



# Murray Darling Basin Regional Economic Diversification Program

Queensland

Project 2, Activity 2

The Queensland Government is facilitating and leading a program of activities aimed at assisting local communities in Queensland to adjust and transition to a situation of reduced water availability from the Murray Darling Basin Plan.



This publication has been compiled by Robert Lomman of Regions and Industry Development, Department of Agriculture, Fisheries and Forestry.

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# 1. Project 2 Summary

## *High value horticulture value chains for the Queensland Murray Darling Basin*

The goal of this project is to establish new, high value, profitable and resilient horticulture value chains in the Queensland Murray Darling Basin.

The project consists of 5 activities designed to identify and develop opportunities in the Balonne catchment and Border Rivers areas:

1. Crop Suitability – Identification of potential high value horticultural crops to grow in the defined project area at certain times of the year
2. Industry Engagement – Increase capacity of value chain participants to innovate, adopt and implement new business opportunities. The project engages with local irrigators, including existing horticulture producers to identify the barriers to horticulture industry expansion and solutions to overcome these barriers.
3. Market Development – Identify opportunities for horticultural produce in both domestic and export markets, developing an understanding of the market requirements for horticulture products that can be potentially produced in the region.
4. Value Chain Requirements - Develop model supply chains for a range of potential new horticultural value chains identified through Activities 1 – 3. Including a detailed evaluation of value chain requirements (transport, storage, value adding etc)
5. Business support for new value chains – Provide direct financial support to new, high value, profitable and resilient horticulture value chains in the Qld Murray Darling Basin.

### Activity 2: Building capacity in the value chain (Industry Engagement)

The project engages with local irrigators, including existing horticulture producers to understand the experiences gained from previous endeavours into growing horticultural crops and identify the socioeconomic barriers to expansion and solutions to overcome these barriers for the horticulture industry.

**Outcome:** Increased capacity of existing and new value chain participants to innovate and implement new horticulture value chain opportunities.

Tasks outlined in project specification:

- a) Engage through existing workshops and forums within the region to raise awareness of the project and gather feedback
- b) Engage with existing horticulture producers to identify and overcome barriers to expansion and reasons for the success or failure of previous ventures
- c) Identify current horticultural production in the region
- d) Identify current supply chain logistics for existing horticulture crops
- e) Conduct capacity building activities to meet the requirements of new markets
- f) Facilitate the development of new value chain requirements

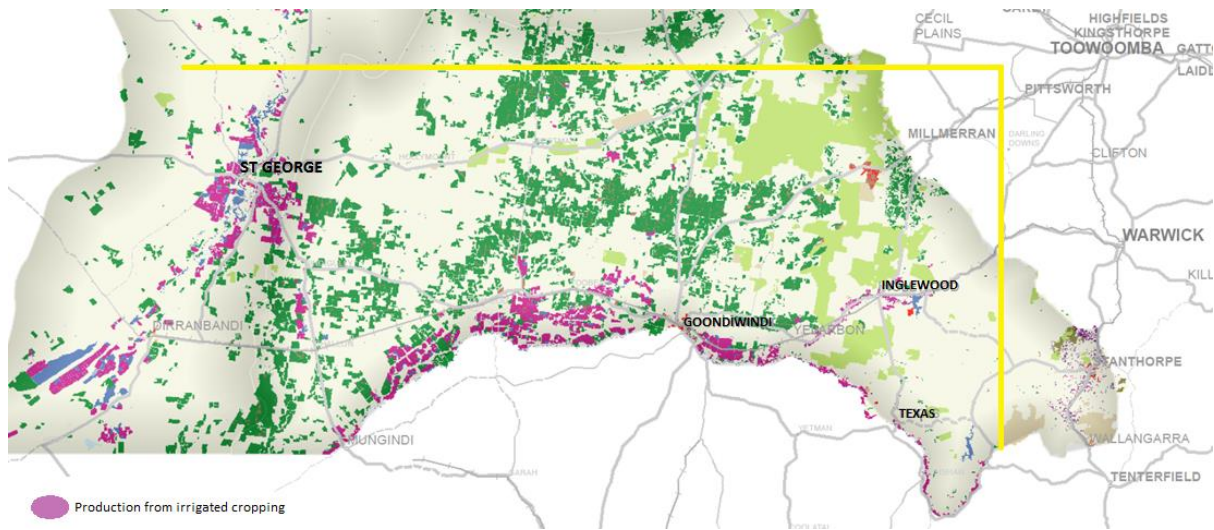
Output #1 – Appoint Industry Development officer for QMDB project area:  
- Robert Lomman, QDAFF, St George Queensland.

Output #2 – Database producers in the QMDB region with water allocation and potential to uptake new opportunities with high value horticultural crops. Include details on available land, water and licenses.

## 2. Project Area

### Queensland Murray Darling Basin Project Area:

The study area will initially be south of a line from Toowoomba to St George, west of Stanthorpe.



**Image 1:** map overview of the project area and the existing production within; QMDC

This map, courtesy of the Queensland Murray Darling Committee, shows areas already set up for irrigated agriculture. This projects' focus is on the St George district, the Goondiwindi Regional Shire and the immediate surrounds of Inglewood and Texas.

As the project progresses; areas outside the initial study area will be considered based on the methodology developed through the first phases of the project.

### Existing Production:

Cotton is the dominant irrigated crop for the region. The amount grown varies year to year, as does the area of irrigated farm land, due to paddock rotation, water availability and external market forces. There are some examples of horticulture production for the region, past and present. The St George area has a larger existing horticulture component, with some permanent horticulture operations situated in the Inglewood area. There are numerous examples of past horticulture operations across all areas.

### Water:

Water is the central factor to this whole project. Across the study area, and within each regional centre, water allocations, licenses, access, infrastructure and application methods vary. The reasons for the variation are influenced by development timelines, government legislation, capital availability and growing requirements.

### Stakeholders:

The stakeholders central to this part of the project are the farmers and landholders. They are the individuals who have tried and are trying to ensure their farming operations are profitable, resilient and sustainable. Other stakeholders include those responsible for processing, logistics and wholesaling, however the first phase of the project is aimed at farmer.



### 3. Existing Production

#### 3.1 St George regional overview:

Irrigators in St George can be loosely and unofficially divided into two main groups, those that farm along the river, and those that draw their water from the channel system. In the interests of simplicity for this project, within the river irrigator group, we can further separate those that farm upstream of Jack Taylor weir, to those south, mainly due to security of water supply.

#### Channel farming area:

Water from Beardmore Dam is fed into to the Thuraggi Channel, through a 32km system of infrastructure built in the 1960's and 70's, to supply the farms to the area east and south east of St George. This network of channels is currently managed by Sunwater, and all farms that utilise the service pay an annual fee and are provided an allocation of water depending on the level of Beardmore Dam. The majority of crops grown in this area are cotton, with some farmers growing grain for rotation, and others growing fodder crops as their main source of income.

There is currently one horticulture operation in the area producing onions commercially and trials of garlic. They also have grown melons and flowers in the past. The soils are predominately black alluvium in this area, with small pockets of sandy loam. Two table grape operations located close to town are also able to source water from this system, although their section can also be filled from the Jack Taylor Weir reservoir.

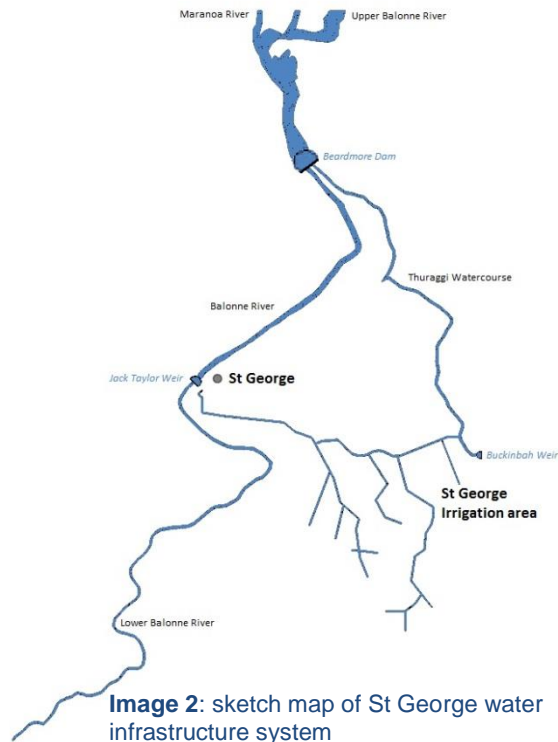


Image 2: sketch map of St George water infrastructure system

#### River farming, north of Jack Taylor Weir:

Cotton is the primary crop grown, with grain and fodder cropping rotation implemented depending on water availability and moisture profile. This area is also home to six of the table grape operations in the area and has the most reliable water security. Each cotton growing enterprise has their own storage and they are usually able to store enough water for a season so long as regular flow occurs. Those with appropriate licences can usually pump water for as long as they can access it.

#### River farming, south of Jack Taylor Weir:

Cotton is the primary crop grown, with more instances of irrigated grain and fodder crops planted than other areas. This is perhaps due to less reliable water security forcing farmers to grow a crop requiring less water for the growing season.



Image 3: project team visiting a fodder production operation in the St George Irrigation area

### 3.2 Goondiwindi regional overview:

The Border Rivers area includes a wide variety of water situations, farm sizes, climates and infrastructure. The farms across the area downstream of Goondiwindi, through to Mungindi, can be broadly categorized as having similar influences. Other areas include the region to the east of Goondiwindi, Texas and Inglewood. Each portion of the river system is represented by an irrigators association, and they combine to form Border Rivers Food & Fibre.

For Queensland water users, the system is fed by the Glenlyon Dam and regulated by the Boggabilla Weir. On the New South Wales side of the border, the Pindari Dam is responsible for storing their water supplies. NSW State Water, Qld DNR and Sunwater together manage water in this system.

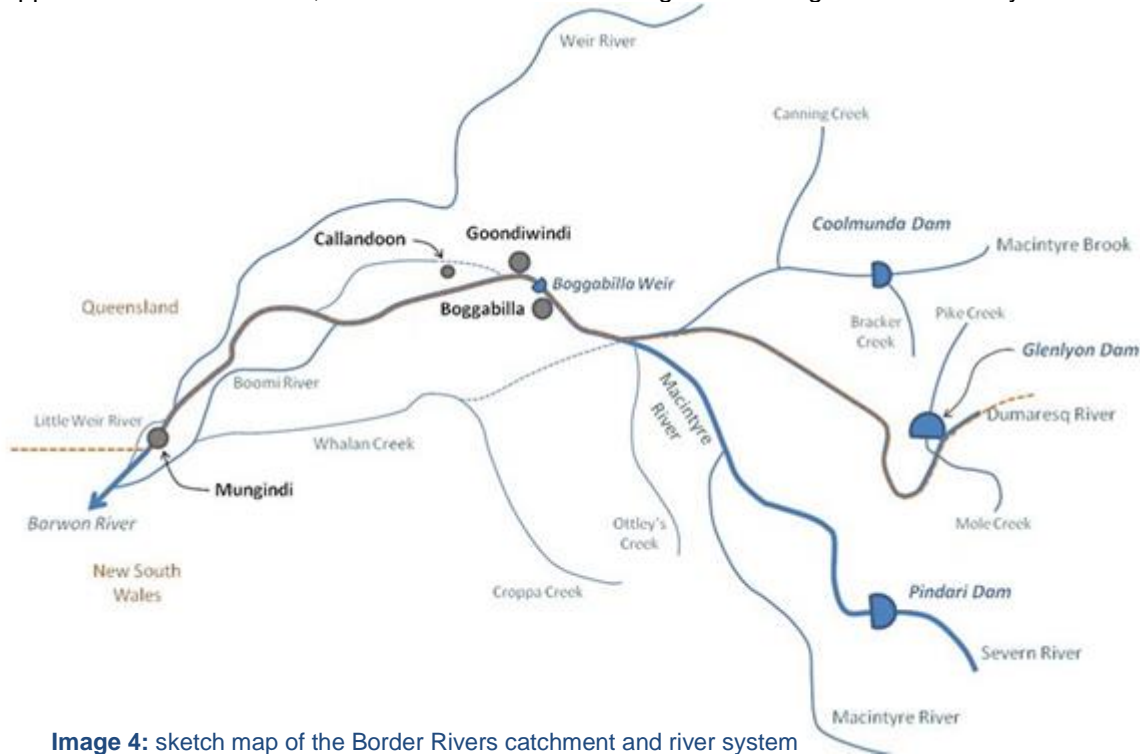


Image 4: sketch map of the Border Rivers catchment and river system

#### *Goondiwindi & downstream:*

Irrigators on the Macintyre, Barwon, Weir and the smaller tributaries predominately grow cotton. They all have off stream, on farm storage facilities designed to hold as much water as possible. The relevant water authority is requested to release a specified amount of water from the dam, and they usually pump their allocated water into the on farm storages for distribution across their fields. Most farms along this long stretch follow a similar pattern depending on in crop rainfall.

#### *Goondiwindi & upstream:*

Some farms in this area operate similar to those downstream, unless they are on the upstream side of the Boggabilla Weir. Those with appropriate licenses are able to retrieve their water more readily and enjoy more secure water. In general these licenses are smaller than those downstream of Goondiwindi.

#### *Inglewood:*

Farms in the Inglewood area are supplied from the smaller Coolmunda Dam. The flows are lower and less suited to the high water requirement of cotton. Most of the irrigated farmland in this area produces fodder, with an operational olive farm and a plum grower also in the area. There were a number of olive plantations installed some years ago that no sit dormant.

#### *Texas:*

The cotton production in Texas is limited to a few landholders with suitable water licenses. Most growers produce fodder and some farmers have grown opportunity vegetable crops from time to time.

## 4. Stakeholder Assessment

Horticulture takes on many forms. It is the branch of agriculture that covers the art, science, technology and business of plant cultivation, including fruits, vegetables, nuts, seeds, herbs, sprouts, mushrooms, algae, flowers, grass and ornamental plants. Given the wide range of horticulture production types, stakeholders in this part of the assessment will be categorized by their potential to grow a range of crops.

1. **Perennial v Annual Horticulture:** by assessing the water security held by each stakeholder, we can quickly ascertain whether they have the capacity to grow a perennial crop, or if their model is more suited to annuals.
2. **Land and soil:** an important factor for many horticulture varieties, but also something that can be managed with effective farming methods, often at an additional cost. If appropriate land and soil is readily available, this will prove advantageous for potential candidates.
3. **Infrastructure:** includes water supply, storage and equipment.
  - a. Water supply – referring to the current equipment used for the pumping, storage if applicable and delivery of water. Neighbouring farms are often set up differently and some will be more flexible than others
  - b. Storage – many forms of horticulture require post harvest treatment of some description, whether it be grading, quality checking, packaging or cooling, additional facilities may be required in most cases
  - c. Equipment – the essential machinery required to farm the crop. Most farms in the study area will have access to some forms of machinery, and there are contractors who specialise in various forms of planting, spraying and harvesting of the different crops. This should prove to be easily surmountable.
4. **Horticulture Experience:** many irrigators in our study area have some experience in horticulture. Whether that be from within their family, or an attempt at taking advantage of an undersupplied market, most stakeholders either had some experience, or know something about various forms of horticulture.
5. **Capacity for change:** perhaps one of the biggest deciding factors for most stakeholders. Each farmer is at a different stage of life, and some that are at the end of their careers are working on an exit strategy. Others at this stage with family to succeed them are more interested, as are those at an earlier stage of their farming life. The second part to this assessment must be financial. Whilst matched funding is available, if a stakeholder is already at a high debt level, they will be unlikely to produce the capital required to match any funding or invest in new infrastructure. A crop similar to their existing process would be the only option, and most of these have already been considered.



**Image 5:** project team visiting a table grape farms' packing facility



## Stakeholder Engagement: Phase 1 results

### Goondiwindi & District

Stakeholder	Primary Crop	Water	Land	Infrastructure	Hort Experience	Capacity / Interest
<b>Downstream</b>						
1	cotton, grain, fodder, cattle	flood harvest licence, large storages, flood irrigation and lateral move irrigators	mix of loamy, good draining soils and some clays	equipment focused on growing cotton, wheat, some beans and stock management	none	medium to high, they are a large operation so any hort venture would need a definite market to make it worth while
2	cotton, grain	flood harvest licence, large storages, flood irrigation	mix of loamy, good draining soils and some clays	equipment focused on growing cotton and wheat	none	low, has a lot invested in cotton and can't see alternatives stacking up financial for him
3	cotton, grain, sheep, cattle	flood harvest licence, large storages, overland flows, flood irrigation	mix of heavy and light black soils, some sandy loam in non irrigation area	equipment focused on growing cotton, wheat, some beans and stock management	none	medium to high, an out of the box thinker and has some varied ideas about what could work, would need help on the market end of it but he is keen to give things a try
4	cotton, grain	flood harvest licence, large storages, flood irrigation (tried drip)	mostly black clay	equipment focused on growing cotton and cereals	broccoli and other hard vegetable in Moree area	low, is looking to exit the ag industry, family has moved away, says any change will only happen when decent ROI is available
5	cotton, grain, cattle	flood harvest licence, large storages, flood irrigation	mostly black clay, some loamy soil	equipment focused on growing cotton and wheat	none, neighbours grew zucchini, researched almonds	low, is looking to exit the ag industry, concerned about cost for all ag development and water security
<b>Upstream</b>						
6	cotton, grain	flood harvest licence, large storages, flood irrigation	deep cracking clays	equipment focused on growing cotton and cereals	none	medium, interested in tree crop ideas, low labour input if possible
7	cotton	flood harvest licence, large storages, flood irrigation, small allocation, some drip irrigation infrastructure	black cracking clays	equipment focused on growing cotton and cereals	squash, broccoli, melons	low to medium, concern on suitability to climate, many hort crops can be wiped out with hot weather, would like to see risk profile of hort options
8	cotton	flood harvest licence, large storages, flood irrigation, small allocation, some drip irrigation infrastructure	mostly black clay, some loamy soil	equipment focused on growing cotton and cereals, some smaller hort equipment	broccoli	medium to high, keen to see what new varieties might suit the area, and want to know market opportunities first
9	cotton	flood harvest, some allocation, large storages, flood irrigation	mostly black cracking clays	equipment focused on growing cotton and cereals	tomatoes	medium, is very passionate about cotton and ag in general, wants to see the go do more to support ag industry and is concerned that horticulture is not good for towns because of itinerant labour requirements (backpackers)
<b>Ingelwood</b>						
10	plums	allocation, some storage, drip irrigation	black loamy soil	facilities in place for growing, sorting and packing plums	plums	high, manager is keen to see further development but thinks water supply could be an issue, came very close to zero water this season
12	olives	allocation, drip irrigation	black loamy soil	equipment and storage facilities in place for the growing, maintenance, harvest and storing of olives	olives	medium to high, has a substantial brand following and would be interested in seeing what other products they could include
<b>Texas</b>						
11	lucerne	centre pivot irrigation, allocation licence	black loamy soils	small machinery, equipment currently set up for producing fodder for feedlots	brascas, carrots, potatoes	low to medium, is committed to fodder production at the moment, but if a decent market was available they would consider annual / opportunity hort crops



Image 6: the carefully maintained plum orchard near Ingelwood

## St George & District

Stakeholder	Primary Crop	Water	Land	Infrastructure	Hort Experience	Capacity / Interest
<b>Channel farming area</b>						
1	fodder, cotton	allocation, small storage dam, lateral irrigators and drip	mostly black soil to sand clay	large hay shed, lots of adaptable equipment, no processing facility	grapes, onions, pumpkins, rockmelons	medium, is interested so long as market end of process is more secure than they've previously experienced
3	onions	allocation, small storage dam, flood and drip	mix of heavy and light black soil	large processing facility, cold store and horticulture machinery	flowers, grapes, melons, garlic	high interest in working with other potential producers in some capacity no land available, but would look at joint farming
6	grapes	allocation, small storage, drip	sandy / loamy soil	cold store, staff accomodation, machinery	grapes, pome fruit	high interest, has land and water available for new venture, keen to continue development of high value crops
8	grapes	allocation, small storage, drip	mix of heavy and light soils	extensive cold store, accomodation, machinery, underground water mains	grapes, tomatoes, berries	high interest, has land and water available for new venture, keen to continue development of high value crops
10	cotton	allocation, storage, flood	black soil to sandy clay	equipment and facilities built around cotton and grain production	none	low, is focused on developing a brand of high quality cotton fibre, post farm gate
12	grapes	allocation, drip irrigation and pump equipment	sandy / loamy soil	good quality, modern facilities, cold storage and large packing shed	grapes, broadacre	medium, if he could be convinced of secure market, currently not thrilled with horticulture industry and spot price markets
14	cotton	allocation, small storage, flood	black soil to sandy clay	equipment and facilities built around cotton production only	cauliflower, broccoli, beetroot, melons, onion	low, focus is entirely cotton potentially interested if a low change option was presnted
16	cotton	allocation, large storage, flood	black soil to sandy clay, some loamy soil	equipment and facilities built around cotton and grain production	family has experience broccoli, cauliflower, carrots in Lockyer Valley	medium, is interested so long as market end of process is more secure than they've previously experienced
19	cotton	allocation, small storage, flood	black soils	equipment and facilities built around cotton and grain production	none	medium, is interested so long as viable return is possible, as it's almost guaranteed with current production
21	cotton	allocation, small storage, flood	black soils	equipment and facilities built around cotton and grain production	non commercial citrus orchard	medium to high, focus has been cotton, but if a viable alternative was possible, they have the capacity to try new ventures
22	cotton	allocation, large storage, flood	black soils, some loamy soils	equipment and facilities built around cotton and grain production	none	medium to high, partnership shows mixed interest, have capacity and space for different production if market is there
23	cotton, grain	allocation, small storage, flood	black soils, some loamy soils	equipment and facilities built around cotton and grain production	none	low, is leasing his irrigation country to a cotton grower, not really at a stage where they will consider any significant change
24	cotton	allocation, small storage, flood	black soils, some loamy soils	equipment and facilities built around cotton production	none	high, very focused on market end and ensuring that new secure windows can be achieved
<b>River North</b>						
2	grapes	allocation, drip irrigation and pump equipment	mix of well draining loamy / sandy soil	aged equipment for growing and production of grapes + cold storage & packing sheds	grapes, flowers, kiwis, pumpkins, geraldton wax	medium to high level interest and has some capacity for expansion. Would need to ensure that growing period doesn't clash with peak watering for grapes
9	grapes	allocation, drip irrigation and pump equipment	red, sandy loam, good drainage	small scale packing and cold store, with limited machinery	grapes	high level of interest with limited land availability, potential opportunity to lease land
11	hydroponics	allocation	space available under existing netting	basic hydroponic infrastructure - pumps and some farm equipment	entry level tomatoes, lettuce, cucumber	high interest, has capacity and desire for increasing production but lacking horticulture experience and limited funds
13	grapes	allocation, drip irrigation and pump equipment	mix of well draining loamy / sandy soil, some clays	extensive cold store, machinery, and packing facilities	grapes, melons	medium to high interest, grapes are primary business and other venture can not use water uring peak time - Sep - Dec
17	cotton, beans	allocation, large storages, flood irrigation	red sandy loam, good drainage	equipment and facilities built around cotton production	none	low interest, is set up for cotton but if something was presented and was viable he would consider
18	cotton, olives	allocation, aged sprinklers & underground mains	red sandy loam, good drainage	equipment and machinery for earthmoving, new equipment required	olives	high interest, has capacity and desire for increasing production but lacking horticulture experience and limited funds
19	cotton	allocation, small storage, flood	red loamy soils, well draining with some clay	equipment and facilities built around cotton, grain and fodder production	none	medium, is interested so long as viable return is possible, as it's almost guaranteed with current production
20	feed grasses	small allocation, pumping equipment for drip system	loamy soils, well draining	small scale packing and cold store, with limited machinery	grapes	low interest, not convinced he has enough water allocation to produce a sustainable crop but open to ideas
26	grapes	allocation, pumping equipment and main line for drip / sprinkler irrigation	loamy soils, well draining, some clays	medium sized cold storage and packing shed, small scale machinery and farming equipment	grapes, melons	high interest, has capacity and desire for diversifying production, has some suitable land
<b>River South</b>						
4	cotton, grain	flood harvest licence, large storages, flood irrigation	mix of loamy, good draining soils and some clays	equipment focused on growing cotton and wheat, some beans	none	medium interest, perhaps not for current property, maybe look at transferring water to another site with more reliable access
5	wine, table grapes	allocation (water hole), no storage, pumping equipment, main line for drip	mix of heavy and light black soils, some sandy loam - mostly land locked	medium sized cold storage and packing shed, small scale machinery and farming equipment	grapes, some non commercial experience with exotic fruits and nuts	medium to high, is land locked so limited development capacity but is intested to see what might work for his operation
15	cotton, grain, cattle	flood harvest licence, large storages, flood irrigation	mix of loamy, good draining soils and some clays	equipment focused on growing cotton, wheat, some beans and stock management	none	low, doesn't think their partnership would be suitable for new venture, also thinks they are too far from logistics links and he's also looking to see what exit options he has

## 5. Water Reliability

Water licenses and allocations are a complex subject and most farmers aren't able to provide a clear picture as to how the system works outside of their immediate requirements. Discussions between farmers, the regulators and the administrators are highly confidential, and for some cotton growers this is perhaps the only information that isn't readily shared over the back fence.

### Water allocation types:

*Supplemented:* this refers to water that can be stored within a scheme or system. Storage allows the management authority (currently Sunwater) to provide water on demand to irrigators to ensure they can continue crop production. A farmer's location on the system influences the conditions on their licence such as lead time and potential losses through delivery.

*Unsupplemented:* unsupplemented water in the system is also referred to as announced flow or a flood harvest event. This is when the regulatory authority decides that enough water is flowing into the system for them to release water whilst still maintaining system (dam & weirs) capacity. This first part of the flow passes downstream as environmental flow, and then irrigators are advised when they can start their flood harvest pumps to begin filling their private storage dams. Every farmer has a unique set of circumstances influencing their ability to take water, however the common factor is that availability of unsupplemented water relies on regular rainfall in the catchment resulting in flows that can more than fill the storage capacity of the system.

Sunwater monitors storage levels in the systems and adjusts the amount of water allocation (license) holders can take accordingly. In low water years, all consumers receive reductions to their allocations and farmers must decide whether to carry water over, sell water or use what they can in the hope that the river flows again.

The other water supply type is overland flow, which doesn't apply to everyone. This refers to water that either falls on a farmer's land through rain, or flows onto their property after breaking out of the river during flood. The taking of this water is managed on a case by case basis and is very difficult to calculate accurately without huge expenditure through surveys.

In both regions, the further upstream the farm is located, the more secure the water tends to be. There are farmers who claim to have never had a zero water year where they couldn't plant a crop, whilst farmers in other parts revert to dry-land crop options more regularly.

## 6. Existing & Previous Horticulture Production

The preceding tables identify the existing horticulture operations in the area. Further to this, there are a number of examples of horticulture production that has since ceased for various reasons.

### 6.1 St George Region:

The most common form of horticulture for the region is table grapes, which have been grown here for about 35 years. The smaller family farms operated profitably for many years with similar models in Chinchilla and Stanthorpe and Mundubbera providing the supply of early season table grapes to market.

Real growth in the local industry occurred in the early 1990's when a family from the traditional Sunraysia region near Mildura established what is now one of the Costa groups' farms. Whilst more than doubling the production of table grapes in the area, all growers still enjoyed returns far above their cost of production, with the crop seen as a relatively safe investment for most. This farm continued to expand, supplying both domestic and export markets (Red Globe to China via Hong Kong for Chinese New Year) and securing supply agreements with supermarkets.

Other enterprises from the Sunraysia region soon followed suit and the region is now home to three large table grape operations. All are focused on the supermarket supply (the two major supermarkets account for approximately 80% of all table grape sales in December according to the ATGA) and are having a follow on effect to pricing.



Five local table grape growers have since exited the market. Small table grape farms appear to carry little value on the real estate market so in each case, the farmer has physically removed their vines to either change production or sell their land (except one, whose vines are now leased to a neighboring table grape producer). Only one smaller operation exists where the farmer relies solely on income from the table grape production, the others supplement their income through off farm activities.

Horticulture operators, in this area, need to be ready and able to adapt to market trends, and this makes investing in fixed infrastructure difficult (such as table grapes). The horticulture operation most people look up to in the study area has changed its production focus a number of times, from wax and rice flowers early on, through rock and water melons, grapes and now to onions. They have also grown substantial amounts of cotton and other farmers will point out that this may support and minimise turbulence experienced in horticulture production and markets volatility.



**Image 7:** table grapes grown with a focus on biological farming near St George

Citrus was grown on a small commercial scale some thirty years ago, and it is believed the standard of taste, presentation and size was of a very high quality. The major factor contributing to ceasing their production is thought to be the Gall Wasp, however there is now a treatment available for treating this pest. The citrus industry has suffered significant turbulence in recent years however the promise of free trade agreements into Asia, coupled with their interest in Australian citrus, points to a strong opportunity in this sector.

Rock and water melons were grown extensively through the late 90's and early 2000's by a number of producers. Some traditional cotton irrigators also planted water melons as opportunity crops at various times. They grow well here; the main limiting factor to quality is the heat, however the region generally produces a high quality product. The factors eliminating their production include transport reliability and cost, labour and volatile market fluctuations caused by other production areas.

Avocados appear to handle the cooler temperatures, yet struggle with the heat and wind. The plants themselves seem to survive however the tree sheds many leaves and all of its fruit. The tree needs to be managed through the peak of summer as harvest usually occurs in the Autumn in this region.

Kiwi fruit vines, like the avocado, have a shallow root system making it very susceptible to heat stress. The root mass requires substantial mulched mound maintenance however whilst no one has successfully managed to do this on a commercial scale, there are numerous trees producing good quality fruit in domestic back yards.

Commercial passionfruit has been attempted by one farmer, though for a very short period. He planted approximately 5 acres complete with irrigation and trellis infrastructure, only to lose the vines to a severe frost. The infrastructure has subsequently been removed.

### *6.2 Goondiwindi Region:*

Inglewood, once a thriving tobacco hub, has more recently been promoted as the olive capital of Australia. Unfortunately the town is home to numerous dormant olive groves. Up to 350,000 olive tree are reported to have been planted through investment schemes which have since failed. The region's main

producer responsible for growing about 5,000 trees organically. The town is also home to a family owned and operated lavender farm and a winery.

Approximately 75,000 plum trees are grown successfully to the east of Inglewood on a former grazing property, producing around 200t annually. Growers producing garlic, broccoli and peanut have also ceased production and since left the district. Cost of production has been the biggest barrier to further expansion in this area, with growers unable to achieve a sustainable return on investment for their produce.

Broccoli has been grown throughout the Goondiwindi region with varied success. There are no current commercial operations. The most significant attempt was through the formation of a cooperative of farmers who saw an opportunity to export broccoli direct to Japan. The farmers installed overhead irrigation systems and built a processing and cold storage facility where they were able to load export containers on site. They did the majority marketing themselves and managed to successfully ship the majority of their produce for a profit, however the specification requirements were strict. Any produce that did not meet spec ended up on the domestic market, and in tough growing years that had a dramatic and very negative effect on prices for all growers.



Image 8: broccoli in field bins post-harvest near Goondiwindi

## 7. Risks and challenges

Whilst horticulture is a form of agriculture, it presents a different set of challenges to the more traditional cropping methods currently practiced in the study area:

- a. The growing period can be more specific or market driven
- b. Adverse weather can have a greater impact
- c. Skilled labour may be required and hard to find
- d. Existing logistics services may not be suitable
- e. Post farm gate processing and marketing is generally required

### Stakeholder Response

Throughout the stakeholder engagement process, these and many more challenges are being raised regularly. The largest of these is one that also doesn't have a clear solution or means of addressing; market forces. The overarching theme revealed through ongoing engagement is that farms need to know they have a market if considering horticulture. Their current production models for cotton and grain mean they'll know their budget, break-even point and potential return before the season starts. With fresh produce, daily markets usually dictate what the return will be and if this is below budget, the farmer is often unable to cover cost of production.

For cotton and grain growers, this is in contrast to their existing model. They are able to forward sell part of or their entire crop at a fixed price, and attempt to grow the crop according to the subsequent budget. Other factors such as temperature and water supply and pest or disease incursions can influence the production of the crop; however the farmer knows how various applications and issues will affect their end of season returns and can make decisions based on these factors.



For new commercial horticulture production ventures to succeed, more security needs to be incorporated into the value chain. Like water security, market security plays an integral part in the profitability of horticulture production. Market security would need to be defined for each sector, and this in turn would provide confidence to growers looking to enter or expand in the industry. Growers also acknowledge that this is difficult when working with a perishable product which applies to most categories within horticulture.

The recurring theme of responses from farmers across the study area: find a new or expandable market to avoid oversupply, and they'll work out how to grow the product.



**Image 9:** cotton bulb ready for harvest



**Image 10:** white seedless table grapes



**Image 11:** rows of onions pre harvest



**Image 12:** plums on the vine ready for harvest



**Image 13:** composting at a trial planting of passionfruit vines



**Image 14:** efficient transport logistics will be a key factor in the success of this project