of growth opportunities for industry sectors rely on development or improvements in infrastructure or other growth enablers.

## Summary Analysis

Overall, there was strong agreement across the region that food and agriculture is changing – heritage industries such as sugarcane are declining, regenerative agriculture is here and, combined with unprecedented investment in reef protection measures, the region is currently experiencing a state of active economic transition. Interest in local food systems is growing, with the Greater Whitsunday Food Network demonstrating a positive economic model of a resilient regionalised food system and how these models are integral to building a local food culture, however their work is lacking strategic investment and support. The heavy focus on AgTech and bio-futures innovation by economic development agencies places the region at risk economically as they are predominantly focused on volatile export markets.

Over the last 10 years, there’s been a huge variety of initiatives, research and programs aimed at the health of the reef and improving land use practices. Opinions regarding the effectiveness of all these efforts vary widely across those consulted. Most activity seems to have taken place at the strategic level, with the full impact not yet taking hold at the ground level.

It was initially very difficult to attract the attention of important ‘traditional’ stakeholders with particular views about regenerative agriculture, and there’s a general feeling of exasperation on the part of the NRM’s and other NGO’s with a view that the agricultural sector has had enough handouts to help them to adapt to the changes needed. Many expressed a belief that remaining growers who are resistant to change should be encouraged to sell or allow best practice succession planning of their operations. The biggest barrier to this is the viability of the region’s sugar mills and their reliance on steady volumes to optimise operations.

Challenges related to succession, particularly in the sugarcane industry were also raised, with the age of farmers and a defection of young workers to the mining industry putting the whole industry at risk of decline in the next few years. The Bundaberg Sugar model of achieving organic certification and buying up farmland to guarantee supply was offered as a possible solution to this if growers / mills were willing to explore this option.<sup>10</sup>

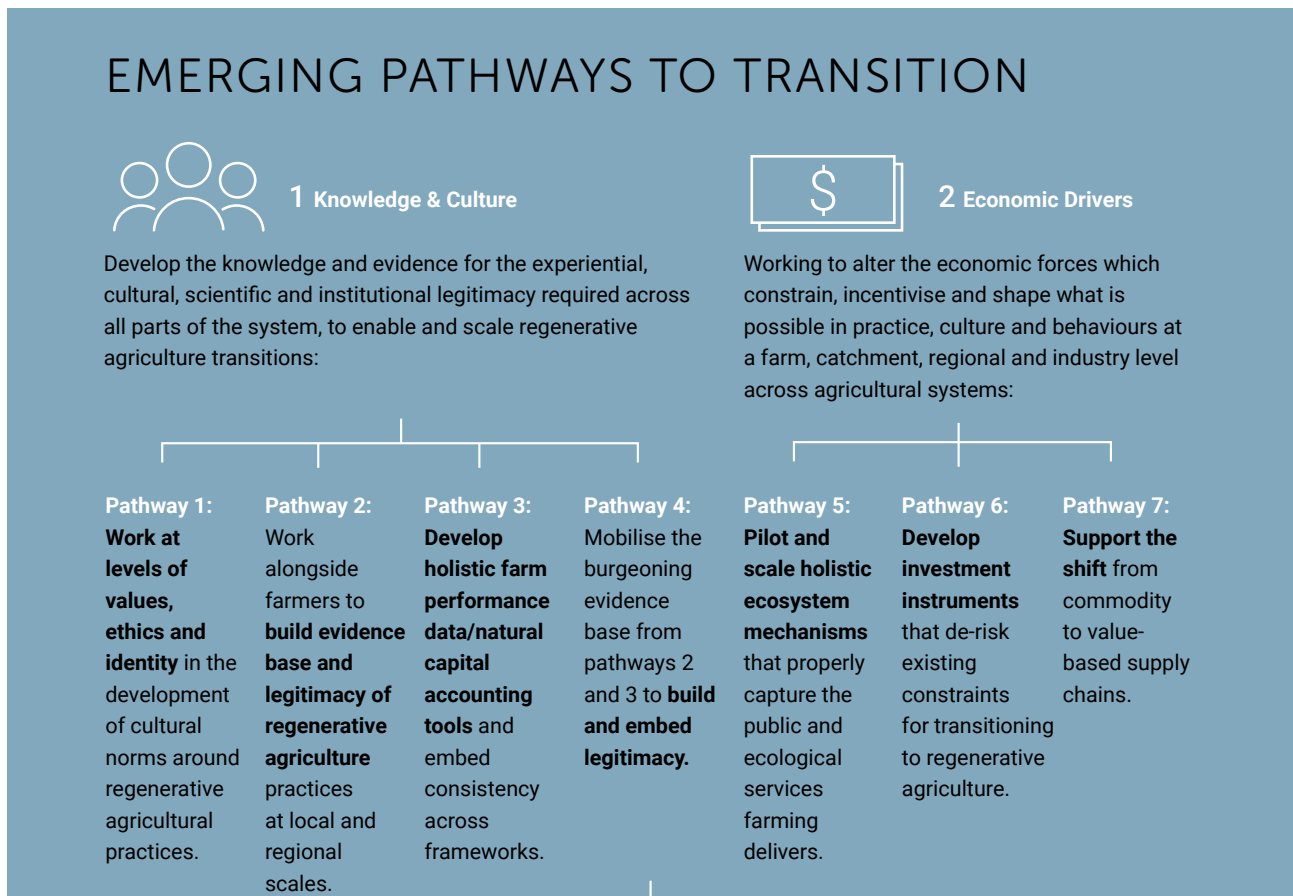
This project also highlighted the existing diverse food and land use practices already present in the Mackay-Isaac-Whitsunday Region and makes visible the important market, alternative-market and non-market transactions that go into securing food. Coalescing around food, these diverse transactions link people and organisations, and raise ethical questions about how we manage the commons of food (including food surplus and food waste), particularly when regional economic development and planning efforts usually focus their attention and funding on existing traditional

<sup>10</sup> <https://www.bundysugar.com.au/files/Media%20Release%20-%20Organic.pdf>



and new export commodity markets, serving to concentrate ownership into a small number of large corporations.

A resilient reef is dependent on a food, agriculture and land use system that increasingly adopts agroecological or regenerative practices. Agroecological innovations are largely initiated from the bottom up by civil society, social movements and allied researchers. In this context, priorities for innovations are ones that increase citizen control for food sovereignty and decentralise power.



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## 4.3 Food Systems and Diverse Economies

The many different food practices and initiatives identified by this project can often be seen as a single solution to a single problem (like food waste), or in opposition or competition to conventional practice. A ‘diverse economy’ framework highlights the interconnected and multiple ways that a resilient food system is enacted in the Mackay-Isaac-Whitsunday region.

The table below is an example of the diverse economy framework applied to food systems:<sup>11</sup>

<b>Enterprises</b>	<b>Transactions</b>	<b>Labour</b>
<b>Capitalist Enterprises</b>	<b>Market Transactions</b>	<b>Waged Labour</b>
Nationally based retailers (Coles, Woolworths, IGA) International retailers (ALDI) Local retailers (including restaurants and coffee shops)	Food from major supermarkets Food from local retailers Produce from organic food outlets Sales of community garden herbs to restaurants and coffee shops	Workers at national and international retailers Workers at local retailers Workers at organic food outlets CSA worker Community garden workers
<b>Alternative Capitalist Enterprises</b>	<b>Alternative Market Transactions</b>	<b>Alternatively Paid Labour</b>
Small family-run food businesses Organic food outlets	Food sourced directly from farmers (farmers’ markets, CSA, food coop) Saturday morning sales of community garden seedlings Fair trade produce	In-kind payments for CSA workers In-kind payments for community garden workers Self-employed workers (e.g. farmers, sole operator food outlets)
<b>Non-Capitalist Enterprises</b>	<b>Non-Market Transactions</b>	<b>Unpaid Labour</b>
Self-employed farm businesses Self-employed food operators Community Supported Agriculture Community gardens Food cooperatives OzHarvest Food Rescue	Food from backyard production and community gardens used for home use or gifted to neighbours and friends Donations of excess food to OzHarvest Food Rescue Donations of waste from restaurants and coffee shops for community garden composting	Backyard food producers Community garden volunteers Food cooperative volunteers

**Table 2 – Diverse Economies Framework for Food Systems**

Such a framework makes visible the diverse ways in which healthy food production and distribution is achieved and supported through local production, local distribution networks and relationships, and food rescue infrastructure that can quickly respond to sudden shocks. Communities must have access to a myriad of different tools that they can utilise according to need.

<sup>11</sup> Building Sustainable and Ethical Food Futures through Economic Diversity: Options for a Mid-Sized City

When we view food systems as adaptive systems we look for patterns of emergence, rather than relying solely on comprehensive counts of inputs and outputs. When speaking with those most affected by the system to gain insight from those in the field, we have seen the underlying dynamics that have the potential to transform the regional food system in the Mackay-Isaac-Whitsunday region. In particular, three specific areas of relationships, resilience and economic multipliers have emerged from this project:

- 1. Relationships:** Forming relationships of trust with suppliers and customers, and devoting resources in part to strengthening this loyalty and the food ecosystem as a whole. Each participant saw themselves as part of a cluster of businesses, not as a stand-alone entity. Some devoted their attention to helping others to strengthen their connections over time.
- 2. Resilience:** To varying degrees participants anticipated potential disruptions in energy security, climate, and unpredictable changes in market demand. While some rely on a blend of distant and close markets, most acknowledged a need to preference regenerative practices (or sustainable agriculture at the very least) where they could.
- 3. Economic multipliers:** Each participant was aware of the conscious effort to build financial flows that recycle money and other resources through their local community; each helps build local economic multipliers.

In addition to the above, it's worth highlighting the findings of the report "Blueprint for Impact" and its relevance in forming our recommendations with respect to systems level interventions. Specifically, pathways for intervention identified in that report include the following:

1. The development of niches
2. Engaging powerful actors
3. Crises – economic, political, climatic, health
4. Effective practice
5. Social and learning contexts
6. External support
7. Policy support
8. Communication and collaboration to seek consensus across domains

Further, the report outlined key principles that should underpin investment for transformational change in the region, including taking a systems approach, acting as external allies, enabling legitimacy and anchoring, developing investing programs with Traditional Owners, and to use capital as a catalyst for change. The report also identified two emerging pathways to transition for healthy food, agriculture and reefs, 'Knowledge and Culture' and 'Economic Drivers':<sup>12</sup>

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<sup>12</sup> Blueprint for Impact, 2020

# 5.0 Recommendations

## Sustainable Table Grants Round

In April 2021, the Sustainable Table Fund (formerly Ripe for Change program) launched a grants round in the region to support community-led food systems change, with a particular focus on building local food system resilience, and transitioning to regenerative agriculture to accelerate reef restoration. Grants of up to \$10,000 are being made available for local food system initiatives based in MIW that fulfil at least one of our four Impact Areas:

1. Farming for regeneration
2. Innovative enterprises
3. Nutritious and local food for all
4. Mobilised communities

The following recommendations are provided to guide the priorities of the current grants round, as well as broader investment. Please note the pathways identified under each recommendation refer to the pathways identified in the Blueprint for Impact Report, highlighting the synergies between regional investments and healthy reef outcomes.

### RECOMMENDATION 1 (PATHWAYS 1, 2, 3, 4, & 5)

#### **Provide Support to Expand Regenerative Agriculture and Traditional Land Management**

**Practices:** There was a strong call for growers and Traditional Owners to collaborate on land management projects to protect waterways and build biodiversity. This recommendation also supports mindset and cultural shifts required when implementing changes in the system.

**Example:** Project 1 from the workshop outlines the initial project plan to inform stakeholders and investors. Engaging deeply with the Traditional Owners Reference Group (TORG) managed by Reef Catchments would be the logical next step, as well as exploring synergies with Deadly Weavers, led by Felicity Chapman. Additionally, Resource Consulting Services uses a particular framework to apply regenerative practices in a farm business context and would be well worth engaging as part of this recommendation.

## RECOMMENDATION 2 (PATHWAYS 4, 6 & 7)

**Regenerative Agriculture is a Key Industry:** Participants highlighted the need to strengthen the regenerative agriculture sector. The potential of this sector to lower and absorb emissions (with increased investment through improved carbon farming initiatives) and diversify regional economies through value adding is an important opportunity that can also create significant numbers of jobs.

**Example:** Projects 1-4 identified in the workshop all play a part in strengthening the connections between domains. Additionally, utilising RCS's cost benefit analysis and case studies presented in Appendix 3 should be a priority to demonstrate the long term financial viability for regenerative farms.

## RECOMMENDATION 3 (PATHWAY 6)

**Facilitate Easier Access to Investment:** Stakeholders emphasised the need to take advantage of carbon finance, buying land and water rights for regeneration projects, and support early retirement. Developing new investment pathways will reduce barriers for landholders to implement changes to regenerative management.

**Example:** The work of GreenCollar could support landholders, although smaller farmers are often prohibited from accessing these benefits and hence requires a different approach to investment.

## RECOMMENDATION 4 (PATHWAYS 1, 2 & 7)

**Facilitate Community-Owned Local Food Projects:** In addition to calls for more investment in regenerative agriculture, there was a surprisingly high level of support among participants for community-owned infrastructure, including aggregation and distribution logistics that would contribute significantly to addressing access and affordability of local food and socio-economic disadvantage for low income, remote and Indigenous communities.

**Example:** Projects 3 and 4 from the workshop outlines the initial project plans to inform stakeholders and investors.

## RECOMMENDATION 5 (PATHWAYS 5 & 7)

**Invest in regionalised food processing projects:** Expanding and developing value adding opportunities through increased regional food processing and manufacturing represents a key opportunity to create new jobs, as well as diversifying the local economy.

**Example:** Project 4 from the workshop is going some way to meeting this recommendation. In particular, further exploration of supporting the facility built by Limes and More in Bowen could catalyse this opportunity.

## RECOMMENDATION 6 (PATHWAYS 1, 2, 4 & 7)

**Workforce Development:** Nearly all participants raised concerns for seasonal workers and advocated for the need for long-term planning, and for skills development that involved all relevant players – education institutions, industry, government and workers. There was also strong demand for increased investment in regenerative agriculture education and research institutes (particularly regional universities and TAFE) to be able to undertake necessary research and development activities in a timely manner.

Additionally, there's a need to support existing and develop new peer to peer OR neighbour to neighbour programs and field trips to manage practice change, embedding cultural legitimacy, strengthening involvement of Traditional Owners, attracting investment, while protecting industries and the reef.

**Example:** A range of educational and vocational options exist, including but not limited to RegenAg for peer-to-peer compost making, soil health and testing regimes, Resource Consulting Services offer a whole suite of courses available to small family farming businesses through to corporately owned land managers, and the University of Southern Cross runs a Regenerative Agriculture course.

**Example:** Support for the Bowen Gumlu Growers Association and Australian Prawn Farms could be explored to complement the work currently being undertaken by their Workforce team.

## RECOMMENDATION 7 (PATHWAYS 1, 4, & 7)

**Start Planning for Changes in the Sugar Industry and Facilitate Public Dialogue to Prepare People for Change:** People want governments to coordinate this process, but they also want significant industry, community and worker input into any plans and regulations that are put in place. Participants demonstrated strong consensus that any regional planning body should consult widely, and be represented by government, industry, workers, environment and community groups.

**Example:** There is scope for the GW3 AgFutures Alliance to lead on community engagement relating to building consensus that the region's traditional industries are in transition economically and in response to the ecological needs of the Great Barrier Reef.

## RECOMMENDATION 8 (PATHWAYS 3, 5 & 7)

**Approach On-Farm Waste as an Economic Opportunity:** Many participants welcomed increased investment and activity in the waste sector as an economic opportunity, particularly initiatives embracing a circular economy approach. Performance data related to on-farm waste should also be developed side by side with other waste activities.

**Example:** Bio-futures initiatives that are currently planned for the region should catalyse implementation of this recommendation, particularly where it serves to diversify the regional economy and support community and/or local ownership under a circular economy framework.

## RECOMMENDATION 9 (PATHWAYS 5 & 6)

**Build on Local Assets and Strengths in a Sustainable Way:** A number of suggestions were offered relating to the current level of industry and council initiatives that were already investing in sustainable land use and reef health projects. It should be noted that many regions are finding ways to reduce and/or absorb emissions and manage waste as an economic opportunity. Participants emphasised the need to build on these existing initiatives as a starting point, rather than reinvent the wheel.

**Example:** GW3's AgFutures Alliance is well placed to coordinate this recommendation, while ensuring participation of Traditional Owners, Reef Catchments and regenerative agriculture representatives, particularly the huge knowledge base held by Resource Consulting Services.

## RECOMMENDATION 10 (PATHWAYS 1, 2 & 6)

**Importance of consistency across Federal and State and NGO programs:** Participants regularly cited the importance of local, state and federal government initiatives aligning with land use and reef health priorities to minimise conflict / misunderstanding while supporting regional development and industry to innovate and adapt to change.

**Example:** The GW3's AgFutures Alliance could facilitate this as part of their current terms of reference. We recommend representatives of Sustainable Table accept their invitation to participate in future planning activities.

## RECOMMENDATION 11 (PATHWAYS 5 & 6)

The above recommendations identify a number of small to medium scale projects that are ready for investment through the existing Sustainable Table model. In terms of the broader goal of transitioning farming across the region to regenerative practices, we recommend a further piece of work to co-design an investment process with farmers. There are a number of ways that investment could be used to support the shift to regenerative farming, from funding training, feasibility studies and other support activities, to funding pilot projects, through to buying land for regenerative purposes (including to create biodiversity buffer zones).

To support the development of these instruments, we recommend undertaking additional research and holding workshops to co-design the funding options with landholders and other key stakeholders including the Great Barrier Reef Foundation, GreenCollar, and academics from key universities such as JCU and CQUniversity and the University of Queensland.



## 6.0 Conclusions

This report summarises the findings from research and community consultation activities and research as part of the Mackay-Isaac-Whitsunday Reef Resilient project undertaken with representatives of industry, government, environment, Traditional Owner, community, university and social service groups.

Analysis of these findings reveals the readiness of communities, government and industry to work together to create a resilient food and agriculture system while protecting the reef, and the desire for a holistic plan across all sectors to ensure the resilience of the region for decades to come. Everyone has a role to play in coordinating this work and supporting industries and communities to invest in a future healthy food and agriculture system for all.

# Appendix A: Research, Initiatives, Reports Reviewed

## Research, Reports and Plans

ACIL Allen Consulting (2020) Regional Agribusiness Supply Chains – Mackay Isaac Whitsundays <https://static1.squarespace.com/static/5e4ce5c91e5a64752b65c169/t/5e86a4231b82d754a8451d54/1585882202932/MIW+Agribusiness+Export+Supply+Chain+Mapping+Study+Report+-+Jan+2020.pdf>

Cameron, J., & Gordon, R. (2010) 'Building sustainable and ethical food futures through economic diversity: Options for a mid-sized city' [https://base.socioeco.org/docs/diverse\\_food\\_economies\\_for\\_dist.pdf](https://base.socioeco.org/docs/diverse_food_economies_for_dist.pdf)

Canegrowers (2020) Reef Policy Failures, Canegrowers Media Release July 2020

Canegrowers (2020) Nitrogen Management in the Sugarcane Industry: The Economic Risks of Policies that Prescribe Nitrogen Rates below Industry Guidelines, June 2020, Canegrowers

ABARES (2020) Catchment Scale Land Use Report <https://www.agriculture.gov.au/abares/aclump/catchment-scale-land-use-of-australia-update-december-2020>

Climate Works (2019) Food and Land Transitions Report <https://www.climateworksaustralia.org/resource/scaling-productive-and-regenerative-agriculture/>

ClimateWorks (2019) Land Use Futures- Building local loops and linkages <https://www.climateworksaustralia.org/wp-content/uploads/2020/08/6.-Building-local-loops-and-linkages.pdf>

ClimateWorks (2019) Land Use Futures- Prioritising diversity and inclusion <https://www.climateworksaustralia.org/wp-content/uploads/2020/08/LUF-CT-DIVERSITY-INCLUSION-FS-V6.pdf>

ClimateWorks (2019) Land Use Futures- Strengthening and diversifying rural and regional livelihoods [https://www.climateworksaustralia.org/wp-content/uploads/2020/07/CWA\\_LUF\\_Transitions\\_Strengthening-and-diversifying-rural-and-regional-livelihoods\\_July-2020.pdf](https://www.climateworksaustralia.org/wp-content/uploads/2020/07/CWA_LUF_Transitions_Strengthening-and-diversifying-rural-and-regional-livelihoods_July-2020.pdf)

Commonwealth of Australia (2018) Reef 2050 Long-Term Sustainability Plan <https://www.environment.gov.au/system/files/resources/35e55187-b76e-4aaf-a2fa-376a65c89810/files/reef-2050-long-term-sustainability-plan-2018.pdf>

Fitzsimmons, Caitlin (2019) A native plant is exposing the clash between traditional knowledge and Western conventions [https://www.smh.com.au/business/the-economy/a-native-plant-is-exposing-the-clash-between-traditional-knowledge-and-western-conventions-20190925-p52upf.html?fbclid=IwAR228s3jCTf-wPJ\\_HU27IAwlhLrZy9JjSMiZIKg40BsqifALj2r5JdLDqw](https://www.smh.com.au/business/the-economy/a-native-plant-is-exposing-the-clash-between-traditional-knowledge-and-western-conventions-20190925-p52upf.html?fbclid=IwAR228s3jCTf-wPJ_HU27IAwlhLrZy9JjSMiZIKg40BsqifALj2r5JdLDqw)

GW3 (2020) Transformation Region Mackay Isaac Whitsunday A COVID-19 Regional Response 21 August 2020

GW3 (2012) Mackay, Isaac and Whitsunday Regional Plan 2012

GW3 (2014) Mackay, Isaac and Whitsunday Regional Plan (MIW Regional Plan) 2014–2021

GW3 (2017) Mackay Whitsunday Isaac Traditional Owner Reference Group STRATEGIC PLAN 2017–2027

Mackay Regional Council (2014) Shaping our Community: A Blueprint for Growth

Massy, Tanya (2021) Blueprint for Impact – Regenerating agriculture across the Great Barrier Reef catchments <https://sustainabletable.org.au/wp-content/uploads/Blueprint-for-Impact-Regenerating-agriculture-across-the-Great-Barrier-Reef-catchments-1.pdf>

Queensland Government, Health and Wellbeing Queensland Strategic Plan 2020–2024

Queensland Reef Water Quality Program Five-year investment plan 2017–18 to 2021–22

Queensland Department of Agriculture and Fisheries (2019) Growing Greater Whitsunday Agribusiness – Part 1 ‘Planting the Seed’ <https://static1.squarespace.com/static/5e4ce5c91e5a64752b65c169/t/5e7db0fe3ae6d4439b6722ba/1585295712802/RDA+-+GGWA+Report+Final.pdf>

Reef Catchments (2020) Provenance Magazine, Issue 1: 2020 [https://issuu.com/reefcatchments8/docs/provenance\\_vol12020\\_web\\_issue](https://issuu.com/reefcatchments8/docs/provenance_vol12020_web_issue)

State of Queensland, The Department of State Development, Tourism and Innovation, (2020) Investing in the Mackay Future Foods BioHub, 2020 <https://static1.squarespace.com/static/5e4ce5c91e5a64752b65c169/t/5f8cdc988d29366e86bdd37e/1603067086809/Mackay+Future+Foods+BioHub+Prospectus-Final-Web+Version.PDF>

Reef 2050 Objectives and Management Goals: Public consultation draft, August 2020

Sustainable Table – [Why you don’t need to be a “greenie” to embrace biological farming](#)

## Initiatives and Programs in the MIW Region

- Carbon Farming
- Greater Whitsunday Food Network
- Project Pioneer, Resource Consulting Services
- Project Catalyst
- CaneChangers
- Hort360 Reef Certification
- Freshcare Environmental Certification
- Local Buying Foundation
- Central Queensland Soil Health Systems
- RDA Mackay Isaac Whitsunday Grants
- Reef Credits
- Queensland Land Restoration Fund
- Fight Food Waste CRC – Tomato and Capsicum waste to product- Stage 1
- The Climate Change Innovation Hub, Whitsunday Regional Council
- Shellfish Reef Restoration Network
- [Fresh Water Quality Innovations](#)

# Appendix B: Engagement

## Interviews

The following stakeholders were interviewed during the first phase of the project.

<b>Name</b>	<b>Organisation</b>
Tegan McBride	Sustainable Agriculture Officer, Reef Catchments
Juliane Kasiske	Regional Agriculture Landcare Facilitator, Reef Catchments
Jo Quinlan	Project Officer, Restore Australia, RCS
Sandra Williams	Community member
Rob Cocco	CEO, RDA Mackay Isaac Whitsunday
Helen Newell	Department of Agriculture and Fisheries, Bowen
Tonia Wilson	Manager, Projects and Development, GW3
Shireen Pisters	Project Officer, Agrifutures Business Alliance, GW3
Garry Scanlon	Previous CEO, GW3
Julian Cribb	Science author
Cr Kerry Veave	Isaac Regional Council
Paul McLaughlin	Bowen Collinsville Enterprise Ltd
Tanya Massy	Researcher / Farmer
Verity Morgan-Schmidt	Farmers for Climate Action
Emma Maxwell	Traditional Owner Reference Group, Reef Catchments
Samarla Deshong	Traditional Owner Reference Group, Reef Catchments
Charlotte Morrison	Health & Wellbeing Queensland
Clinton Muller	Restore Australia
Julie Wheway	Bowen Gumlu Growers Association
Eilis Walker	Central Catchments, Hort360, GrowCom
Scott Wallace	Hort360, GrowCom
Matt West	President, Australian Prawn Farmers Association
Ry Collins	Economic Development, Whitsunday Regional Council
Olivia Brodhurst	Innovation and Climate Hub, Whitsunday Regional Council
Deb McLucas	President, Greater Whitsunday Food Network, and Regenerative Farmer, Freckle Farm
Nick Heath	Australian Marine Conservation Society
Mark Lincoln	Carbon Farming, Greencollar

The following stakeholders participated in the Proserpine Workshop.

<b>Name</b>	<b>Organisation</b>
Tegan McBride	Sustainable Table Fund
James Sullivan	State Development, Infrastructure, Local Government and Planning
Michael Attard	Cane Farmer
Gillian Molloy	Greater Whitsunday Food Network
John Lockhardt	NutriCQ
Helen Newell	Department of Agriculture and Fisheries
Tony Charles	Australian Prawn Farms
Matt West	Australian Prawn Farms
Jamie Thornbury	GrowCom
Jodie Ferdinand	The Creek
Deb McLucas	Greater Whitsunday Food Network
Nele Hahne	Mackay Regional Council
Emma Maxwell	Reef Catchments
Mark Yensch	Woodland's Station
Sharon Yensch	Woodland's Station
Richard Prior	Central Queensland Soil Health
Felicity Chapman	Deadly Weavers
Rhiannon Minnicon	Department of Seniors, Disability Services and Aboriginal & Torres Strait Islander Partnerships
Sue West	Traditional Owner Reference Group
Cassie Duncan	Sustainable Table
Jodi Clarke	Sustainable Table
Amy Huva	Morris Family Foundation

## Participant Comments

Participants in the Proserpine workshop were asked to complete evaluation forms and provide comments on how they perceived the workshop.

*Thoroughly enjoyed the experience of participating in this forum. Very exciting actions to be taken away!*

*Looking forward to seeing action.*

*Good event to connect with producers and food passionate people and hear their viewpoints on the food and ag sector.*

*Really enjoyed it and feel informed and energised after the session.*

*Really enjoyed the opportunity to share ideas and work on a plan for our future in the local food space. Thank you.*

*An engaging and interesting day.*

*Too short! Need to discuss more!*

*Could be a bit longer. Great designed and presented forum. Thank you for the invite.*

*Lots of government departments. Need more growers.*

*Very interesting group. Nice to see growers and producers involved. GWFN input was exceptional. Liked the structure and facilitated processes.*

*Some of the content was easier to understand than others. My experience in the ag sector is limited.*

*Too short! Great day, good people!*

# Appendix C: Case Studies

## CASE STUDY

# GRASSROOTS

## BOONAL DOWNS

You'd be hard pressed to find producers with more gratitude to be managing their own land, than the DeBoni's, from Capella in central Queensland.

Andrew and Leonie have been the proud owners of 'Boonal Downs' for five years, moving to the area from the Mackay Whitsunday region in 2015 and say they are now fulfilling their lifelong dream of working and living on the land.

"Coming off a very small farm before, coming here was like drinking from a fire hose," Andrew says.

"Sometimes I think we've made it already. The kids have a great start and a good future ahead of them."

Boonal Downs is a 2,273 hectare property comprised of a desirable balance of softwood scrub and open downs black and brown soils supporting highly productive grain growing and cattle grazing enterprises. The property is nestled on the base of the Peak Down ranges, overlooking Table Mountain, with Magenta Creek transversing the property.

Living on the land was never going to be the end goal for the DeBoni family – rather, their future is heavily centred around caring for the land, being responsible farmers and delivering upon a premium product without depleting their resource base.

"It took us long enough to get this property, we don't want to lose it.

"Managing our land from a holistic perspective makes perfect sense to us." It's a principle reinforced by the several RCS courses they have eagerly attended.

*"We have matched stocking rates to available feed and estimated future feed so as to maintain a minimum of 15cm ground cover. We have also created multiple water points which can be turned off so country can be rested."*

Previous management on the property had taken advantage of the highly productive soils, resulting in degraded areas of grasslands and soil, which became an immediate focus for Andrew and Leonie to remedy. The first step was decreasing their herd size to well below carrying capacity at 1/3 of that which was run by previous owners, with the intention of improving ground cover and regenerating soil health. Converting a 1,200 hectare allocation from run down country populated with prickly acacia into fertile land with productive sorghum and chickpea yields was the second.

The initial steps for the new owners were to fence off riparian areas around Magenta Creek and introduce a rotational grazing system for their 300 head of cattle. Like all management decisions, this simple step was a catalyst for many other positive effects, including the prevention of soil erosion down the bank and eliminating the risk of bogged cattle.

Building their understanding and their connection to their land at Boonal Downs is a genuine joy for the DeBonis, who continue to invest in themselves through education and look ahead to the next step, the next project, or the next rung for the family operation.

"We have always really appreciated what we have here, and going on holiday overseas has only made us more appreciative. The holiday wasn't needed."



The Grassroots Project is funded through the Queensland Government's Reef Water Quality Program, Reef Catchments, RCS and Fitzroy Basin Association Inc.



Leonie and Andrew DeBoni

Andrew has been working towards his current reality for many decades. After retiring from his job of 25 years at a retail supermarket, Andrew knew that owning his own property was always the next step. Heading off to work in the mines has supported their central Queensland move, with setting up a future for their two sons Hayden and Corbin always front of mind. Quality of life for the entire family has improved, but particularly for Andrew, who freely admits running his farm 'doesn't seem like a job'.

Looking to the future, Andrew and Leonie are also prioritising their drought resilience and preparedness in light of sporadic past wet seasons. As a first step, this has included improving water infrastructure across the property, with a "big focus on water retention".

Climate adaptability and resilience is a principal factor for the long-term sustainability of Boonal Downs for the coming generations.

*"Sometimes I think we've made it already. We have made our dreams come true just by owning this place."*

*"Our children are achieving their goals and they have a good future ahead of them with a good start. We are slowly watching our lives get better and in four to five years, we hope to be solely on farm. Beyond that, we are looking forward to when the boys will take over from what we started."*

## Property achievements

### Completed:

- GrazingforProfit™ School
- RCS Next Steps program
- RCS ProfitProbe™
- Property planning and mapping
- RCS Soil Health workshop

### On-farm change:

- 1.5km of fencing to divide cropping and grazing
- Purchase of a rock picker
- Purchased crush scales to accurately monitor LSU (Livestock Unit)



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CASE STUDY

# GRASSROOTS



## HALLEVALE

Learning that an open mind will open doors has been the biggest game-changer for Alice Marks on her mission to increase ground cover of beneficial species and reduce the negative economical and environmental impact of Giant Rats Tail Grass at her property in St Lawrence, central Queensland.



Curious to see what it was all about, Alice, with her eldest daughter Olivia applied to join the Grassroots Project to learn about holistic land management. Together, the powerful duo have applied their learnings to the family's property (Hallevale) and have been excited by the results.

Alice and husband Darren manage four properties in central Queensland where they run a breeding to finishing enterprise alongside a cropping business. Purchasing Hallevale in 2014 was a new beginning for the Marks who were ready to expand their operation and recognised the land's potential. Six years down the track and Hallevale looks wildly different to the 1,035 hectare ex-timber plantation, one paddock property they originally purchased.

Alice and Darren with their three daughters have constructed dams, roads, yards, wildlife corridors and smaller paddocks. Once the smaller paddocks were set up the family started rotationally grazing according to plant growth. Their big challenge was the best way to control long established invasive species, Giant Rats Tail grass.

After completing the education, careful consideration and consulting an RCS extension officer, Alice and Olivia decided to create a test site to assess the effect of controlled grazing and suppression of Giant Rats Tail Grass by creating smaller paddocks. With expert forage budgeting and a little bit of rain, Alice and Olivia were blown away with the results.

Their test site went from a condition grade C to A in a mere 12 months. This success spurred the family on to section off more of their property.

The Marks' tangible improvements are very impressive and so are the ones not visible to the naked eye.

"Grassroots has given me the confidence to make changes and given me self-awareness of my importance in our business," said Alice.

*"Everyone in the family has now identified their preferred and specific roles, we all have more authority to take charge and make positive changes."*

"For example, I've always been passionate about animal health and welfare. Now I take responsibility of ensuring that every animal has their welfare needs met."

"As a Mum of three girls who all have a love for the land, I'm passionate about showing them that they have a big role out of the home and in the business," said Alice.

"Completing Grassroots with Olivia has been such a wonderful experience for the two of us. I've seen her grow and become so much more confident. I will not hesitate to put my other two daughters through the GrazingForProfit™ course."

On completing the Grassroots Project, the Marks' walk away with their finances organised, a good understanding of regenerative agriculture grazing principles and some huge goals.

"I now have clear goals and ways of measuring change both economically and environmentally. I also understand that I will never stop learning and I look forward to what opportunity presents next," Alice added.



The Grassroots Project is funded through the Queensland Government's Reef Water Quality Program, Reef Catchments, RCS and Fitzroy Basin Association Inc.



Giant Rats Tail on Hallevale



Amelia, Olivia and Natalie Marks

**Property achievements**

*Completed:*

- GrazingforProfit™ School
- RCS Next Steps program
- RCS ProfitProbe™
- Property planning and mapping
- RCS Soil Health workshop

*On-farm change:*

- Installed 1 water trough
- Added 1.57km of fencing
- Rehabilitation of 312 hectares of heavily infested GRT areas



Alice Marks standing proudly in her improved paddock



# Striving for symbiotic systems at 'Mt Pleasant'

The Gordon family focus on using simple systems that are mutually beneficial for all involved at 'Mt Pleasant'.



The Gordon family are North Queensland grass farmers and beef cattle producers at 'Mt Pleasant' located between Collinsville and Bowen. They focus on turning sunlight and rainfall into pastures that grow healthy animals. The management system works towards creating mutually beneficial relationships between people, animals and the plants.

The current generation of the Gordon family consists of Jamie and his wife Garlone and their children Georgia and Louis, as well as Jamie's sister Joan and her partner Bill. The families have been managing 'Mt Pleasant' for over twenty years. In this time they have introduced a number of innovations in their business such as time controlled grazing and breeding Nguni cattle.

The family are motivated to create a simple grazing system with good quality pastures where animals are highly adapted and can thrive in the conditions at 'Mt Pleasant'. The Gordons have observed some significant changes in their ecosystem in recent years and considering the property has been in the family since 1917, they are excited to see what the future holds at 'Mt Pleasant'.



## Case Study Snapshot



**Location:** Between Collinsville and Bowen, 270km South West of Townsville, North Queensland.

**Property size:** 13,800 hectares

**Currently runs:** 2100 LSU

**Average annual rainfall:** 700mm

**Enterprises:** Beef cattle breeding, growing/trading and agistment.

'Mt Pleasant' is a beef cattle property near Bowen, North Queensland that focuses on managing the environment for long term ecological improvements, as well as producing quality and healthy beef.

### Achievements:

- ✓ Improved ecosystem health
- ✓ Improved soil microbial activity
- ✓ Improved animal performance
- ✓ Increase in plant and animal biodiversity

### Drivers of success:

- ✓ Willingness to experiment
- ✓ Holistic, simple focus
- ✓ Attitude
- ✓ Ability to embrace change

### Ideas for future innovations:

- ✓ Simple, uncomplicated systems
- ✓ Highly adapted and resilient cattle with high eating quality
- ✓ Carbon sequestration



## What makes this business sustainable?

The goal at 'Mt Pleasant' is to build a symbiotic environment for people, cattle, pasture, soil and wildlife. This is fundamentally achieved by managing the grazing patterns of cattle to ensure animal impact has a positive influence on the environment rather than a detrimental one. The Gordon family have had a holistic management focus since taking over management 20 years ago from the previous generation.

What makes this business sustainable?

- ✓ Adoption of regenerative grazing management
- ✓ Observed changes from Indian couch (*Bothriochloa pertusa*) monocultures to include biodiversity of desirable perennials
- ✓ Improvements in animal performance
- ✓ Simple, robust business model
- ✓ Cattle suited to North Queensland conditions



Joan Gordon and partner Bill Jardine.

The livestock at 'Mt Pleasant' are managed under a time controlled grazing system. Cattle are moved regularly between paddocks in one mob to promote even pasture utilisation and stimulate plant growth. "As soon as we started resting some country, the Indian Couch monoculture began to shift" observes Jamie.

**"As soon as we started resting some country, the Indian couch monoculture began to shift."**

In this grazing system the length of time cattle graze one paddock is dependent on the rest period of the plants. This is determined by the growth rate of the plants. Multiple, light grazes throughout the year followed by long rest periods result in pasture regeneration. Underpinning all of

this is matching stocking rate to carrying capacity. This system focuses on using animal impact to repairing the damage originally caused by unrestricted grazing. Garlone states "we are repairing the damage caused by livestock WITH livestock."

'Mt Pleasant' has a Nguni cattle breeding herd enterprise. The first Nguni cattle were purchased and introduced to 'Mt Pleasant' in 2009, with the aim of trialling adapted genetics that will thrive in the conditions at 'Mt Pleasant'. The Nguni breeds are small to medium frame animals and are highly adapted to harsh African conditions, diseases and parasites. These traits mean that Nguni cattle should continue to perform well and possess good eating quality in below average rainfall years compared to other *Bos Taurus* breeds.



Louis, Garlone, Jamie and Georgia Gordon (left to right).



The Gordon family also run an agistment and growing/trading enterprise. The target markets are flexible and price-dependent, particularly for growing/trading animals. With the Nguni breed, they are aiming to create a market once their success is proven. The Gordons have selected their cattle enterprises fundamentally due to the suitability to the region and benchmarking shows it is most profitable for their scenario. Multiple, flexible enterprises also spreads risk throughout the business.



Nguni cattle are a highly adapted *Bos Taurus* breed the Gordon family are trialling at 'Mt Pleasant.'

Currently 'Mt Pleasant' is conservatively stocked at 2100 Large Stock Units (LSU). The land could maintain in excess of 2500 as there is an abundance of available feed. Jamie and Garlone are building up their numbers and giving the landscape a chance to replenish nutrients for increased density in the future. They also maintain this quantity of feed available to put them in the position to take advantage of any trading opportunities that may be present in poor seasons.

The current stock watering system is fully reticulated with 8 large storage tanks with an average capacity of 500,000L. The Gordons have placed high importance on developing a reliable water system with adequate flow rate and abundant storage capacity. The storage tanks also have staggered outlets so if there is a problem the tank only loses half of the water. Developing this water system has been an achievement for the business and has allowed the couple to fully utilise their land at 'Mt Pleasant'.

**“We’re repairing the damage caused by livestock WITH livestock.”**

The pasture species on 'Mt Pleasant' are mostly native, with some introduced grasses and legumes. There is significant pasture biodiversity with over 30 different grass species. Cattle also graze on forbes, shrubs and edible trees. Since implementing the time controlled grazing system, the couple have made some important observations, these are:

- ✓ Desirable native perennial grasses are replacing Indian Couch (*Bothriochloa pertusa*)
- ✓ An increase in ground cover from approximately 60% to 90%
- ✓ Increase in carrying capacity as there is significantly more feed left behind
- ✓ Greater response to rainfall
- ✓ Greater plant and animal biodiversity
- ✓ Landscape is rounding and losing sharp edges
- ✓ Significant increase in diversity of trees and reoccurrence of species such as beefwood (*Grevillea striata*).

The most important management practice underpinning these ecosystem shifts is plat rest.



Like many other grazing businesses in this day and age, animals on 'Mt Pleasant' are treated respectfully and honourably in a natural environment. Animals are a vital part of this business and Jamie and Garlone take pride in ensuring animals have a contented life. Cattle are educated to respond effectively to pressure without feeling stressed. In time controlled grazing systems cattle also associate mustering with access to fresh pasture. This results in cattle movements being a rewarding exercise for people and livestock.

The Gordons believe that a sustainable business is one that is operating in such a way to be rewarding financially, economically and spiritually for the people involved, while improving and regenerating the landscape positively. The end result is healthy land, healthy animals and healthy people. The family feel that any profit derived from reducing health of the land is not profit at all. Their business is profitable because their management is building strength and resilience into the natural resource.

## Motivations for change

Managing 'Mt Pleasant' hasn't always been as rewarding as it is now. Like most rural businesses, the Gordons have overcome numerous challenges over the years. When they first started managing the property, the land was showing symptoms of ecological decline, due to continuous grazing (which was the fundamental grazing method in industry at the time). This resulted in overgrazed feed within close proximity to water points and underutilised rank grass further out from water points. With the industry experiencing rising fixed costs, the business and people were under pressure to make a financial return but the health of the ecosystem wasn't able to support it. The drive to change came from dissatisfaction with the view of the future. They knew the business couldn't afford to be detrimental to the environment and they were determined to find a way to make a future they were happy to be in.

***“It should be possible to operate a grazing business with no impact on the reef beyond natural processes.”***

The first step to creating symbiotic management system was to obtain education and convert their new knowledge into skills. The biggest point of change came when they learnt about time controlled grazing - a grazing management method where livestock can have a positive impact on the environment. This knowledge and skills came from attending GrazingforProfit in 2000. Jamie and Garlone then completed three years in the ExecutiveLink program, graduating in 2004. The family have also participated in the Department of Primary Industries (now Department of Agriculture, Fisheries and Forestry) program called Research to Reality and learned the CSIRO Landscape Function Analysis (LFA) monitoring technique. Knowledge from these educational opportunities has allowed them build a sustainable business and communicate effectively across many levels.

There have been a number of success points which have encouraged Jamie and Garlone to further pursue regenerative management. Looking back, they state “we had no idea the pastures could improve as much as they have.” An improvement in annual animal performance has also been a highlight at 'Mt Pleasant'. These improvements allow the business' bottom line to improve, resulting in a long-term sustainable business.

The Gordons state their main driver to work in agriculture is “We have the opportunity to make a living from producing healthy food while improving the health of the environment and giving animals a contented life.



***“Producing healthy food while improving the health of the environment and giving animals a contented life. How good is that?!”***

How good is that?!” The family are implementing symbiotic systems and management practices that are beneficial to their natural resources rather than being detrimental.

Overall the family felt there were few risks associated with adopting the current management strategies, as they completed

changes in gradual steps. Their first step to implement time controlled grazing was to purchase an energiser and a small amount of wire and trial time controlled grazing on existing water points. They noticed ecological change in these pastures, which prompted them to continue the property development. Similarly, purchasing the Nguni cattle has occurred gradually and the herd is now progressively increasing in numbers, allowing Jamie and Garlone to monitor the cattle’s adaptability over time. These gradual changes are an effective method to trial innovative practices in the business while mitigating risk.

The key to this management system at ‘Mt Pleasant’ is *simplicity*. The simple underpinning concept of the business is shifting cattle to promote grass growth. They see that promoting grass growth is beneficial to reduce runoff into the Great Barrier Reef and Jamie states “There are no downsides to better grazing management that results in more topsoil remaining on your property. It should be possible to operate a grazing business with no impact on the reef beyond natural processes. Build and keep the topsoil - for your own sake.”

When it comes to change, an attitude the couple have adopted is “this is the industry we choose to do business in, and there is a great degree of variability in this industry. This should not be an ongoing challenge, but the business should be built to see this as normal, and be viable in all conditions.” This attitude embraces variability and will assist the family to thrive in changing future markets and climates. For the Gordons their key drivers to personal and business success is this resilient and flexible attitude. The family feel that “people’s attitudes make the business. Having imagination and the courage to try new methods and experiment is important in our current industry.”



## Measured success at 'Mt Pleasant'

The management priorities at 'Mt Pleasant' are matching stocking rate to carrying capacity, giving plants rest and balancing plant and animal needs. Building soil health, biodiversity and preventing weeds and erosion is their next level of focus. Jamie, Garlone, Joan and Bill agree it is important to measuring these changes by spending sufficient time in the paddock, visually assessing the landscape.

Tools used to measure production in the business include:

- ✓ Grazing charts
- ✓ Animal performance records
- ✓ Land Function Analysis transect recording
- ✓ Fixed point photo monitoring
- ✓ Soil testing
- ✓ Visual assessment
- ✓ Soil hardness test (also known as pocket knife test)

Jamie has been testing soil surface hardness with a pocket knife for the last few years. He does this by digging the top five centimetres of the ground with the blade to determine the soils friability. Jamie has noticed that areas that used to require a pocket knife to penetrate the surface can be easily loosened with his fingers. They feel this qualitative test is their biggest measure of success to date. Soil health has the biggest influence on all factors of their business and observing this change over the years is a significant step forward at 'Mt Pleasant'.

The family have also observed an increase in native wildlife at 'Mt Pleasant'. This includes species such as kangaroo rats, blue tongue lizards and red back wrens. This diversity is due to the larger quantity of standing feed available, which creates a safe habitat for wildlife.

E experience on the property, extensive pasture knowledge and acute observations also allow the Gordons to visually observe improvements in the land. Some observations under the time controlled grazing system are:

- ✓ Kangaroo grass (*Themeda Triandra*) is increasing rapidly from individual seedlings to colonies, small, juveniles to large established tussocks.
- ✓ Black spear grass (*Heptorogon contortus*) and Giant spear grass (*Heteropogon triticeus*) is increasing. Jamie has also heard other graziers share this observation so perhaps it is a seasonal trend.
- ✓ Queensland blue-grass (*Dicanthium sericeum*) and Curly blue grass (*Dicanthium fecundum*) are both increasing rapidly from isolated individual seedlings to colonies with good age spread from juveniles through to mature, large tussocks.
- ✓ Golden beard grass (*Chrysopogon fallax*) is changing from very small tussocks to larger tussocks, and has increased in number as well.
- ✓ Desert blue-grass (*Bothriochloa ewartiana*) and Forest Mitchell grass (*Bothriochloa bladhii*) are slowly increasing and Jamie can now find juvenile seedlings. Desert blue-grass has been the slowest to change. Only in recent times Jamie can confidently see the numbers have increased, observing juveniles present in or around the remnant colonies.





Figure 1 shows the relationship between carrying capacity and increase in groundcover at 'Mt Pleasant'. As groundcover increases, so does sustainable carrying capacity.

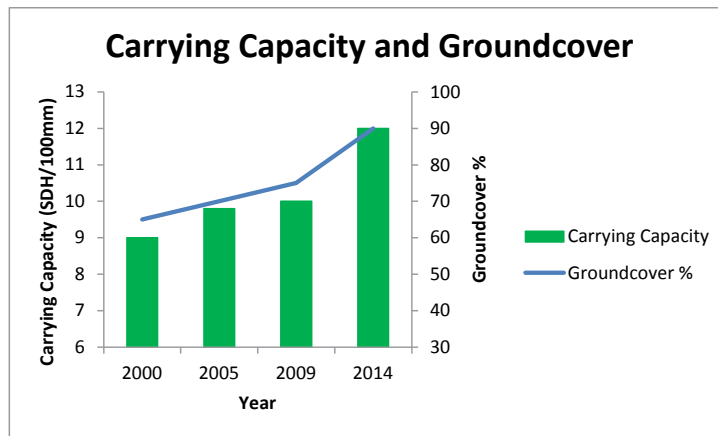


Figure 1 Relationship between groundcover and carrying capacity

Figure 2 shows a clear increase in average annual animal performance at 'Mt Pleasant'. Annual weight gain emphasises the benefits of improving pasture quality through grazing management. Information from Figure 1 shows animal performance has improved at the same time as an increase in groundcover. These two graphs highlight the strong link between increased ecosystem health and business profitability.

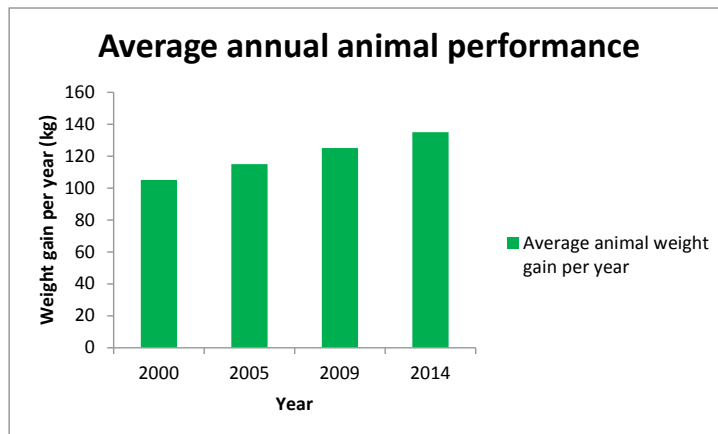


Figure 2 Annual animal performance at 'Mt Pleasant'

**Case Study: Jamie Gordon and Garlone Moulin 'Mt Pleasant' Collinsville, QLD**



The series of four photos below were taken at 'Ditch cattle camp' which was one of the worst sites on 'Mt Pleasant' in 2003. The ironbark tree in the forefront of the photos in 2014 was not there in 2003 which makes the photo monitoring site look significantly different. The original logs on the ground and a tree growing on a distinctive angle can still be identified in both photo sets.



The photos above were taken at 'Ditch cattle camp' at 'Mt Pleasant'



The two photos above are from Ditch cattle camp in late September 2014

**Case Study: Jamie Gordon and Garlone Moulin 'Mt Pleasant' Collinsville, QLD**



In 2003 and 2004 there was virtually no biodiversity at the site due to the lack of habitat. The land was unproductive for grazing and was a source of sediment runoff due to large amounts of bare ground. The photos from 2014 show that this site is now a productive, healthy grazing area with significant biodiversity and ecosystem activity. This is accentuated by the presence of a rufus bettong and dung beetle activity when the photo monitoring was performed. Garlone states “back in 2003 there is no way you would see a rufus bettong at that site. There was no habitat for them. Similarly, there was no dung beetle activity at the site in 2003. We haven’t done anything difficult or radical. This highlights what is possible with simple regenerative grazing management systems.”



A rufus bettong



Desirable perennial grass tussocks



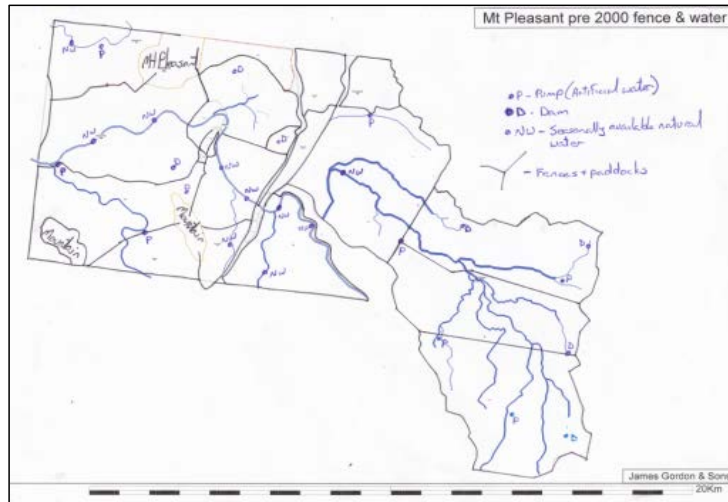
Dung beetle activity

**A rufus bettong and dung beetle activity also photographed at Ditch cattle camp in September 2014.**

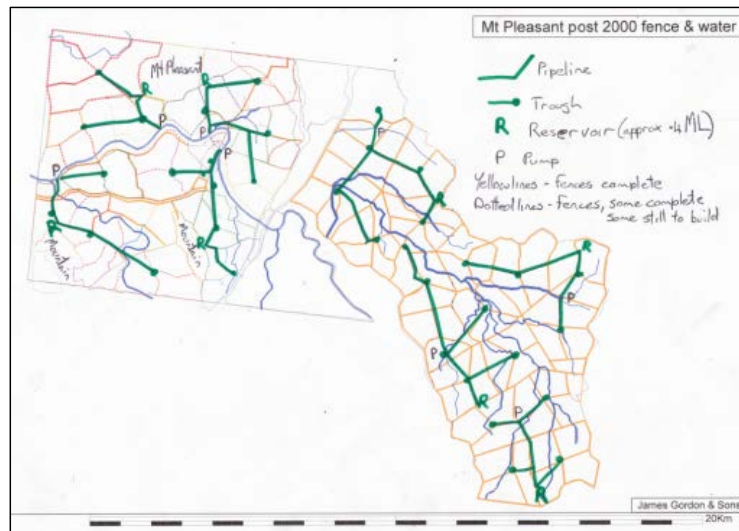
**Case Study:** Jamie Gordon and Garlone Moulin 'Mt Pleasant' Collinsville, QLD



Figures 3 and 4 outline the property development that has occurred at 'Mt Pleasant' since 2000. Spreading of water and subdividing paddocks has enabled animal impact followed by paddock rest, which has increased biodiversity and carrying capacity.



**Figure 3** 'Mt Pleasant' prior to property development



**Figure 4** 'Mt Pleasant' with completed property development



## Innovations

The Gordon family are keen innovators and look forward to trialling new practices. Numerous innovations implemented at 'Mt Pleasant' in recent years include:

- ✓ Time controlled grazing
- ✓ Single wire electric fencing
- ✓ Fully reticulated water system with high flow rate and large water storage
- ✓ Extensive knowledge on ecosystem and grass identification
- ✓ Breeding Nguni cattle
- ✓ Pocket-knife soil test
- ✓ Building relationships with environmentally focused organisations



Jamie and Garlone are looking to create a simpler, rather than more complex business. Garlone states "Master your grazing management first. Then look for technology."

Their whole business revolves around moving forwards with minimal input.

***"Master your grazing management first. Then look for technology."***

The Gordons have an alternative approach to animal health at 'Mt Pleasant'. Currently, none of the livestock receive any dipping, drenching or chemical treatment. The parasite management scheme in place is that cattle are moving into clean paddocks that have been rested for long enough periods that break the parasite life cycle. Jamie and Garlone haven't had any significant troubles with parasite burdens and

this method significantly reduces animal husbandry costs. It prevents detrimental chemicals affecting the soil microbial health, which promotes natural cycles such as dung beetle activity. At 'Mt Pleasant' there isn't a big emphasis on vaccinating livestock, instead the family focus on creating animals that are robust, suited to the system with good natural nutrition and immunity. Good nutrition is the key management tool used for animal health.



## What does the future hold?

Jamie and Garlone can see in the future at 'Mt Pleasant' will have an abundance of opportunities. By continually making positive changes in landscape function, the couple can see further gains in animal production. The possibility that Nguni cattle could be a successful enterprise at 'Mt Pleasant' is exciting and the couple also see potential opportunities to diversify in livestock enterprises in the future.

Looking ahead, production goals at 'Mt Pleasant' include a 10 year average animal performance improvement, while seeing continued improvement in land condition and function. This would be measured by:

- ✓ A continued individual improvement in animal performance
- ✓ Increased kilograms per hectare of beef produced per year
- ✓ Visual improvements in photo monitoring sites
- ✓ Improved pasture condition



To achieve these goals it would take diligent holistic management with a focus on improving soil and plant health.

The family feel that one way for the industry to be supported is with funding for training and education that can deliver on ground improvements in the landscape. An example is a reward system such as rates and rent rebate for positive custodianship of the land.

The couple have learnt that the answers in their business do not lie in extreme technology improvements. Instead, they see technology as more of an add-on or accessory, rather than a key management tool. Jamie and Garlone's experience to date tells them their key focus should be on grazing management. Garlone believes the biggest change the industry can make to improve the ecosystem is the first principle of regenerative grazing – *giving plants adequate rest*.

At 'Mt Pleasant', carbon sequestration is seen as an innovation that would be beneficial without over complicating grazing systems. The problem with over complicating grazing systems is people can lose focus on the fundamentals. If graziers received financial benefits from replenishing and storing carbon in the soil, this could strongly encourage regenerative grazing management while providing graziers with another opportunity to improve business profitability.

The Gordon family are happy to share their experience and management practices that have worked for them and state that they aspire to be a "real farmers". They believe real farmers care deeply for the land,

**Case Study:** Jamie Gordon and Garlone Moulin *'Mt Pleasant'* Collinsville, QLD



and have a positive influence on ecosystem cycles. They massage and nurture the processes which work with little human input, and are part of the cycle but do not dominate it.

Changing the focus of cattle businesses would be a big step forward for the industry. Garlone states "Putting a higher emphasis on maximising long term pasture and environmental health rather than animal production is what we have done in our business. This still results in improved long term animal production, but achieves this in a way that is sustainable for the environment." In turn this will result in optimum cattle production, a resilient and robust landscape, and healthy people, community and Great Barrier Reef.