Goondiwindi Ag Diversification

Project Business Case

Clean Growth Choices

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Document Development History

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The Clean Growth Choices Consortium is delivering the Communities in Transition (CiT) pilot project with the support of the Queensland Government.

Extensive resources including case studies are available at: https://www.cleangrowthchoices.org/

Cover Photo: Yelarbon Grain Silos. Credit: Goondiwindi Regional Council

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1 Executive Summary

The program has identified a number of measures to help farmers manage the risk of diversification and increasing production intensity (intensification). The three options proposed in the business case are:

- Option 1: Develop a RD&E and Diversification Plan
- Option 2: Appoint a RD&E Community Manager
- Option 3: Establish a RD&E Backbone Organisation.

It is recommended that Option 2 be progressed, with the outcomes of the project to be the delivery and management of Options 1 and 3.

It is proposed to seek seed funding for the Program, with a view to it becoming a self-funded resource for growers within a short period of time.

This business case advances projects that address a number of key Queensland Government objectives identified in *Our Future State* including:

- Creating jobs in a strong economy by creating and maintaining jobs for regional employees in drought-affected communities
- Keeping Queenslanders healthy by reducing financial pressures on regional families and reducing suicides.

1.1 Communities in Transition (CiT): Clean Growth Choices

The CiT Pilot Program delivers on the *Queensland Climate Transition Strategy*'s action to build leadership capacity within communities to develop place-based climate transition roadmaps. These roadmaps, and this business case, identify opportunities for economic and social development and climate resilience in regional Queensland. The opportunities range across a number of sectors including agriculture, waste, water supply, tourism, energy, manufacturing, transport and human services. The multidisciplinary nature of these sectors means that other Queensland Government priorities are indirectly being addressed, thus offering an opportunity to leverage efforts across government.

The CiT Pilot Program contributes to reducing emissions by identifying economic opportunities that support the transition to a low carbon economy, under the *Queensland Climate Transition Strategy.* Importantly this business case identifies not only low emissions opportunities, but offers economic diversification to build resilience in regional economies.

The *Goondiwindi Living Roadmap* outlines how a group of Goondiwindi residents came together to develop this business case.

2 Introduction/Background

This project has been prioritised by the Goondiwindi Working Groups Sustainable World Class Agriculture Pathway. The pathway has identified the risks posed by increasingly changing climate patterns and the need to continue to increase farm revenue with no likely increase in water availability. It is, therefore, likely that agricultural production will need to become more intensive, achieving a higher yield per unit of water.

The region is subject to significant change. Steven Crimp, a climate applications scientist with the Climate Change Institute (CCI) at the Australian National University, has found a number of critical climatic changes in the region[1] which, if they continue, will impact the choices farmers make about crops and future strategy:

- Warming has occurred between 1950 & 2018 with average temperatures now approximately 1.1^{o}C warmer than in 1950
- Between 1950 and 1985, a maximum temperature of 29^{o}C occurred on average for 14% year. Between 1986 and 2018 this temperature occurred around 35% year.
- The number of frost events (defined as below zero degrees) has more than tripled, with an average nine events now occurring most years
- The average length of dry spells has increased, as has the average time between rainfall events.

The working group discussed a number of options to identify the highest and best use of water including:

- Water Productivity - water and energy use efficiency
- Opportunity to develop supply chain for new products
- Opportunity to develop processing plants to add value to some products
- How do people access product all year round. What can be grown in the area and what is the growing window?
- How do we inform producers? What education campaign is needed?

This project links closely to the Clean Growth Choices Goondiwindi Organics project Clean Growth Choices Goondiwindi Tourism project and the Ag Tech Roadmap project.

The Project supports innovation in the agriculture sector to increase resilience and improve productivity consistent with key strategies of the Queensland Agriculture and Food Research Development and Extension 10 year road map:

- Strategy 1: Increase innovation and commercialisation
- Strategy 2: Identify and promote agriculture and food RD&E opportunities
- Strategy 3: Support existing sector to grow and develop new business.

The Queensland Agriculture and Food Research Development and Extension 10 year road map is a whole-of-government plan which provides a comprehensive overview of the Queensland agriculture and food sector's RD&E priorities.

1. _____

[1] Somes, T., 2019, Data shows Goondiwindi climate is changing: GRDC Update

The Growing for Queensland discussion paper – to inform a final industry development strategy identifies a number of challenges to the future of Queensland's agribusiness which faces changes at an unprecedented scale and pace; from consumer trends, digital disruption and population growth, to the loss of fertile land and climate change

3 Overview

3.1 Vision

Diversify the Goondiwindi Region economy through sustainable world class agricultural practices.

The Goondiwindi region aims to be Australia's centre of agricultural excellence, a premier visitor destination, and a region celebrated for its prosperous rural lifestyle.

3.2 Organisational Objective

To add diversity to Goondiwindi's agricultural economy through the development of a diverse range of products grown efficiently.

To establish the sustainable brand for Goondiwindi through efficient and regenerative agriculture.

4 The Business Case

4.1 Purpose of the Business Case

The purpose of the business case is to identify opportunities to:

1. Outline the potential for more intensive and diverse agricultural production in Goondiwindi
2. Analyse a number of options as proposed by the Clean Growth Choices Working Group
3. Identify costs, benefits and risks
4. Develop a proposal to proceed with the project or to submit to a funding source for approval for funding.

This is a preliminary business case that will provide the working group with:

1. A sound basis for a decision to proceed to a project
2. The next steps and estimated costs to develop the business case.

Sustainable Development Goals

The project aims to achieve sustainable economic development in Goondiwindi and specifically, works towards achieving the following of the United Nations Sustainable Development Goals: (SDGs):

Number	Goal	Explanation
SDG 7	Affordable and Clean Energy	More people are using electricity than ever before, with the proportion of the global population having access to this service rising from 83 per cent in 2010 to 87 per cent in 2015, then accelerating to 89 per cent in 2017 (a gain of 1 percentage point annually in the past two years). Still, 840 million people were without this essential service in 2017, mostly in sub-Saharan Africa. In that region, only 44 per cent of the population had access, and an estimated 573 million people still lacked electricity.
SDG 9	Industries, Innovation and Infrastructure	Investments in infrastructure – transport, irrigation, energy and information and communication technology – are crucial to achieving sustainable development and empowering communities in many countries. It has long been recognized that growth in productivity and incomes, and improvements in health and education outcomes require investment in infrastructure.
SDG 13	Climate Action	Climate change is now affecting every country on every continent. It is disrupting national economies and affecting lives, costing people, communities and countries dearly today and even more tomorrow. Weather patterns are changing, sea levels are rising, weather events are becoming more extreme and greenhouse gas emissions are now at their highest levels in history. Without action, the world's average surface temperature is likely to surpass 3 degrees centigrade this century. The poorest and most vulnerable people are being affected the most.
SDG 17	Partnerships for the Goals	A successful sustainable development agenda requires partnerships between governments, the private sector and civil society. These inclusive partnerships built upon principles and values, a shared vision, and shared goals that place people and the planet at the centre, are needed at the global, regional, national and local level.

4.2 Business Case Sponsor

The sponsor of the business Case is the Queensland Department of Environment and Science (DES).

5 Situational Assessment and Problem Statement

This section outlines the benefit to the region for proceeding with the one or more of the proposed options and contains:

- A description of the current situation, challenges and opportunities
- An assessment of how the opportunities are currently being met or not met
- An analysis of the gap between the current situation and the stated objective(s).

Water availability in Goondiwindi Region is declining with a lack of rain and decreased water allocations from the Murray Darling Basin. It is likely that uncertainty over water availability will increase over time.

Goondiwindi farmers will need to continue to produce with declining and more variable water availability. Water risks include both (a) Policy decisions which may abruptly change access to water; and (b) Physical climatic conditions reducing the overall amount of water in the system and with more variable timing.

The working group considered that for the region to continue to prosper, farmers will need to increase the value of yield per unit of water, achieving greater water productivity. This includes a number of elements:

- Water efficient operations and water productivity improvements (irrigation and farm system efficiency)
- Greater soil water retention through regenerative agricultural practices (the subject of a separate CGC Working Group project)
- Diversifying to production of higher value products with greater output.

Over time, the results will provide growers with the opportunity to:

- Gain increased and sustained profitability from each unit of water applied to farms
- Diversify into new crops and gain a higher level of productivity and value for each ML of water used.

The OECD[2] notes that:

> *At the farm level, many innovations are "process innovations" as they relate to improving production techniques; for example, adopting improving seeds or irrigation systems. Downstream industries also innovate new and improved products, such as functional attributes for food (health) or in the chemical or pharmaceutical industry (bioeconomy). All along the supply chain, marketing and organisational innovations are increasingly important.*

1. _____

[2] https://www.oecd.org/agriculture/topics/agricultural-productivity-and-innovation/

The OECD goes on to advise that:

> *Agricultural policy should instead focus on measures to improve the sector's long-term productivity and sustainability, such as investment in general services that strengthen human and infrastructure capacity, and farmers' connection to input and output markets. There must also be a business case from the farm to the fork for producers to innovate and to improve productivity and environmental performance. Well-functioning markets and a sound regulatory and policy environment are key to harnessing these market opportunities.*
>
> *In particular, governments should strengthen agricultural innovation systems to make them more collaborative and responsive to needs, which would increase the impact of public expenditure. Improving the relevance of innovations would also increase adoption in the sector and acceptance by society. Governance is the key to such improvements, which would include forming clear strategic objectives in consultation with stakeholders and comprehensive mechanisms and procedures for evaluation. Finally, attention needs to be paid to adoption, including skills improvements.*

Many skills and a range of experiences are required to successfully diversify rural economies and farm businesses. Diversification requires growers to take a risk on new ventures with decisions based on a number of factors including:

- Market understanding and business development – what are the products that will be appealing to the market?
- Regional and local suitability – which of these products can be produced in Goondiwindi?
- Consideration of the logistics of getting a new product to market (or new to a region or farm).

The process of diversification is similar to the adoption of new technology, in that it involves risk and uncertainty. It can be different to the risk profile of a start-up businesses as diversifying is a more measured approach that can be taken where the amount of risk is smaller as a proportion of the business value. That is, a farm can trial a new crop in a small area and so manage the risk across the whole business.

This concept fits with the AgTech Innovation Hub concept developed by the Goondiwindi Regional Council and the Renewable Energy Centre of Excellence (RECoE) for the Goondiwindi Regional Council. The report considered the concept of a "Backbone Organisation" with a number of opportunities considered most successful in facilitating change including:

- Education and support organisations
- Industry/technology communities
- Innovation Hubs.

With a measured approach to RD&E in agricultural diversification, farms may have time to trial new crops and methods before significant economic changes. Accordingly, this project complements work recently undertaken by RECoE to develop a roadmap for Ag Tech uptake in Goondiwindi.

The Queensland Agriculture and Food Research, Development and Extension (RD&E) *10-Year Roadmap and Action Plan* (April 2018)[3] identifies a number of barriers and challenges to RD&E including:

- Access to RD&E funding and investment capital
- Adoption of R&D outputs to increase production in a sustainable way
- Biosecurity
- Agriculture and food RD&E capability and skills gaps
- Climate variability and climate change.

The Roadmap and Action Plan summary includes three strategies (pp. 24–25). The key aspect relevant to this project is *Strategy 3: Support existing sector to grow and develop new business*. The Action Plan points to a number of *Advance Queensland* programs that address a number of the RD&E barriers.

The project works towards a number of pillars in the *2030 Roadmap: Australian Agriculture's Plan for a $100 Billion Industry*[4].

Pillar 2: Growing Sustainably:

- Australian agriculture is trending towards carbon neutrality by 2030
- A 20% increase in water use efficiency for irrigated agriculture by 2030.

Pillar 3: Unlocking Innovation:

- Australia becomes a top 20 nation for innovation efficiency
- Australia's farm energy sources are 50% renewable by 2030.

The Roadmap sets out the opportunities and weaknesses for Australian Agriculture.

Strategic Recommendation 4.1 of *Agricultural Innovation: A National Approach to Grow Australia's Future*[5] recognises that enhancing farming system groups will strengthen the extension and adoption of innovation. The details of this recommendation note that:

> *Existing farming systems groups can offer tailored support and demonstration of innovation for their region, including mixed farming systems, which will demonstrate the benefits and increased rates of adoption. Trusted groups are shown to be the most effective at creating change on farm.*

In the Macintyre Ag Alliance Regen Ag group, people are doing their own research on multi-species cover cropping including through study tours to America which is seen as more advanced in regenerative agriculture,

The Climate Adaptation Strategy for Agriculture notes (p.16) that there is an insufficient focus in industry R&D programs on climate risk and adaptation[6].

1. _____

[3] https://www.daf.qld.gov.au/business-priorities/agriculture/rde/roadmap-action-plan
[4] https://www.nff.org.au/read/6187/nff-releases-2030-roadmap-guide-industry.html
[5] http://www.agriculture.gov.au/SiteCollectionDocuments/agriculture-food/innovation/summary-report-agricultural-innovation.PDF -URL is incorrect

There is an opportunity for more intensive production of high value products to make the best use of water throughout the region. How can the overall productivity of the region be improved, including through greater water productivity? There is a need to match supply chain and market development with the right agronomy advice.

The working group identified a number of opportunities and issues to be considered including:

- Potential for native plant goods, essential oils and medicinals. For example, Eurah currently 'wild harvests' ingredients, but would like a dedicated area so that cattle don't intrude and production can be expanded
- Carbon farming - paid to leave the vegetation in place
- Opportunity to develop supply chain for new products
- Opportunity to develop a processing plant to value add to primary products
- Drought resistant native grasses – harvesting seed for grain
- Native pastures which appear to be withstanding the drought while improved pastures are struggling
- Having a resource available to keep looking for opportunities for new crops and products
- Look at potential to access new markets through the Wellcamp Airport
- Coordinate with the activities of the Toowoomba and Surat Basin Enterprise (TSBE) in the wider region (https://www.tsbe.com.au/)
- Access existing research and development corporations
- How do people access product all year round – What can be grown here? What is the window?
- Informing producers - What education campaign is needed to inform them and assist them through a transition?
- Opportunity for Goondiwindi region supply chain mission
- What programs are in place that can be accessed:
    - Established agronomists
    - DPI/DAF support
- Need for assistance with commercialization of horticulture and engaging a market development person
- This project will assist the existing sector in Goondiwindi and wider to grow and develop new business:
    - What to grow, when, distribution, marketing etc
- Consider a Wandering Cooks model for a commercial kitchen to support new food businesses utilising local produce – check this hyperlink
- A "Secret Eat Street"
- A focus on Food and Fibre west of the range – not just Goondiwindi
- How can it connect with a local production concept under consideration in Inglewood?
- Seeking assistance from DAF proactive business development expertise based in Stanthorpe.

The Working Group held a Future Food and Fibre workshop in 17 October 2019 to highlight specific case studies of diversification, market development and understand the barriers and opportunities, with the notes including the responses to a survey attached at Appendix D.

Technologies to improve the efficiency of agricultural systems are being developed in Goondiwindi:

[6] https://www.qld.gov.au/__data/assets/pdf_file/0027/67626/agricultural-sector-adaption-plan.pdf

- Goanna Ag: Using technologies to assist farms to reduce water use and increase efficiencies
- Infarm: Drone-to-tractor technologies to assist in reducing herbicide use
- Hayes Spraying: Using *Weedseeker* technology to reduce herbicide use.

Recent work has been conducted by the Department of Agriculture and Fisheries and Murray Darling Basin Authority to assist farmers diversify with some grants available, leading to the development of the Ag Margins web site (Figure 1), helping farmers to consider the most suitable crops based on the best gross margin per mega litre of water. Details and outcomes include:

- AgMargins - https://agmargins.net.au/Reports/Index#
- QMDB Crop Economic Analysis Paper 2016 https://publications.qld.gov.au/dataset/e4735717-754b-48d5-9348-01f87a5096a2/resource/a88c6c85-dcc9-4387-80d3-0255bede75c1/download/qmdb-crop-economic-analysis.pdf. (please cut and paste link)

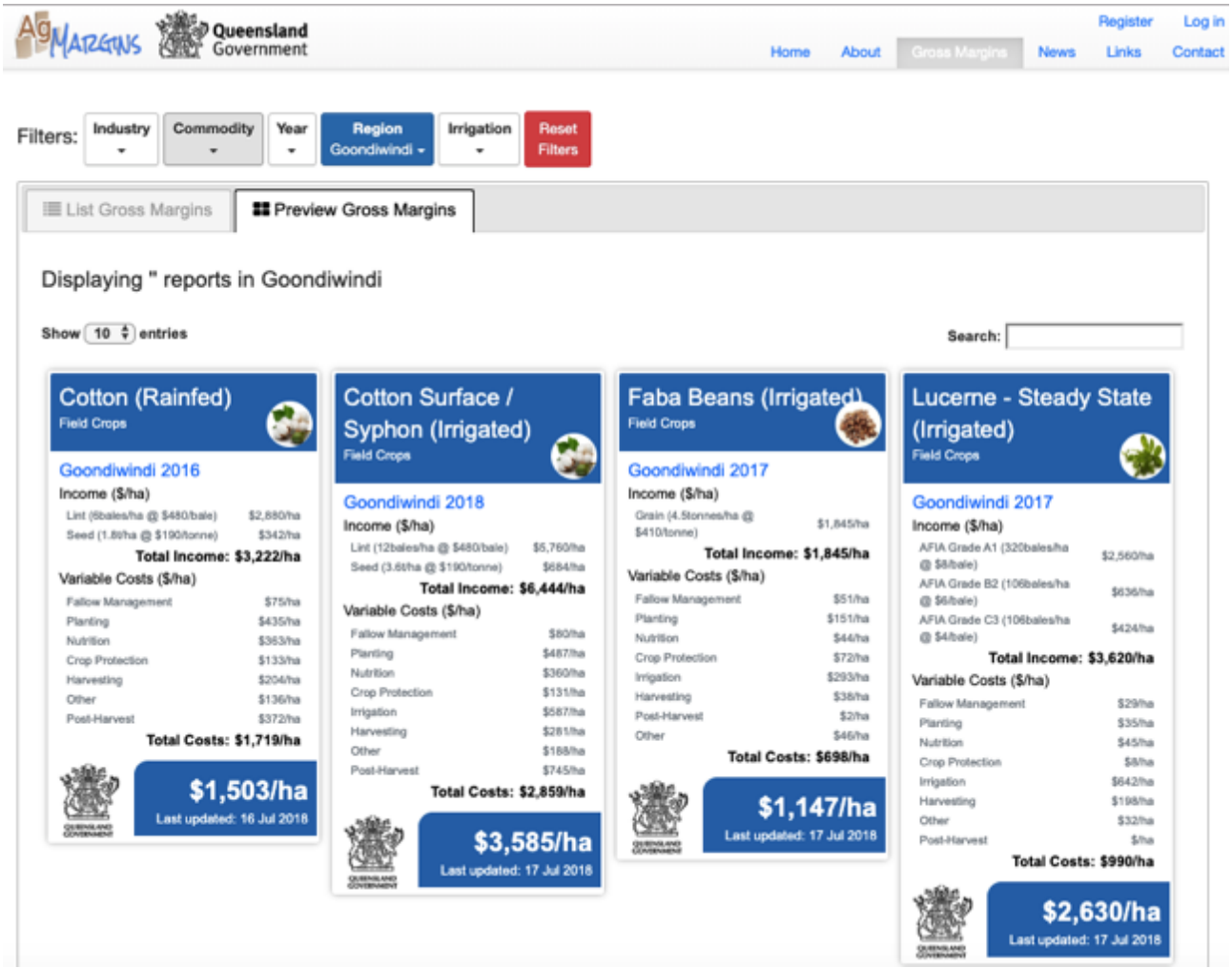


Figure 1: Screen Shot of the Ag Margins Website. The website provides Gross Margin per ML

6 Assumptions and Constraints

The business case provides a pre-feasibility level assessment of the project. It has been prepared by the Clean Growth Choices team under the direction of the Clean Growth Choices working Group. The working group largely consists of volunteers who are providing guidance and input.

Costings and pricing estimates are considered to be at a prefeasibility level of accuracy.

7 Identification and Analysis of Options

This is a high level analysis of the possible alternatives that could be employed to bridge the gap between the current situation and what is proposed, as outlined in Section 4.

7.1 Identification of Options

The project seeks to address some of the barriers to RD&E to enable a diverse and successful agricultural sector that is able to innovate and change to meet market requirements in the face of significant challenges. Various options are available to the Working Group:

- Option 1: Develop an RD&E and Diversification Plan
- Option 2: Appoint a RD&E Community Manager[7] (or Business Development Manager)
- Option 3: Create a Ag Diversification Backbone Organisation[8].

7.1.1 Option 1: Develop an RD&E and Diversification Plan

An RD&E Diversification Plan would identify specific opportunities to assist Goondiwindi farmers in intensifying and diversification over the long-term. The elements of the Plan would:

- Encourage the continuous improvement in efficiency of existing farming systems, including yield; and energy and water productivity
- Establish baseline and benchmarks such as the value of output per ML of water applied
- Identify market opportunities and a mechanism to review regularly
- Identify supply chains for regional produce, both distribution and logistics
- Identify areas that may be suitable for intensification taking into consideration agronomy, suitability of local conditions and soils
- Regular education and training sessions for growers
- Personal advice to growers
- Maintain links to agricultural RD&E industry bodies

The plan could operate at two general levels:

1. A general level with processes, advice and procedures to assist stakeholders to diversify to new systems and information based on known data
2. Specific options for the region based on gathering new data about soil types and experience, though it is recognised that this is more complex.

1. _____

[7] Term “Community Manager” from the RECoE Goondiwindi Innovation Hub report.
[8] Term “Backbone Organisation” From the RECoE Goondiwindi Innovation Hub report:

The initiative would commence building at Level 1, while gathering information to increase the complexity so that it could ultimately operate at Level 2 above.

7.1.2 Option 2: An Ag RD&E Community Manager

The option involves engaging a dedicated RD&E Manager (or Community Manager) for a Goondiwindi Backbone Organisation. The roles and responsibilities would need to be prioritised from the following broad tasks:

- Develop and implement the RD&E and Diversification Plan (Option 1 above)
- Provide personal tailored, agronomy advice to growers
- Facilitate farmers' access to support programs/funds
- Provide shared market/product development role across farms
- Develop a program of investment for relevant regional or individual projects
- Identify investment sources to reduce the financial risks of diversification
- Assist in identifying market opportunities and providing market development advice
- Consider developing specific projects such as a sample-milling program for some native grasses
- Consider establishing a buyers' group to access seed to obtain cheaper prices
- Manage the Ag Diversification Backbone Organisation
- Consult on the development of branding for local produce.

7.1.3 Option 3: An Ag Diversification Backbone Organisation

An intensive agriculture backbone organisation would be a structure to support farmers that are diversifying their production over time to achieve greater yield and water productivity through different cropping. It would complement a Goondiwindi Ag Tech Innovation Hub, recognising that it would be supporting a different type of innovation to the Ag Tech Hub.

The hub may cater for farmers who are diversifying into different, more intensive or value-added products, taking risks supported by their existing business and production and commercialising additional products, rather than early-stage, high-growth entrepreneurs. In this way, the hub may provide access to market development, agronomy and logistical support to help farmers consider, decide and then transition to new or value-added products.

It should also establish links with the Rural Economies Centre of Excellence and the UNE SMART Region Incubator to ensure that best practices are applied and the latest information is available to local farmers. It should assist farmers to access QRIDA diversification funding $250K for some sort of diversification, and other funding that may arise.

There is an economy of scale in integrating with an Innovation Hub for new technologies in that it supports entrepreneurs making a transition to a new product or taking a risk.

The project may also consist of an ecosystem rather than a physical space, where a series of activities are managed to engage the agricultural community to support decision making and transition to more intensive production.

The Innovation Hub feasibility study and business case also recognises the applicability of the structure to other industries such as tourism

It is suggested, as an initial outcome, that the Incubator establish an Accelerator Program:

Diversification Accelerator Program: The Hub could facilitate a number of accelerators with, diversification challenges to provide a targeted program of assistance to farmers who have diversification projects, with a support group, with regular get-togethers, access to experts, (legal, agronomy, market development) and potentially funding to assist in de-risking.

The Accelerator could operate in the same way as earlier Murray Darling Basin horticulture funds, but with accelerator support and a wider network of participants, including other interested farmers.

7.2 Comparison of Options

A brief comparison of the options has been provided though it is noted that the options are not mutually exclusive:

Criteria	Option 1: Plan	Option 2: Community Manager	Option 3: Backbone Organisation
Benefits: • Farmers • Council • Goondiwindi gommunity	• A documented strategy relevant to Goondiwindi	• Tailored advice and facilitation • A person to drive the process, until implementation of the plan is ongoing	• A structured plan to provide progress to farms • Consolidates existing funding programs to optimise support
Disbenefits: • Farmers • Council • Goondiwindi community	• Costs	• Task too expansive for a single person – need prioritisation	• Opportunity cost – time for farmers participation • Farmers – risks in diversifying
Costs: • Direct • Indirect • Recurrent	• Plan development costs	• Salary/contract costs	• Program management costs • Grant costs
Risks: • Initial • Minimisation/ mitigation costs • Resulting risk	• Low risk. • Need to incorporate views from a range of people • Risk of non-delivery if it not specific and relevant	• Low risk • Some financial risk and technical risk • Potential for inconclusive results as there are many independent variables	• Current drought may limit willingness to participate

7.3 Recommended Option

The Working Group has recommended that the three options be pursued with the Community Manager (Option 2) to be responsible for delivering Options 1 and 3.

8 Risks and Benefits

8.1 Matters to be Considered

There are a number of things to consider:

- Potential for greater underground water utilization
- Data requirements – what data is available already and what is needed
- Opportunities for PhD research on opportunities
- The difference in opportunity between projects such as modifying (water efficiency), adapting (organic soil carbon replenishment) and transformations
- Would there be scope for a trial?
- Adam's plants locally native, drought resistant – teas and honeys
- Inglewood – more silty soils suited to tubers or other horticulture
- Improved skills and access to resources to assist with diversification – marketing, logistics, business development, research and development.

Investors: Who would invest in the project and what would they need to see to underpin their investment?

8.2 Risks

The project proposes to reduce the risk to producers diversifying and intensifying to new crops and cropping systems. A risk assessment is provided in Appendix B.

8.3 Potential Benefits

Below is a list of benefits that may result from the project. They have been classified into direct and indirect.

No	Topic	Direct/In	Details
1	More diversified Farm Income	Direct	Additional revenue to the area from more and varied farming production activities
2	Employment – more jobs including more seasonal jobs	Direct	With an increase in agricultural value and output there is likely to be more workers required
3	Increased revenue to other regional businesses	Indirect	Other businesses are likely to benefit from increased agricultural output as people purchase fuel, incidentals, souvenirs, stay in accommodation longer and purchase meals in Goondiwindi
4	Employment	Direct	The projects would secure existing employment or offer additional jobs as farms diversify and increase revenue
5	Local investment	Indirect	The opportunity for local businesses to invest in the project
6	Training and	Direct	The program will offer training to farms in a range

	development		of additional areas such as market development and marketing skills.
7	Greater yield per hectare	Direct	The program will work with farmers on diversification projects that aim to achieve greater yield
8	Greater yield per ML of water and per MWh of power	Direct	The Program will work with farmers on diversification projects that aim to achieve greater energy and water productivity
9	Increase the value of native vegetation as a carbon sink and a source of product	Indirect	The Farms may be able to set aside additional areas for native vegetation if yields are increased through more intensive use of smaller parts of the farm.

8.4 Other Opportunities

Other ideas for the project

Clean Energy Finance Corporation Investment

The Clean Energy Finance Corporation (CEFC) is a government backed financier and investor. They have facilitated significant levels of investment on agricultural energy efficiency, renewable energy through loans and direct investment, where energy consumption per unit of production can be achieved.

https://www.cefc.com.au/media/390741/cefc-and-clean-energy-for-agriculture-feb-2018.pdf

Innovation Precinct

There is the potential for the project to be a catalyst in conjunction with the for the Goondiwindi Organics Hub precinct to be an Innovation Precinct:

- Dept Industry (Aust): https://www.industry.gov.au/strategies-for-the-future/promoting-innovation-precincts
- CSIRO: https://www.csiro.au/en/Do-business/Collaborative-research/Active-opportunities/Precinct-partnerships

A number of models could be structured around this program as an innovation precinct such as:

- Farms conducting RD&E activities may work closely with a range of businesses leading to other opportunities.
- Opportunity to act as a central point for collection of other materials from farms such as ag plastics, tyres, waste oils

- Industrial ecology model where complementary businesses may co-locate, such as those that may benefit from waste heat, waste CO2 and other byproducts – or who have or residues that may be of use.
- These would link strongly to the USQ, GRC Ag Tech Project where there may be local technology development opportunities.

9 Implementation Strategy

9.1 Project Title

Goondiwindi Diversified Agriculture Project

9.2 Target Outcomes

The Target outcomes will be agreed investment-grade business cases for the options identified in the business case. Ideally, the business case could be adopted and progressed by industry.

Outcomes	Details
A Clear Plan and Strategy with Personnel to deliver it	A seed-funded plan and program to target diversification.
New Industries	New farming opportunities realised, and potentially additional value-adding opportunities
Markets Identified and Developed	Community Manager is able to target new markets for regional produce so that farms are producing for known and understood markets
More diversified agricultural base	Farms are moving towards greater diversification
Energy and Water Productivity	Farms are achieving greater Gross Margin per ML of water, Gross Margin per kWh of Energy
Environmental	Reduced carbon intensity of the regions agriculture and potentially greater areas for native vegetation.

9.3 Outputs

The Outputs for the project include:

- An RD&E Ag Diversification Plan for Goondiwindi (and wider area if required)
- Farms progressed through a Diversification Program
- Documentation of process and Case Studies of participating farms

9.4 Work Plan

The work plan will consist of a range of key work packages. It will be necessary to break these packages up into a project plan prior to commencing.

Work Package	Details	Responsibility

Recruit a Community Manager	Establish and Implement a recruitment process.	Council and Project Manager
Case Study Research	Research to determine case studies of farms that have been taking steps to diversify impact on farm productivity and profitability	Macintyre Ag Alliance, Council, Project Manager, with DAF and MDB
Consultation and Plan Development	Consult Widely with farmers, farm managers, agronomists, grower groups and R&D bodies to develop a regional RD&E Plan	Community Manager
Establish Backbone Organisation	Based on Consultation with above, and taking into consideration the Ag Tech Business Plan, establish a Backbone Organisation	Community Manager with Council.
Design and Implement an "Accelerator"	Develop a process to invite expressions of interest and select 6 suitable participants to participate in the program and facilitate their participation.	Community Manager
Events and Training Program	Develop a number of events for farmers to present findings from participating farms as well as other visiting experts and discissions.	Community Manager,
Measurement and Evaluation	Write up final report to summarise outcomes	Community Manger

9.5 Budget

The Overall Budget for the program

Work Package	Discipline	Est Cost.
Project Management/Project Manager	Coordination of Events, calendar for Expert in Residence, facilitates participation by farms for up to two years.	$100,000 - $200,000
RD&E Plan Development	Writing the Plan – possibly with the input of a consultant	$30,000
Expert in Residence – Agriculture Market Development	Provide direct support primarily to the 6 selected farms, plus other support to other farmers conducting diversification activities. Funding could be sourced from the Expert in Residence Program though note a contribution is required. Coordinate agronomy advice in Goondiwindi	$120,000
Speakers and Events Program	A program of recognised agricultural innovators and other relevant people to visit, providing workshops, presentations and follow-up information to GOondiwindi agricultural businesses. • Education including customer services skills	$50,000
Mentoring	Mentors are accessed and introduced to	$30,000

	businesses through the Mentoring for Growth Program to a maximum value of $2,000 each (for a wider pool of potential operators)	
Project Development	6 Participants receive a grant to assist with aspects of the diversification activity possibly with the assistance of an Ignite Ideas Fund grant	$120,000
Web Development	6 Participants receive a special allocation from the Small Business Digital Grants Program	$60,000
TOTAL		**$510,000 - $610,000**

Options for funding the above packages can be identified and may include the programs identified in the following sections.

9.6 Other Resources

Building Better Regions Fund with two streams for 'Infrastructure Projects' and for 'Community Investments' https://www.business.gov.au/assistance/building-better-regions-fund).

10 Project Management Framework

10.1 Governance

A key question for this project is "Who Owns the Project?"

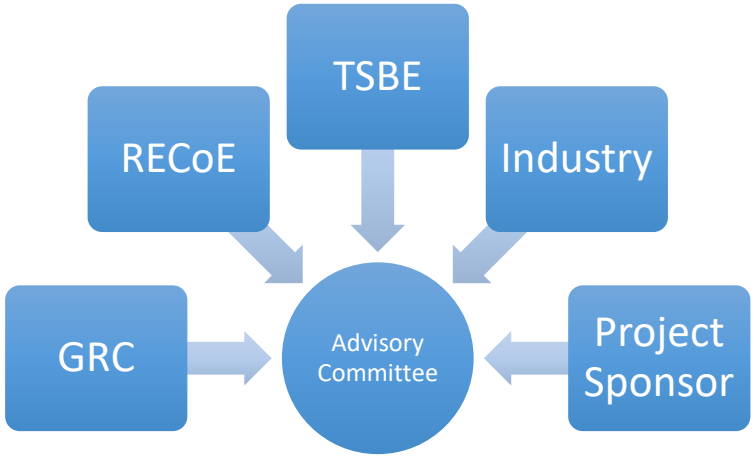
The governance system is proposed to deliver the business case as follows, with the exact representation to be determined at the commencement of the project:

- Advisory Committee: Responsible for the delivery of the project, meeting its objectives on time and within budget. The Advisory Committee members will also consult strategically with external stakeholders to ensure that the project has the support of a wider network
- Working Group: Responsible for advising the Project Manager on technical and operational aspects of the project and will meet to advise the Project Manager
- Project Manager: Reporting to the Advisory Committee. The Project Manager could sit within the RECoE or GRC structures and have access to relevant expertise, including through regular meetings of the Working Group.

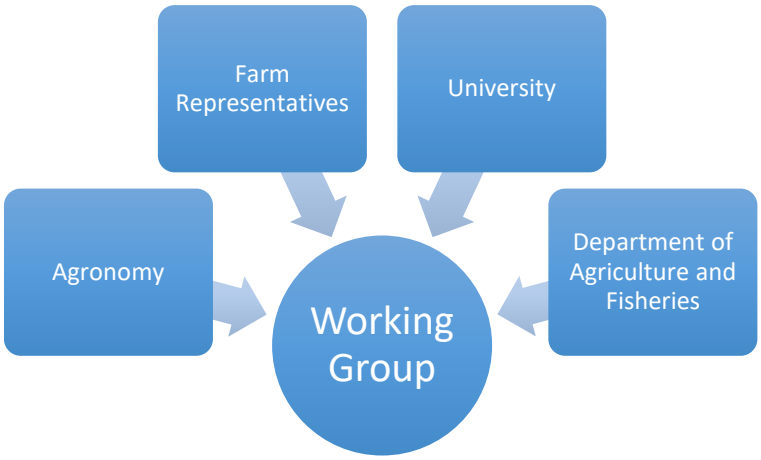
The Project Manager will be responsible for the delivery of the project.

The Steering Committee should be established with representatives from the Goondiwindi Regional Council and industry representatives. The Project Sponsor should be represented, particularly if funding is provided.

Suggested Project Steering Committee Structure:



Suggested Project Working Group Structure:



The business case should be progressed by a Project Manager, with the close advice of key agencies and advisors in an operational working group as suggested above.

10.2 Project and Quality Management

A detailed project plan will need to be prepared incorporating a number of factors including:

1. Organisational Impact: How the work undertaken during the project will impact on the organisation and how these impacts will be addressed
2. Outcome Realisation: How outputs will be managed once they are delivered, and who will be accountable. This may change as the project evolves
3. Quality Management: Define suitable standards, requirements and best practices for the project to deliver against, and the internal quality requirements
4. Post-project Review: How the group will capture the lessons learnt throughout the project and what review will be done to assess whether the initiative delivered the intended benefits.

The Project Manager will need to ensure that the final project developed is robust and based on sound science. Financial analysis should be sufficiently robust to allow decision making, so initial consultation should occur with potential funders and financiers about the level of detail required.

It is suggested the Project Manager be located outside the GRC structures. The Project Manager may not need to be a full-time role to progress the business case as a proportion of the work relies on gathering information from other sources.

Appendix A: Benefit Analysis

This analysis assesses how each key stakeholder group (or individual stakeholders) may be impacted by the project and how they may impact on the project.

Option 1: Agricultural RD&E and Diversification Plan

Stakeholder	Positive Impact	Negative Impact	Overall
Farmers	• A structured plan • Potential cost savings through water and energy productivity • Knowledge and skills increased	• Time to adjust, adopt new or modified practices	Positive
Council	• A plan in place for the key sector, providing certainty and driving growth	Nil	Positive
Community	• Potential for increased economic activity in the region, with increased profitability of some enterprises • Knowledge and skills increased	Nil	Positive

Option 2: Agricultural RD&E Community Manager

Stakeholder	Positive Impact	Negative Impact	Overall
Farmers	• An expert, trusted advisor and advocate • A structured plan and project • Able to assist with market development and logistic advice	• May not be one of the ones selected to participate for close attention	Positive
Council	• Potential for increased rateable land sales	Nil	Positive
Community	• Leading to growth	Nil	Positive

	in agricultural output		

Option 3: An Intensive Agricultural Backbone Organisation

Stakeholder	Positive Impact	Negative Impact	Overall
Farmers	• Potential for increased soil quality and water holding capacity – greater ability to withstand drought • Diversified income through different crops • Knowledge and skills increased • Potential long-term productivity increase • Support from a structured program to assist in dealing with the risk	• Potential costs • Adapting Farm System • Potential for initial decrease in productivity as farm system adjusts	Positive
Council	• Potential income from the lease of a site that may currently be vacant • Facilitated a long-term economic benefit for a key industry sector • Reduced greenhouse emissions from a key sector	• Time spent working in partnership with proponent • In-kind costs – those not funded by the project	Positive
Community	• Long-term economic sustainability of farming sector • Greater certainty for supporting businesses and supply chain	• Potential amenity impacts from the site and transport of wastes	Positive

Appendix B: Risk Analysis

As a pre-feasibility level business case, this is an initial consideration of risks, and what strategies can be put in place, or what investigations in further work can mitigate these risks.

Option 1: Agricultural RD&E Diversification Plan

Major Risk and what does it do to the project?	Mitigation Strategy
Plan is ineffective and does not deliver	The plan needs to be based on consultation with key stakeholders and experts to ensure it is focussed, practical and can be delivered.
Lack of agronomy advice leading to unrealistic expectations	The program needs to engage agronomists to ensure that it allows for the technical aspects.
Fails to engage with sector R&D organisations and commodity groups	Communications Plan to ensure that these organisations are engaged.
Limiting the program to only the GRC region may miss opportunities	The program needs to engage beyond the Goondiwindi Region boundary to the Goondiwindi economic area.

Option 2: Ag RD&E Manager

Major Risk and what does it do to the project?	Mitigation Strategy
Not able to engage with farm managers	Ensure through the recruitment process that the Community Manager has the right experience and credibility to be able to establish working relationships with the farms, agronomists and markets.
Not able to engage with sectors and R&D groups	Ensure through the recruitment process that the Community Manager has the right experience and credibility to be able to establish working relationships with the agricultural R&D Agencies
Doesn't achieve as much as anticipated	Need to prioritise work in conjunction with the Steering Committee so that time is well spent and outcomes can be maximised.

Option 3: Intensive Agricultural Backbone Organisation

Major Risk and what does it do to the project?	Mitigation Strategy
Scepticism about the success of incubators	The program is a supported RD&E trial with some funds and a lot of support provided. Other farms will be able to take advantage of the process and experts even though they may not receive funds. The project will contribute to knowledge.
No successful trials are conducted	Suitable balance in due diligence to be undertaken on projects to ensure that there is a reasonable prospect of successful projects, but the program is not too risk adverse. The sector needs to learn from a range of trials and challenges so documenting a trial if unsuccessful will still be of benefit.

Appendix C: Background Information

Case Studies

Should this URL have a topic? https://www.abc.net.au/news/rural/2019-07-27/tipperary-station-plants-lemons-in-major-horticultural-project/11345366

Murray Darling Basin Diversification Project with Justin Heaven - https://www.qt.com.au/news/seminar-explore-profitable-crops-murray-darling-ba/2759329/

Appendix D: Future Food and Fibre Notes

Future Food and Fibre Notes

17 October 2019, Golden Age Centre, Goondiwindi.

Jane Bennett, Tas Foods.

Businesses start because of what they want to do

Gave the example fo a fingerling business that started up in Tas – didn't have great success so diversified into tourism

Create something that is valued by your customers so you need to know what your customers want - Visit and talk to your market

Key attributes:

1. agriculture a significant component of the economy
2. sense of community
3. local champion or champions
4. identifyable geographic boundaries – eg Tasmania, nz, cornwall, wales, Scotland
5. brand champions tourism icons
6. tourism is a successful part of the place of the origin – for example cornwall rejuvenated by the biodome
7. vibrant arts culture – supports difference and change in communities – monoculture communities struggle ,thriving communities have good arts cultures
8. support and welcome tourists and visitors

The Tas Foods Model:

- buy existing businesses and look for:
    - good technical products developed by a founder
    - capital constrained – reached capacity of owners to inject funds
    - founders impair proper management decisions
    - will sell it whoever will take it away due to marketing etc
- have a shared service model
    - provide services to all businesses
- haven't been successful until you've sold the business and made money

Advice:

- establish a business with a view to selling it. For example locate it in an accessible part of the site – or in town rather than in the middle of the site where the roads, powerlines and water are
- the role of Economic Development Agencies is to
    - advise on grants. Grant writing
    - help with approvals etc

- role of Industry RDCs
    - help with progressive advice but not just to grow more of what people don't need
    - cotton RDC has done a great job making australias cotton industry the lowert water user in the world
- use grants to assist you to do things but don't become dependent on them and don't change your business to fit a grant

Alex Nixon, Cattle and Crop Farmer, Nuffield Scholar.

- Working towards regenerative ag practices: "Some of our soils have been in the family for over 100 years and I want to pass it on to my kids in a better condition than I found it"
- Maintaining soil organic matter needs to be a priority.
- min 8 species cover crop used and they are sprayed before seed set which is when they start drawing more water. Crops can be sewn straight into the organic matter.
- Can be costly to get started.
- Aim to get to 100% ground cover.
- Alex noted that there were more beneficial insects in the crop and noted a slight improvement in yield in year 1.

Questions and Answers from Attendees.

(Answers shown from the participants that provided answers on the questionnaire. 6 different respondees – comments shown in different colours. Names and contact details were not requested)

1. Do you feel like there is a need for you to change the way you farm? For example, new crops, different methods, etc?
    - There's always a need to improve methods and increase sustainability and profitability.
    - Another industry in town would be very beneficial
    - Producer: Diversity – increase sheep and turn some grazing land into hay production
    - Weeds – a lot of capital tied up in managing.
    - I'm happy to share info and contacts for those in Ag businesses
    - Not an ag business at present but found all the presentations valuable for many reasons and enterprises
    - Camera sprayer
    - Electric weed zapper
    - Camera sprayer instead of a blanket sprayer

2. What are the reasons for that? What Pressures?
    - Increase in Varied rainfall has meant we have have to run less cattle
    - Need to increase efficiencies to increase production and remain viable
    - Diversity and fresh thinking options presented are options for growth and change for Prodction Bioligy Economy Economy and Sustainabiltiy of the Environment
    - Save money
    - Reduce harmful chemicals
    - More efficient
    - Reduce waste
    - Save money
    - technology
3. Do you have ideas about how you would change? Different Crops? Different Methods?

- Yes. Knowledge, skills, inputs – lead to outputs
- No chemicals
- Driverless vehicles

4. Are you in the middle of a change or have you tried before?
   - Yes and trying to initiate more. Drought has halted.
   - If it rains but can't because there is not money
5. What worked well or didn't work?
   - Trying to view a problem as an opportunity
6. What would have made it easier, quicker or less risky?
   - Ability to expand, higher rainfall
7. What is the brand that Border Rivers/ Goondiwindi Region want to diversify or intensify or value-add?
   - The tourism industry – working with local producers – food etc in town
   - Innovation, diversification
   - Ability to produce quality over quantity product when squeezed by imports
   - All or Any – tourism really
   - that what everyone does here is worth doing well and sharing
8. What are the opportunities for our agricultural producers to work together on this?
   - Workshops like this are very beneficial
   - Discover farming is trying to make this happen too I believe
   - Target groups that are already farmed – ie growers groups
   - Identify credible 'champions'
   - Access to quick and useful info/resources
   - Food and Fibre Forums
   - What it means to individual businesses in the local economy and mindset of the region
9. What opportunities for diversification/ value add do we have in the region?
   - So many opportunities – river food fibre
   - Horticulture
   - With water, the possibilities are pretty much limitless
   - Meat
   - Sheep (meat/wool)
   - We have many many yet to be discovered
   - It is only through talking, discussion and exposure do all people and all walks of life learn the value of what they might contribute to the whole community
   - Food and Fibre