

## Cotton Industry Vision 2029

**Final Report**

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## 1. Executive Summary

In 2009 Australian cotton industry leaders recognised that the industry needed a clearer shared vision and saw the potential for industry performance, organisational collaboration and capacity to be enhanced through development of a shared vision. The intent of a shared vision was to help inform organisations and sectors to enable alignment of thinking about the future.

The Cotton Research and Development Corporation (CRDC) engaged strategy and foresight consulting group, Emergent Futures, in August 2009 to facilitate a project, Cotton Industry Vision 2029, for the development of a shared industry vision. The project commenced in September 2009 and concluded in March 2010.

The Vision 2029 project was a collaboration between CRDC, Cotton Australia and the Australian Cotton Industry Council (ACIC), with representatives from these organisations forming a Reference Group for the project. The project scope covered the whole of the Australian cotton industry from input suppliers through to marketers.

In order to develop a shared vision, a scenario based foresight approach was taken to help the industry first explore the range of possible futures it may face before identifying a preferred future for the industry. A series of workshops, stakeholder surveys and scanning activities were undertaken to identify trends, assumptions and driving forces that would influence the industry future.

Scenarios identified the range of possible futures that the Australian cotton industry might face from a booming resurgence to decline and collapse based on critical challenges and uncertainties identified at the beginning of the project. Four separate scenarios were developed: Boom, Bust, Food Replaces Fibre, and Present Day Projection. From these scenarios a draft Preferred Future and vision for the Australian cotton industry was developed:

Below is a summary of the preferred industry future. This represents a vision of how the industry might look in 20 years time (2029) having overcome challenges from its present situation.

### **Vision:**

“Australian cotton, carefully grown, naturally world’s best”

By 2029 the Australian cotton industry will be:

- **Differentiated** - world leading supplier of an elite quality cotton that is highly sought in premium market segments
- **Responsible** - producer and supplier of the most environmentally and socially responsible cotton on the globe
- **Tough** - resilient and equipped for future challenges
- **Successful** - exciting new levels of performance that transform productivity and profitability of every sector of the industry
- **Respected** - an industry recognised and valued by the wider community for its contribution to fibre and food needs of the world

- **Capable** - an industry that retains, attracts and develops highly capable people

This vision is to be owned by the whole of industry. Further activities are planned to engage and consult industry more broadly to seek agreement on the final vision and work on strategies for achieving the vision.

ACIC is to be responsible for managing, monitoring and reporting on progress of the vision and strategy. Options for strategy development and monitoring scenarios and emerging issues are to be considered by ACIC in 2010.

Early responses to the vision so far appear to be very positive. Organisations have indicated they are already starting to use the vision and are looking towards integrating this further as the focus and direction for the future. This signifies an excellent start to adoption and integration of the vision which is the ultimate milestone for success of this initiative.

**28 March 2010**

**Enquires** – for further information relating to the Cotton Industry Vision 2029 initiative please contact Bruce Finney, CRDC.

## 2. Background

In 2009 cotton industry leaders recognised that the industry needed a clearer shared vision and collective approach to planning and saw the potential for industry performance, organisational collaboration and capacity to be enhanced through development of a shared vision. A collective vision would provide a longer term focus for activities and help harness effort for best effect.

CRDC, in collaboration with Cotton Australia and ACIC, engaged strategy and foresight consulting group, Emergent Futures, in August 2009 to facilitate a project for the development of a shared industry vision.

### 2.1 Project Objectives

The agreed objective for the project was:

- *“To develop a shared vision that inspires and unifies the Australian cotton industry”.*

The intent of having a shared vision is to help inform organisations and sectors to enable alignment rather than telling them what to do.

To begin the process and clarify the scope of the project a focusing question was selected:

- *“What is the future of the Australian cotton industry in 20 years time?”*

The 20-year timeframe was chosen in order to stretch thinking beyond the short-medium term and ensure a longer-term strategic focus.

### 2.2 Project Outcomes and Benefits

The agreed desired outcomes and benefits were:

#### **Outcomes**

- A considered and shared view of a preferred future
- A shared vision to help guide future actions and plans for the Australian cotton industry

#### **Benefits**

- Potential for enhanced industry performance, organisational collaboration and capacity
- Greater awareness of possible future challenges and opportunities for the cotton industry
- Enhanced capabilities in thinking about the future for stakeholders involved in the project

### 2.3 Scope

The intent was for the vision to be for the whole of the Australian cotton industry. The following definition was developed to capture this:

*“The Australian cotton industry is defined by the strength of its connections through input and service providers to the production, ginning, classing and marketing of Australian cotton to overseas customers.”*

Below is a list of all the relevant sectors:

- Cotton planting seed distributors
- Cotton agricultural
- Cotton ginners

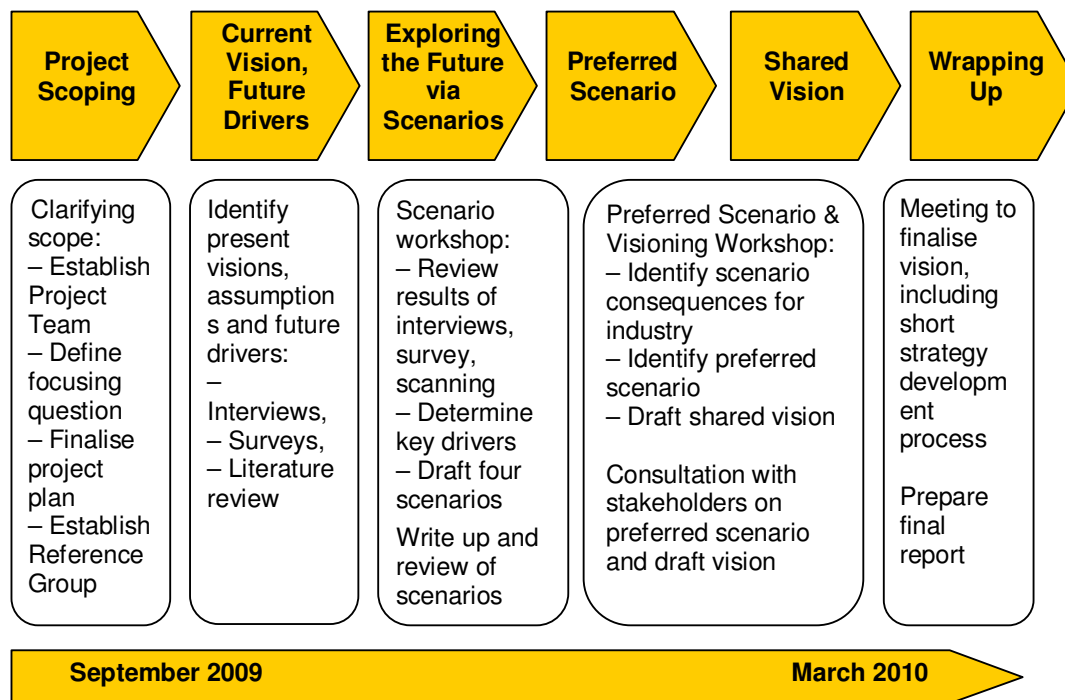
- products/agricultural resellers
- Biotechnology trait providers
- Cotton consultants and service providers
- Cotton growers
- Cotton contractors
- Cotton classers
- Cotton merchants
- Cotton warehouses
- Cotton spinners
- Industry representative organisations
- Cotton R&D providers

## 2.4 Approach

In order to develop a sound vision for the cotton industry it is first essential to explore assumptions underpinning existing views and the range of possible futures that the industry may face. This enables the industry to develop its vision having taken into account existing blindspots, potential changes, opportunities and threats in the environment. The resulting vision will be more robust, compelling and realistic and will help position the industry to achieve its preferred state more readily given the greater awareness of and preparedness for the challenges it may face.

To achieve this, a foresight approach was taken to examine the possible futures for the industry. Foresight is about improving how we think about the future and uncertainty to enable better strategy and decision making. Scenarios are a common foresight tool used to explore possible futures and these were used in the project to examine the possible future environments and vision for the industry.

The key elements the approach and project activities are captured in the following diagram:



## 2.5 Participants

The project consultant, Emergent Futures, worked with input and advice from a small Project Team consisting of representatives from the three organisations collaborating on the project. A

larger Reference Group was utilised for major activities including three workshops. The ACIC membership formed the basis of the Reference Group.

Project Team	Reference Group (actual participants)
Mike Logan, CRDC Bruce Finney, CRDC Joanne Grainger, Cotton Australia Adam Kay, Cotton Australia Rob Dugdale, ACIC Peter Graham, ACIC Sandy Teagle, Emergent Futures	Adam Kay, Joanne Grainger, Phil Armytage, Scott Campbell, Mike Logan, Bruce Finney, Phil Ryan, John Robinson, Brad Pfeffer, Rob Dugdale, Peter Graham, Greg Parle, Jeff Ballantine, Peter Weal, Dave Anthony, Robert Baird.

### 3. Current Vision, Future Drivers

The first step in the project was to get a perspective on the current state of the industry, existing visions and assumptions about the future, and to explore drivers of change that may influence the future of the industry. A range of activities were undertaken for this purpose:

- phone interviews with 14 industry stakeholders and external people
- an online opinion survey open to all industry stakeholders, distributed directly via email and by notification on industry websites
- a short literature review/environmental scan

Detailed results from these activities are available in separate reports which are listed in the Appendices.

The results of these activities were presented at the first workshop of the Reference Group on 29 October 2009. The purpose of this workshop was to:

- Explore existing industry visions and alternative industry futures
- Identify main assumptions and drivers of the future
- Identify possible scenarios

#### 3.1 Current Vision

##### Current State

In terms of the current state of the industry, the survey and interview data indicated that respondents largely view the industry as being significantly challenged by a variety of factors, in particular water availability. Drought is also top of mind. While some responses were less optimistic (in dire straits, on its knees, struggling, declining, stagnant) many indicate a cautious optimism that the industry is adapting well, is forward looking, remains positive, resilient and capable of quickly regaining ground when conditions improve. “Things can only get better” sums it up.

Comments were made that the industry is in a relatively mature stage with rapid growth behind it, major rationalisation is occurring/has occurred, leadership is becoming more conservative, and growers don’t necessarily see themselves as cotton growers any more, rather they are ‘water users’ or ‘irrigators’ and will not be the “parochial ‘cotton grower’ of the past”.

##### Future Vision

The survey and interview data indicated that views were relatively conservative – there were no visions for radical change or transformation of the industry, nor many thoughts that the industry would cease to exist (assuming that it would rain again one day). The need for continuous improvement across the supply chain was recognised to try and keep up with the challenges faced by industry.

Many saw the industry continuing to have a place as a provider of high quality cotton. For some this was a smaller niche. Some thought there would be a greater shift towards integrated systems with cotton as part of the mix, more dryland cotton, and cotton production in new geographic areas. There were quite a few references to potential demise of the traditional ‘cotton grower’ and a shift to being ‘irrigators’ reflecting the greater integration of cotton within cropping systems.

People issues also featured including the need for ongoing programs for development of young leaders, declining scientific population, competition for labour, and potential decline of rural communities. Preferred industry futures were often described in terms of the attributes of its people – vibrant, enthusiastic, cohesive, responsive, dynamic, innovative, collaborative, exciting and attractive.

Opinions on key elements of the future were:

- Size – majority expect no growth
- Australian competitiveness – majority expect no increase
- Cotton competitiveness – many uncertain, very few expect decline
- Likely future – majority see a future (vs no future) but what this is varies
- Desired future – similar to likely future, some differences eg. recognition & passion

### 3.2 Future Drivers

The most **important changes** indicated in the opinion survey were:

- Water constraints/availability
- Climate change and political response
- Water reforms & policy
- Attitudes/perceptions to farming (political and community)
- New technology developments (including biotech)
- Water use efficiency
- Commodity pricing, cotton prices

**Uncertainties and assumptions** were both around similar issues and aligned with the most important changes, while assumptions gave opposing views on issues in some cases eg. on yield and competitiveness.

A wide range of **competitive advantages, attributes and ideas** were identified in the survey and interview data with the most common being:

- Premium/high quality
- Environmental credentials/sustainable/ clean green/BMP
- Increase yields
- Value adding of cotton by-products (seed, oil, etc)



The Reference Group identified the key drivers of the future based on the changes, competitiveness assessment, assumptions and uncertainties from the survey, interview and scanning data, plus issues they felt were missing from the data.

### Key Drivers

Changes	Competitiveness	Uncertainties/Assumptions
<ul style="list-style-type: none"> <li>• Global/competitive – food vs fibre drives price</li> <li>• Water – quantity, availability</li> <li>• Political outcomes</li> <li>• Society – public perceptions and values</li> <li>• Environment, NR Management – energy, CPRS, carbon, BMP</li> <li>• Costs/profit</li> <li>• Producer viability/profitability</li> <li>• Capturing our brand value</li> <li>• Regional security – food, refugees, Australia’s future</li> <li>• Marketing process – Australian manufacture</li> <li>• Assumption that we need dirt to grow cotton</li> <li>• Speed of adaptation</li> <li>• Alternative use of cotton seed</li> <li>• People – labour, size of growers</li> <li>• Traceability</li> <li>• More mechanization</li> <li>• Technology – varieties, GM, production systems</li> <li>• Technology takers</li> <li>• Structural change – decline in small towns, increase in larger regional towns</li> <li>• Less people – technology replacing</li> </ul>	<ul style="list-style-type: none"> <li>• Radical technology change- ie. No more dirt to grow cotton</li> <li>• Decreasing viability and profitability</li> <li>• Yield, quality and prices will decline</li> <li>• R&amp;D funding</li> <li>• Regional security – invasion</li> <li>• Resistance GM</li> <li>• Competitiveness of cotton to other fibres, net return per ML water</li> <li>• Not capturing brand value</li> <li>• Structural change generalization</li> <li>• CPRS environment</li> <li>• Availability of water, license security</li> <li>• Varietal development speed</li> <li>• Traceability</li> <li>• Marketing and how we do it – Australian manufacturing Less people due to technology</li> <li>• More mechanization</li> <li>• Alternative uses of cotton fibre and seed</li> <li>• Less investment in specific technology for Australia</li> </ul>	<ul style="list-style-type: none"> <li>• Food vs fibre</li> <li>• New production areas</li> <li>• Quality and productivity gains sustained</li> <li>• Industry/grower profitability</li> <li>• Product vs commodity marketing</li> <li>• New marketing approach – domestic textile industry</li> <li>• “Branding” – Aussie OiOiOi cotton</li> <li>• Less skilled people</li> <li>• Preference for natural fibre</li> <li>• Production risk as other countries get GM</li> <li>• Man made fibres improve</li> <li>• Textile innovation synthetics/cotton</li> <li>• Market exists for cotton</li> <li>• Decrease in R&amp;D - public funded</li> <li>• New technology – nano, genetic, supply chain, fabrication</li> <li>• Government policy – water, carbon</li> <li>• Government subsidized cotton - overseas competition</li> <li>• Less water and more variable</li> </ul>

From these key drivers a list of the most critical uncertainties was identified by mapping the key drivers in terms of their level of potential impact (high/low) and level of uncertainty (high/low) using Impact and Uncertainty Matrices. The list below represents the high impact/high uncertainty factors with the four most critical uncertainties highlighted in italics.

### Critical Uncertainties:

- *Food vs fibre*
- *Product vs commodity marketing (future differentiation – quality, carbon footprint, ethical production)*

- Water – quantity (high vs low) and variability (high vs low)
- Dirt to grow cotton (biological vs engineered cotton)
- Energy price (group agreed to assume increasing therefore more certain than uncertain)
- R&D funding (group agreed to assume declining public funding was relatively certain)
- Regional security (pressure to grow food instead of fibre)
- Yield, quality and price decline (status quo vs lost competitive advantage)
- Radical technological change (assume ongoing technological advancement but maybe a specific technology impacts, agreed this was similar to ‘dirt cotton’)
- Reduced viability and profitability
- Profitability (low vs high, dedicated cotton growers vs opportunism)

## 4. Scenarios

The four critical uncertainties identified were used by the Reference Group to construct draft scenarios during the first workshop:

- Food vs fibre
- Product vs commodity marketing (future differentiation – quality, carbon footprint, ethical production)
- Water – quantity (high vs low) and variability (high vs low)
- Dirt to grow cotton (biological vs engineered cotton)

### 4.1 Draft Scenarios

#### 1. Combined food and water scenarios

		<b>Food Replaces Fibre</b>			
		<b>“Kiss of Death for Cotton”</b>		<b>“Farmer Nirvana”</b>	
		60,000 ha cotton Grain substitutes Stricter control of water use		Double cropping – cotton plus vegetables/grain Smaller but not death of cotton Infrastructure declines or diversifies Risk = opportunity lost Cotton price? (don’t know how this works in this scenario) Assume climate/environmental crisis in China/other countries resulting in low global production and need for increased food imports	
<b>Low Water</b>		<b>“Status Quo”</b>		<b>“Dream On/Euphoria”</b>	<b>High Water</b>
		Continued drought High cotton prices Higher proportion of dryland More opportunistic growers Lowest cotton production (600,000 bales) People leaving cotton Overall decline of agriculture Infrastructure deterioration Positive innovation to produce more with less Lost glamour of industry		Positive innovative industry Positive psychological status Empowered, buoyant “1990” Larger, more acreage Dedicated – same number of growers growing more Control of its own destiny Higher profitability Attractive to people and investment Cotton towns booming Concerns regarding cottons larger	

Australia loses markets Factor 10 efficiency – making it count Assume decreased cotton production in China, Brazil, India at expense of food (food security policy)	footprint is normal, consistent Assume decreased cotton production in China, Brazil, India at expense of food (food security policy) Assume infrastructure available to capitalize on this – will take 3+ years to rebuild from current situation
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**Food Doesn't Replace Fibre**

**2. Water variability scenarios**

<b>Low Water Variability</b>	<b>“Boom”</b>	<b>“Bust”</b>	<b>High Water Variability</b>
	Reliable, predictable, consistent Confident to forward sell cotton Confident to forward plan and invest in industry (farming) businesses, R&D Willing to manage for up side More stable labour market Invest more in people POSITIVE FARM MENTAL HEALTH	Unreliable, unpredictable, inconsistent Loss of skilled/semi-skilled labour Loss of confidence to hedge on cotton price Cashflow difficulties – asset rich, cash poor Consolidation of farming enterprises Highly unattractive to investors Change in business model – lease country, contract gear, temporary/permanent water trades Effective use of labour/contractors Undermines grower/industry confidence Impacts on continuity of R&D and industry capacity Growers chase cashflow – look at other crops Industry becomes risk adverse Impacts negatively on farm mental health	

**3. Differentiation scenarios**

<b>Differentiated</b>	<b>“We're Aussie, Wear Aussie”</b>	<b>“Status Quo (Now)”</b>	<b>Commodity</b>
	1. Value proposition Product - Point of difference Need for a premium 2. Discerning, wealthy, higher disposable incomes China and India Emerging countries Mills brand owners Retailers CS Responsibilities Traceability 4. Collaborative across the whole industry Brand owners could directly buy the cotton, like wool Merchants challenged CSD varieties 5. Exciting, collaborative working together Feels like we have a future In more control	Consolidation of international merchants Multi National	

#### 4. Dirtless cotton/ radical technology scenarios

<b>Dirtless cotton – radical technology shift</b>	<b>“Man made comparable qualities to cotton”</b>	<b>“Status Quo”</b>	<b>Low innovation in man made fibres</b>
	Factories producing cotton No gins, some niche growing Food crops grown Low wheat prices Rural communities hammered R&D shrunk considerably More food production No R&D Micro-industry	Status quo	

#### 4.2 Final Scenarios

The draft scenarios were developed further following review of material from the first workshop and discussion with the Project Team. The scenarios were reviewed at a second workshop with the Reference Group on 23 November with a final four scenarios selected:

- **Food Replaces Fibre** – competition between food and fibre
- **Boom** – water variability and availability
- **Bust** – water variability and availability
- **Present Day** – projection of current situation and assumptions

A snapshot of each scenario is provided below. Full versions including scenario narratives are provided in the Appendices.

##### Food Replaces Fibre

Scenario snapshot	Critical uncertainties	
<ul style="list-style-type: none"> <li>• Continued growth in population and affluence, results in increased demand for food and especially protein.</li> <li>• Diminishing resources creates competition between food and fibre for resources.</li> <li>• Lack of coordinated global response to food crisis increases scale of problem and level of competition.</li> </ul>	Climate variability	Medium
	Water availability	Medium
	Competitiveness with food	Low
	Competitiveness with man made	Low
	Global competitiveness	Reducing
	Product differentiation	Low
	Cotton grower dedication	Low
	Cotton industry profitability	Low

##### Boom

Scenario snapshot	Critical uncertainties	
<ul style="list-style-type: none"> <li>• Option A: The wettest of the Global Climate Models emerges, resulting in increased rainfall and runoff and improved water reliability. Continued population growth creates additional demand for increasing supplies of food and fibre.</li> <li>• Option B: The drier of the Global Climate Models emerges, resulting in reduced rainfall and runoff and lower, but more</li> </ul>	Climate variability	Low
	Water availability	High
	Competitiveness with food	High
	Competitiveness with man made	High
	Global competitiveness	Medium
	Product differentiation	High
	Cotton grower dedication	High
	Cotton industry profitability	High

predictable, water availability. Coordinated global response to food crisis results in increased investment in ag R&D and infrastructure. Improved efficiencies overcome water availability and competition with food.		
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## Bust

Scenario snapshot	Critical uncertainties	
<ul style="list-style-type: none"> <li>Climate change induced high variations in rainfall: seasonal/ regional/ local.</li> <li>High variation in production in line with rainfall variation.</li> <li>Fewer dedicated cotton growers as production systems become more diverse cropping systems to adapt to water variability.</li> <li>Decline in production, quality and reputation leads to critical mass tipping point.</li> </ul>	Climate variability	High
	Water availability	Low & High
	Competitiveness with food	Low
	Competitiveness with man made	Low
	Global competitiveness	Low
	Product differentiation	Low
	Cotton grower dedication	Low
	Cotton industry profitability	Low

## Present Day Projection

Scenario snapshot	Critical uncertainties	
<ul style="list-style-type: none"> <li>Disruptive changes in water availability as a consequence of water reforms and policies.</li> <li>Variations in water availability between regions.</li> <li>High competitiveness with food, retention of skilled people, but low profitability due to increasing cost of production.</li> </ul>	Climate variability	High
	Water availability	Less (varies across valleys)
	Competitiveness with food	High
	Competitiveness with man made	Medium
	Global competitiveness	Medium
	Product differentiation	Medium
	Cotton grower dedication	Medium
	Cotton industry profitability	Low

## 5. Preferred Future and Vision

Development of a Preferred Future and vision began at the second workshop with the Reference Group on 23 November and was continued after this by members of the Project Team. Consultation on the final version of the Preferred Future was undertaken via a second stakeholder opinion survey and interviews in February 2010. A third and final workshop of the Reference Group was held on 15 March 2010 to review results of the consultation and seek to finalise the Preferred Future and vision statement.

### 5.1 Preferred Future

Elements of a Preferred Future and principles for the type of vision desired were identified by the Reference Group.

## Preferred Future Themes

Common themes of preferred futures	Common themes of competitive advantages, attributes or ideas that industry could exploit
<ul style="list-style-type: none"> <li>• Innovative</li> <li>• Water use efficiency</li> <li>• Reflections on past and expectation of going back there</li> <li>• Collaborative</li> <li>• Communication – internal and external</li> <li>• Leadership</li> <li>• Science based</li> <li>• People – attracting, growing, keeping</li> <li>• Profitable</li> <li>• Whole of industry approach – inclusiveness</li> <li>• Worlds best</li> <li>• Premium product – quality and yield</li> <li>• Resilient and vibrant</li> <li>• Efficient</li> <li>• Sustainable</li> <li>• Dynamic</li> <li>• Accountable</li> <li>• Customer focus</li> </ul>	<ul style="list-style-type: none"> <li>• Quality/premium</li> <li>• Varieties – increased yields and quality</li> <li>• BMP branding, sustainability practices</li> <li>• Proximity to markets</li> <li>• Value adding through blends with other fibres</li> <li>• Value adding to byproducts (eg. Seed)</li> <li>• Carbon footprint and water efficiency vs synthetics</li> <li>• Onshore processing</li> <li>• World leading R&amp;D</li> <li>• Innovative growers</li> <li>• Unique value proposition – linked to Australian lifestyle</li> <li>• Contamination free</li> <li>• Scale and efficiency and cohesiveness</li> <li>• Niche market branding identifiable</li> </ul>

The Preferred Future narrative and detail was developed further in consultation with the Project Team and the following final version was incorporated in a survey to gather feedback.

### Final Preferred Future

Key elements of the envisaged Preferred Future for 2029 were:

- **Differentiated** - world leading supplier of an elite quality cotton that is highly sought in premium market segments
- **Responsible** - producer and supplier of the most environmentally and socially responsible cotton on the globe
- **Tough** - resilient and equipped for future challenges
- **Successful** - exciting new levels of performance that transform productivity and profitability of every sector of the industry
- **Respected** - an industry recognised and valued by the wider community for its contribution to fibre and food needs of the world
- **Capable** - an industry that attracts and develops highly capable people

The full narrative of the Preferred Future is provided in the Appendices.

## 5.2 Vision Statement

Principles and underpinning elements for the type of vision desired were identified by the Reference Group.

### Vision Principles

- intent of a shared vision - to help inform organisations and sectors to enable alignment rather than telling them what to do
- Involves all aspects of industry and cotton community
- Vision that is also a strategy
- Unifying and aspirational
- Bold
- Strategic intent
- Tells a story – dispelling myths, shows how industry is addressing issues
- Includes a concise statement
- Every sector is comfortable to tell the story and use the story
- Preferred future
- Important part is how we take it back to sectors and get buy in, how do we 'sell' it.

### Underpinning Elements

Critical Uncertainty	Vision Elements
Climate variability	<ul style="list-style-type: none"> <li>• Resilience</li> </ul>
Water availability	<ul style="list-style-type: none"> <li>• Technology, innovation, advocacy</li> </ul>
Competitiveness with food	<ul style="list-style-type: none"> <li>• Premium for Australian cotton</li> <li>• Improving productivity</li> </ul>
Competitiveness with man made fibre	<ul style="list-style-type: none"> <li>• Improved quality traits</li> <li>• Capitalise on natural, wearable</li> <li>• Environmental footprint, carbon</li> </ul>
Product differentiation	<ul style="list-style-type: none"> <li>• Very high, premium quality recognition, consistency of delivery</li> <li>• People – knowledge and skills</li> <li>• Uniquely Australian – the story</li> </ul>
Grower dedication	<ul style="list-style-type: none"> <li>• Personal success (profitability), recognition (valued by community)</li> <li>• Sense of belonging, identity as cotton grower</li> </ul>
Industry profitability	<ul style="list-style-type: none"> <li>• High but not strong relationship between profit and choice (water is the key)</li> </ul>

A facilitated process with three small groups was used to generate draft vision statements for industry. At the end of the process there were five different vision statements however no single statement stood out as a clear preferred choice.

### Draft vision statements

- Australian cotton industry – creating a unique future
- Australian cotton – worlds best getting better
- Command the market space that is the envy of the world
- Australian cotton – most wearable and world friendly (facilitators perspective – customer oriented)
- Australian cotton – world's best. Creating a unique future that is the envy of the world (combination of other statements)

The Reference Group decided to seek suggestions on possible vision statements as part of the second stakeholder opinion survey process before finalising a vision statement. The suggestions received as part of the survey were considered at the third and final workshop of the Reference Group on 15 March 2010.

### **Stakeholder vision themes**

- Product
- Environmental performance
- People – safe, empowered, career path
- Profitable
- Worlds best
- Uniquely Australian
- Favourable reputation
- Environmentally friendly production, green, clean
- Resilient
- Importance of people
- Culture of innovation
- Sustainable
- End user linkage eg. Wearability

These themes were considered to be quite similar to those in the Preferred Future with no significant differences of note. The Reference Group determined that a short simple statement was the preferred style for a vision statement and worked to develop vision statements based on the themes and vision principles.

### **Draft vision statements**

- Aussie cotton, world's best naturally
- Aussie cotton – achieving a sustainable future for the cotton industry through ambition, collaboration and innovation  
Aussie cotton – (followed by 6 themes from the Preferred Future)  
Aussie cotton - world's best
- Australian cotton, naturally the best
- Australian cotton, wear the best
- Australian cotton, naturally wear the best
- Australian cotton, wear natures best
- Australian cotton, carefully grown, naturally world's best
- Australian cotton, carefully grown, world's best naturally

### **Final preferred vision statement(s)**

- Australian cotton, carefully grown, naturally world's best (1<sup>st</sup>)
- Australian cotton, carefully grown, world's best naturally (2<sup>nd</sup>)

This vision statement is to be followed by the six themes from the Preferred Future.

Further consultation on the vision statement is to be part of the industry communication and engagement activities following the project.



## 6. Next Steps

The development of strategy for implementation of the vision was considered at the final workshop. The Reference Group agreed that ACIC was the appropriate vehicle for managing, monitoring and reporting on progress of the vision and strategy. A series of next steps were identified:

- The vision is to be owned by industry and managed by ACIC
- A communication and engagement strategy for the vision is to be developed by CRDC and Cotton Australia
- Further development of strategy will be coordinated via ACIC with the next ACIC meeting to consider how this would best be achieved
- As a first step, existing strategies/targets from the various organisations are to be collated and aligned to the Preferred Future themes prior to the next ACIC meeting
- Assessment of gaps and priority areas will be discussed at the ACIC meeting
- Options for monitoring of scenario indicators will be discussed at the ACIC meeting
- A final report on the project will be prepared by the consultant

These activities are to be coordinated initially by Bruce Finney, CRDC, with assistance from the Project Team.

## 7. Recommendations

Following are some final recommendations from Emergent Futures with regard to how industry approaches the next steps in progressing its vision and strategy:

**Engagement** - Industry engagement in the project processes has been adequate for the work undertaken to date. Broader engagement and consultation will be critical to adoption and support for the vision. There are two components to this: firstly boosting general awareness of the project outcomes and vision, and secondly, generating active endorsement of the vision. It is recommended that all sectors take an active role in engaging their constituents and demonstrating support for the vision.

**Strategy** - A strong sense of expectation around having a plan for implementation of the vision now exists across industry from the consultation and engagement processes undertaken. It is recommended that industry take advantage of this interest and enthusiasm to progress further development of strategy as a matter of relative urgency and avoid the risk of negative sentiment towards the vision developing should action be delayed. Engaging critical stakeholders in development of strategy would provide both engagement and commitment of necessary resources for strategic implementation. Also the advantages of including diverse perspectives should not be overlooked when assembling people for strategy development – this activity should not be left to the ‘usual suspects’ only.

**Succession** - The opportunity to engage the next generation of industry leaders in the next steps should be actively pursued to ensure buy in from this group and provide them with skills and knowledge to take the industry vision forwards.

**Monitoring** – Defining a preferred future is no guarantee of certainty. The scenarios developed provide some guide as to alternative possible futures and should be used as a tool to monitor the actual direction that industry may be headed. Monitoring the scenario indicators can help provide an early warning system on shifts in the operating environment and give the industry time to reconsider its direction and strategy where necessary. In addition to the scenario

indicators, monitoring of the assumptions underpinning the Preferred Future and vision is also important. Establishment of a system for regular monitoring is recommended.

Sandy Teagle  
Emergent Futures  
28 March 2010

## 8. Appendices

### 8.1 List of Project Reports

- Stakeholder Opinion Survey 1
- Environmental Scan
- Cotton Industry Scenarios 2029
- Cotton Industry Preferred Future 2029
- Stakeholder Opinion Survey 2
- Workshop 1 Report – 2 November 2009
- Workshop 2 Report – 25 November 2009
- Workshop 3 Report – 15 March 2010

### 8.2 Stakeholder Opinion Survey 1 – Summary

A link to an online survey with 14 questions was forwarded to an identified list of stakeholders via email as well as being advertised in industry publications/websites by industry organisations.

Total survey responses: 53

Breakdown by sectors:

Cotton producers/farmers: 17

Research: 12

Merchants/marketing: 6

Inputs/suppliers: 5

Consultants: 4

Extension/education: 4

Other: 3

Phone interviews were conducted with a range of people from across the cotton value chain (input providers, growers, researchers, service providers, ginners, marketers) plus one outsider. Similar prompting questions were used to the online survey.

Total interviews: 14

A similar range of issues, perspectives and visions were raised in the interviews as in the survey responses. Below is the analysis of the survey responses plus insights from the interviews. A selection of some of the interesting points raised or different perspectives noticed in the interview process are provided at the end of this report.

#### Issues

Water was the most commonly mentioned issue across all areas of the survey. Water availability, access, and water use efficiency were consistent themes.

Other common themes were:

- Quality
- People
- Demand
- Industry size and infrastructure
- Technology and GM
- Prices and costs
- Drought
- Climate change and carbon
- Competition
- Environment
- Research
- Consumer and government attitudes to agriculture

Overall the responses reflected issues that are present today or emerging in the short to medium term. There were few responses that indicated more diverse influences into the longer-term future with most sticking to common themes. There was an absence of factors outside the immediate industry that might impact including communication/internet technology advances.

## **Vision**

Respondents in general have a very positive view of the cotton industry, pride in its past and hope for its future. This is likely to be adding to a desire to perpetuate a 'cotton industry' however there are also drivers that suggest the future may not be made up of separate industries or 'cotton' growers.

Views were relatively conservative – there were no visions for radical change or transformation of the industry, nor many thoughts that the industry would cease to exist (assuming that it would rain again one day). The need for continuous improvement across the supply chain was recognised to try and keep up with the challenges faced by industry.

Many saw the industry continuing to have a place as a provider of high quality cotton. For some this was a smaller niche. Some thought there would be a greater shift towards integrated systems with cotton as part of the mix, more dryland cotton, and cotton production in new geographic areas. There were quite a few references to potential demise of the traditional 'cotton grower' and a shift to being 'irrigators' reflecting the greater integration of cotton within cropping systems.

People issues also featured including the need for ongoing programs for development of young leaders, declining scientific population, competition for labour, and potential decline of rural communities. Preferred industry futures were often described in terms of the attributes of its people – vibrant, enthusiastic, cohesive, responsive, dynamic, innovative, collaborative, exciting and attractive.

My sense is that the industry is moving into a new phase and is perhaps on the cusp of reinventing itself or settling into a comfort zone or taking whatever future presents itself.

## **General Observations**

Water is a dominant issue. We wonder if this is clouding the ability to see other factors that will impact significantly in future.

Industry need to be asking “What is the next ‘water’ type issue on the horizon for cotton?”

There are some strong assumptions around future competitiveness of cotton as a natural fibre vs synthetics. Good arguments were presented for both but industry need to know what the real drivers of purchasing decisions will be in the future rather than assuming natural will be an advantage. There is also a presumption that distinct categories of natural and synthetic exist. Perhaps this is so from an industry perspective but what is the view from consumer/apparel industry/textile manufacturer – is cotton just another fibre to be mixed and matched with others to suit endless purposes? What does this mean for future products and positioning?

A longer-term view on fibre competitiveness is needed and assumptions need to be challenged.

A majority of respondents thought competitive position compared to other countries would not improve (it would stay the same or decline). This seems at odds with a more positive overall view of the likely futures suggested.

Views of competitiveness against other producing countries seem short term and may be underestimating the potential speed of advancement of competitors. There is an assumption that Australia will have the world’s best quality. Many saw this as a competitive advantage. Will this be achievable when drivers are pushing industry in a different direction - particularly if mixed cropping and dryland systems increase and growers drop in and out of cotton production and have less dedicated attention to cotton BMP? What will the impact of this production variability be on viability of supporting infrastructure and services? What is the tipping point for low capacity utilisation leading to lower incentives for new capital investment, higher production costs and defection of talent to other areas/inability to attract new talent?

Assumption that further gains in efficiency and productivity will continue. At what point are these exhausted, are we overestimating our capability and underestimating others?

Competition for food could be a major issue and this was raised with various perspectives on how this might impact from reducing competitiveness of cotton to improving cotton prices and profitability. Possible consequences need to be explored further.

Many thought farms would be fewer and more corporate in the future. How will this impact on the identified need for industry leadership, connectivity, innovation, and collaboration in future? How does it impact rural communities and future attractiveness of industry to people?

Respondents have a very positive, proud view of the cotton industry’s past which has experienced good times. This may be influencing assumptions about the continued need for and value of the industry in the future. This seems to be reflected in the comments about the need to educate the public about the industry’s value and a desire for positive recognition of the industry by government and public. Have other industries succeeded in doing this in the past or is this just wishful thinking? Is recognition and government support actually needed or can industry manage without it? Future attitude to agriculture (government and public) was a key concern raised and is an area of uncertainty that may be worth further exploration.

### **Scenario possibilities**

Based on the issues and uncertainties we see emerging from the survey data, there are a number of possible drivers for scenarios. These will be explored further at the workshop.

## 8.3 Scenarios

Below are detailed descriptions of the four scenarios developed during the project. The scenarios marked 'draft' are to be updated with revised versions.

### Scenario 1: Food Replaces Fibre (draft)

Critical uncertainties	Scenarios			
	1 Food Replaces Fibre	2 Boom	3 Bust	4 Present Day
Climate variability	Medium	Low	High	High
Water availability	Medium	High	Low & High	Less (varies across valleys)
Competitiveness with food	Low	High	Low	High
Competitiveness with man made	Low	High	Low	Medium
Global competitiveness	Reducing	Medium	Low	Medium
Product differentiation	Low	Medium	Low	Medium
Cotton grower dedication	Low	High	Low	Medium
Cotton industry profitability	Low	High	Low	Medium
<b>Scenario snapshot</b>	Continued growth in population and affluence, results in increased demand for food and especially protein. Diminishing resources creates competition between food and fibre for resources. Lack of coordinated global response to food crisis increases scale of problem and level of competition.			

### Narrative

While experts warned of an impending food crisis for many years, the world, caught up in the after effects of a global financial crisis and climate change debates, collectively did nothing to avert this. As some had earlier forecast, a perfect storm of increasing population, rising affluence, demand for biofuels, diminishing resources and climate instability ultimately lead to severe global food shortages in 2013 as crop failures due to climatic events in multiple countries coincided with lowest ever grain storage levels.

Many starved in less advantaged regions while food prices soared for consumers globally. Protein was especially out of reach for many as collapse of wild fisheries and reliance of aquaculture on grains and wild caught fish reduced supplies, and cost of grain-fed animals skyrocketed.

A renaissance in home veggie gardens and community gardens emerged. Farmers expanded production into marginal land in a bid to capture record high prices. Large areas of fibre crops were replaced with food crops and cotton production in India and China in particular decreased substantially. Price of cotton increased due to reduced supplies but it was no longer competitive with man made fibres and synthetics and alternative fibres gained the majority of market share as the bulk of the population could no longer afford cotton. Globally underutilised cotton processing infrastructure was decommissioned or converted for other uses spelling the end of cotton's dominance. A high value niche market for cotton products for affluent consumers continued to be supplied sporadically from growing regions unsuited to food production.

In Australia this meant cotton production contracted to some of the more marginal areas too far from markets to suit perishable crops plus the occasional opportunist cotton rotation in other

areas when seasonal conditions were favourable. Grain or vegetable production took over most cotton production areas and the cotton supply chain became an aside to the bigger business of food chains. Cotton was still exported to Asia for processing as cheap labour became plentiful with thousands hungry for work to gain better food security.

Despite the crisis-induced rapid switch to food production, once the immediate crisis was over, ongoing yield declines due to climate change impacts and increasing population kept food supply tight and prices high long term. Protectionist policies re-emerged in response to long term food security concerns. Countries hoarded food exacerbating undersupply and instability in food insecure regions. As time wore on and environmental systems increasingly collapsed under intensive use and pressure, conflicts over resources escalated. Nations agreed that a collective long term response to food and security was needed and the earlier competitive dog eat dog attitude between countries began to diminish. An agreement to establish a global food bank to support nations in crisis was established and collaboration increased on research and technology developments to maximise productivity and restore environmental balance following the poorly managed food rush.

A global shift in values emerged bringing a strong backlash to consumerism and move towards minimal footprint. Resource efficiency and zero waste became imperatives and brought about major changes in global systems.

Environmental resources in Australia became tightly regulated. Specific licenses were required for all farming operations and crop choices and resource use were closely monitored putting an end to opportunistic production decisions. Increased Government investment in GM R&D led to increased use of GM crops with lower environmental footprint.

Consumers became more accepting of GM food crops partly due to their environmental benefits but also due to lack of choice and high price of alternatives. The attributes of GM food crops also enabled these to be grown viably in what were marginal regions, resulting in increased competitiveness with cotton.

By 2029, research into alternatives to biological-based food production systems to provide cheap, reliable sources of nutrition are close to solutions for overcoming climate vagaries to eliminate prospects of future food shortages. The future of food is looking very different indeed.

## Scenario 2: Boom (draft)

Critical uncertainties	Scenarios			
	1 Food Replaces Fibre	2 Boom	3 Bust	4 Present Day
Climatic variability	Medium	Low	High	High
Water availability	Medium	High	Low & High	Less (varies across valleys)
Competitiveness with food	Low	High	Low	High
Competitiveness with man made	Low	High	Low	Medium
Global competitiveness	Reducing	Medium	Low	Medium
Product differentiation	Low	High	Low	Medium
Cotton grower dedication	Low	High	Low	Medium
Cotton industry profitability	Low	High	Low	Low

<b>Scenario snapshot A</b>	The wettest of the Global Climate Models emerges, resulting in increased rainfall and runoff and improved water reliability. Continued population growth creates additional demand for increasing supplies of food and fibre.
<b>Scenario snapshot B</b>	The drier of the Global Climate Models emerges, resulting in reduced rainfall and runoff and lower, but more predictable, water availability. Coordinated global response to food crisis results in increased investment in ag R&D and infrastructure. Improved efficiencies overcome water availability and competition with food.

## **(A) Low climatic variability improves water availability**

### **Narrative**

Early Global Climate Models had high levels of uncertainty regarding regional rainfall response to global warming. Scenarios for rainfall in the Murray Darling Basin ranged from reduction of up to 50% to an increase of up to 30% in different parts of the basin by 2030 (compared to 1990 rainfall levels).<sup>3</sup> In 2010 the region experienced above average rainfall which provided relief from drought conditions. By 2015 it seemed a wetter period had emerged with good rainfall and runoff being more common. By 2025 rainfall had increased by 30% across the basin, more than climate models originally projected. Other agricultural regions, particularly in northern Australia, also experienced improvements in rainfall reliability over this time.

Globally, changes in rainfall were more variable between regions but overall higher rainfall prevailed. Around the globe stressed water systems were gradually recharging after decades of over-extraction. In areas where water was the main limiting factor, with a return to more reliable seasonal conditions and improved productivity, agriculture boomed. For a short time this resulted in lower commodity prices as supply outpaced demand. However, as population expanded and non-water based limitations to production increased, supply and demand leveled out and prices improved.

The main limitations to agriculture now became land, fertilizer and labour. Urban encroachment in Asia from a rapidly expanding population meant most of their advances in production were offset by land use change and reliance on imports slowly increased. Yields in poorer countries were impacted as escalating cost of fertilizer held them back. Access to labour was a major issue for Australian producers competing with the mining sector.

The cotton industry in Australia experienced a resurgence with reliable supplies of water. The MDB once again had plentiful water and regained its status as a major food and fibre production bowl. Cotton again became an important irrigation crop. Buyers of Australian cotton welcomed the near-record volumes produced, giving them a reliable supply of high quality cotton. With improved profitability, the cotton industry strengthened its commitment to BMP and efforts to differentiate Australian cotton resulting in a globally recognised brand attracting premium prices. Australia's global cotton competitiveness increased on the strength of its quality and reputation. While other countries all had access to similar cotton genetics and production technologies, the quality differential for Australian cotton continued to be maintained due to faster rates of adoption and investment in BMP.

Man made fibres faced problems with Peak Oil indications becoming stronger in 2017 and concerns about biodegradability, recycling and human health impacts increased. Naturalness and abundance of cotton along with increasing affluence made it a popular choice. The man

<sup>3</sup> CSIRO, October 2008, Water Availability in the Murray Darling Basin, p24



made fibre industry began diversifying into producing fibres from plant-based oils in an attempt to secure new resources and improve its image.

Australian cotton producers were again confident to forward sell cotton knowing water availability and production was reliable and predictable, if not consistent. The industry was confident to forward plan and invest in people, businesses and R&D. Positive mental health was a welcome change. Many Baby Boomers left the industry between 2016-20, retiring after a series of good crops and increased property values left them in a good financial position. Their place was taken by corporate farms or other progressive cotton farmers.

While the world is experiencing a resurgence in agricultural productivity, consequently population growth appears to be increasing at a faster rate. Concerned scientists and environmentalists warn that, despite the vastly improved water situation, this has led to complacency and other resources are being over exploited. In 2027, an alternative review of Global Climate Models suggests the wetter period is breaking down and a more violent and rapid climate change may be imminent.

## **(B) Water variability overcome via technology and systems**

### **Narrative**

The message on the potential for a global food crisis eventually begins to sink in after a serious scare in European production due to climatic events in 2010. World leaders agree that a second green revolution is needed to be able to feed and clothe the population of 9 billion by 2050 while at the same time significantly cutting back greenhouse gas emissions to avoid climate change. A coordinated multinational effort begins with significant increases in collaborative research to generate higher yielding varieties and more sustainable practices. The FAO together with global leaders and major philanthropic organisations launches ten X Prizes<sup>4</sup> of \$10m each for the development of solutions to biological productivity limitations in 2012. The increased investment pays off with rapid advances in genetics, technology and systems that reduce existing wastage, streamline supply chains for maximum efficiency and improve productivity and resource use 10-20 fold in some areas.

The cooperative global effort ensures that the transition is smooth without the usual wild swings in production ups and downs in a lagging response to market price signals. Importantly the feared drop in fibre production due to pressure on land and water resources for food is avoided with only the most unproductive farmers or inefficient crops being replaced. Cotton gains enhanced traits which improve value of cotton seed as a food source for human and livestock use, perennial cropping for minimum tillage system, and reduced plant water requirements.

With the new level of concern for increased and sustainable production, strict regulation of resource management emerges and increased government investment in water infrastructure to replace inefficient systems and satellite monitoring enables both improved efficiency and accurate monitoring. Real time electronic monitoring of entire farming systems which is instantly compared and contrasted with data from other properties and meteorological forecasts provide vastly enhanced decision making capabilities. Under-performance is also flagged with virtual agronomists who provide advice on performance improvement strategies. Continued underperformance leads to investigation and potential revocation of the Social Farming License in extreme cases of mismanagement or neglect.

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<sup>4</sup> The X Prize Foundation is about bringing radical breakthroughs for the benefit of humanity. An X PRIZE is a \$10 million+ award given to the first team to achieve a specific goal, set by the X PRIZE Foundation, Rather than awarding money to honor past achievements or directly funding research, an X PRIZE incites innovation by tapping into competitive and entrepreneurial spirits. <http://www.xprize.org/>

The burden of extreme water variability that once plagued the industry has been effectively offset by the trend to Global Climate Models with lower but more predictable rainfall and rapid advances made in resource use efficiency, water infrastructure and climate prediction that have helped to level out supply issues and give greater certainty to producers.

While water availability is far less than in the past, farmers have the varieties, systems and skills to produce far more with much less. Producers are now confident to forward sell cotton knowing water availability and production will be reliable and predictable, if not consistent. They are confident to forward plan and invest in people, businesses and R&D. Positive mental health is a welcome change.

The transition has not been easy however with some of the less technologically inclined farmers unable to manage the new systems. Many Baby Boomers have left the industry and their place has been taken by corporate farms or those remaining have employed graduates with crop management IT diplomas to help manage the crop manipulation processes and integrated software.

As other countries all have access to similar cotton genetics and production technologies, yet the gap in quality differential with Australian cotton continues to be improved as Australia retains a lead in faster rates of adoption and credible regulated performance systems. Brand awareness is now a major advantage as strong social networks and access to real-time product footprint information ensures consumers are instantly updated on EcoSocial ratings of products.

### Scenario 3: Bust (draft)

Critical uncertainties	Scenarios			
	1 Food Replaces Fibre	2 Boom	3 Bust	4 Present Day
Water variability	Medium	Low	High	High
Water availability	Medium	High	Low & High	Less (varies across valleys)
Competitiveness with food	Low	High	Low	High
Competitiveness with man made	Low	High	Low	Medium
Global competitiveness	Reducing	Medium	Low	Medium
Product differentiation	Low	High	Low	Medium
Cotton grower dedication	Low	High	Low	Medium
Cotton industry profitability	Low	High	Low	Low
<b>Scenario snapshot</b>	Climate change induced high variations in rainfall: seasonal/ regional/ local. High variation in production in line with rainfall variation. Fewer dedicated cotton growers as production systems become more diverse cropping systems to adapt to water variability. Decline in production, quality and reputation leads to critical mass tipping point.			

### Narrative

Volatility of water availability increases – El Nino patterns appear to be disrupted and the usual seasonal indicators no longer seem to hold. Many believe this to be the early stages of Climate

Change becoming visible however others still believe it is simply long term variability as opposed to the relatively stable climatic period experienced over the last 100-200 years.

Earlier haphazard government water buybacks have taken out some of the larger most secure water, leaving some of the most strategically placed and productive land without water and consequently local infrastructure in decline due to unsustainable throughput. Future regulation of water continues to be an unknown - despite a trend for increased regulation including groundwater monitoring – decisions still have a tendency to be short-term and reactive, with water allocations changing frequently and no longer term certainty for growers. Rainfall events are patchy with isolated areas at times having good runoff which fills storages enough for 1-2 years cropping while other neighbouring properties miss out. The good rainfalls of 2010-11 in particular lull agriculture into a false sense of security before drought conditions once again hit hard.

With no certainty in sight, farming systems continue to be severely stressed and many of those that managed to hang on through the lengthy droughts of the 2000's finally crumble under financial and emotional stress. Banks reassess finance according to water security. Mortgagee sales of farms peak in 2013. Those on prime land which still have water rights intact are quickly bought up by corporate farms (eg. Sustainable Agriculture Fund) that have access to capital and that see longer term potential in future food demand, water trading and developing further economies of scale and diversity of holdings. More marginal farming country without water rights is picked up by investors interested in speculating on future food demand who take a pure risk management approach and are confident in advancements in dryland systems enabling better returns from opportunistic cropping. In an interesting development a larger parcel of such properties are bundled together and sold to a Chinese investment group which puts the land up for lease, no doubt seeing this as a strategic way of securing land as a future food insurance policy as they have done in many other less developed and less stable nations.

Remaining cotton farms become much more integrated multi-crop systems as producers choose to grow crops with best market return at the time that suit the level of water available at the time. Consequently cotton supply becomes quite variable and commitment to BMP suffers as well. With quality and reliability of supply dropping, Australia's once envied reputation as a premium supplier diminishes. This has negative consequences for competitiveness of the Australian cotton industry globally.

Skilled and semi-skilled labour is lost as the system of support industries around cotton degenerates as reduced business and funding for suppliers, contractors, ginners and researchers leads these to seek work from alternative industries to keep afloat. Despite some of the more progressive cotton farms still being viable, slowly the erosion of critical mass reaches a tipping point in 2025 where loss of infrastructure and key personnel is simply too much to continue support of cotton even as a rotation crop. The once bright Australian cotton industry is relegated to wistful memories and agricultural museums and the last vestiges of cotton industry organisations are subsumed by the cross-industry organisations which began to emerge in 2012.

Australian consumers continue to purchase cotton goods manufactured in China and India while cotton products from Fairtrade Eco Alliance producers captures the market of social and environmentally conscious affluent consumers. With regretful hindsight, those who were once part of a dynamic cotton industry now realise the missed opportunity to differentiate Australian cotton for this premium segment before the broader challenges to the industry became overwhelming, may have enabled a small niche production sector to continue.

## Scenario 4: Present Day Projection

Critical uncertainties	Scenarios			
	1 Food Replaces Fibre	2 Boom	3 Bust	4 Present Day
Water variability	Medium	Low	High	High
Water availability	Medium	High	Low & High	Less (varies across valleys)
Competitiveness with food	Low	High	Low	High
Competitiveness with man made	Low	High	Low	Medium
Global competitiveness	Reducing	Medium	Low	Medium
Product differentiation	Low	High	Low	Medium
Cotton grower dedication	Low	High	Low	Medium
Cotton industry profitability	Low	High	Low	Low
<b>Scenario snapshot</b>	Disruptive changes in water availability as a consequence of water reforms and policies. Variations in water availability between regions. High competitiveness with food, retention of skilled people, but low profitability due to increasing cost of production.			

### Narrative

As highly variable climatic conditions continued, cotton production fluctuated from season to season and valley to valley. Historic production highs were a distant memory as lower water availability due to water reforms effectively limited production in the early years. In the good rainfall years excess water was available for sale and a lucky few in these areas with the financial resources available were able to make use of this. As time went on productivity improved as R&D made new varieties available and improved water efficiency of systems. The cotton crop became a strong mix of dryland and irrigated, a change of pace from its days as primarily an irrigated crop.

Cotton farms increasingly became combinations of irrigated cropping (cotton, grains and pulses) and dryland systems, integrated to adapt to seasonal conditions and water availability. There are still a modest number of growers who are primarily cotton growers, the remainder tend to refer to themselves as 'part-time irrigators' or 'rainfall speculators' rather than 'cotton growers'. All of these farmers faced increasingly legislative and public pressure to continually improve their water use efficiency.

The steady trend of farm corporatisation continued aided by increasing retirement of Baby Boomer farmers from 2010 onwards. At the same time, singular mega-farms declined as a business model, and were generally split into smaller operations and became part of the corporate operations. By 2020 a major change in Australian agriculture had occurred with more than 50% of properties being corporately owned amalgamations and these accounting for over 90% of production. Industry representative systems were challenged by this and subsequently lost relevance in the face of industry and government. Seeing the writing on the wall, in 2015 cotton and grain industry organisations merged to try and sustain relevance to the new face of agriculture and gain efficiencies from pooling diminishing industry and government funding.

Earlier research efforts into water efficiency, drought tolerance and higher yielding varieties, chemical reduction and dryland systems helped growers to keep pace with the increasing environmental pressures and expectations of society. By 2020 the impact of an ageing industry

and research workforce had hit hard, although improved technology and the use of shared labour between farms helped offset the negative impact of the skills shortage. A core group of dedicated researchers continued to deliver excellent outcomes for the industry, although the actual number of researchers was smaller than 20 years ago because of a lack of big seasons to attract new brains to the industry. The merged industry organisations survived due to combined capacity to retain highly skilled multidisciplinary researchers and other staff.

As food production became a higher priority for other major cotton producing countries, particularly rapidly growing populations like China and India, global cotton supply was reduced and cotton prices increased modestly. Food security and protectionist policies in these countries ensured that investment in adoption of GM technology and improved farming practices for food production increased rapidly in China and India, helping to meet increasing food demand and preventing massive global food price increases. Consequently the relative competitiveness of cotton to food production in Australia remained high, supported by the ever reducing footprint of cotton due to effective R&D programs and prevention of increasing food prices due to overseas production and protectionist policies.

Despite higher global cotton prices, profitability of Australian cotton production remained lower than historical levels as costs of farming in Australia continued to increase due to loss of scale, higher water, land and labour prices and added expenses associated with carbon, water, social and environmental accounting which other countries did not account for. Pressure on labour resources particularly increased as development in China resurged in 2012 after the global economic downturn and the Australian mining industry once again gained momentum. Farms with available capital invested in labour saving technologies while some farms without financial reserves learned to 'make do' or were forced temporarily to switch to less labour intensive crops with cotton being a casualty in some areas.

Small cotton communities declined in population, while larger regional towns such as Narrabri, continued to grow, due to economic diversity and the gravitation of the population away from very small centres.

Looking back from 2029, continuation of the status quo has seen the industry travel backwards as its competitors moved forward. The same pressures of 20 years ago exist, with the industry facing ongoing challenges from diminishing profitability, climatic variability, and labour availability. Global competition rapidly increased as emerging economies rapidly adopted new technology, both mechanical and biological. In many ways, because the challenges were incremental and small on their own, the industry did not realise in 2029 that it had faced a slow suffocation from its former glory days.

## **8.4 Preferred Future**

### **Australian Cotton Industry 2029 - Preferred Future**

#### **Introduction**

In 2009 Australian cotton industry leaders saw that industry faced a choice about its future – to either let its fate continue to be significantly influenced by negative external factors or make a bold attempt to create a desirable future in the interests of the industry, community and environment. The industry leaders chose the latter, kicking off with a foresight project 'Cotton Industry Vision 2029' in September 2009 to explore forces of change and future possibilities. The activity is bringing all sectors of the industry together to create a collective vision for the future to guide and inspire progress.

The intent of a shared vision is to help inform organisations and sectors to enable alignment of thinking about the future.

There are a range of possible futures that the Australian cotton industry might face from a booming resurgence to decline and collapse. Critical challenges and uncertainties were identified at the beginning of the project and these have been explored in four separate scenarios: Boom, Bust, Food Replaces Fibre, and Present Day. From these scenarios a draft preferred scenario or future for the Australian cotton industry has been developed.

Below is a summary of this preferred industry future. This represents a vision of how the industry might look in 20 years time (2029) having overcome challenges from its present situation.

## **The Journey**

In the years leading up to 2009, the cotton industry had experienced particularly hard conditions. Drought had plagued many regions and government reforms ensured water security was at an all time low, the cotton labour force was being 'mined', while climate change and the carbon pollution reduction scheme were big challenges knocking on the door. Industry rationalisation, public and political perceptions towards farming had all taken a toll. Industry confidence, profitability and resilience were waning. Some people felt the industry was in dire straits while others were cautiously optimistic that it would again rebound when conditions improved.

The industry needed to find a way past the current major challenges to create a preferred future. The leaders identified that the challenges could be overcome through a combination of repositioning the industry in the global marketplace and achieving superior industry performance underpinned by science, technology and the passion and innovative nature of people within the industry. Clearly this would involve every link in the industry from seed and chemical distributors, growers, consultants, researchers, pickers, truckers, ginners, classers, merchants, spinners and brand owners.

Key elements of the envisaged Preferred Future for 2029 were:

- **Differentiated - world leading supplier of an elite quality cotton that is highly sought in premium market segments**
- **Responsible - producer and supplier of the most environmentally and socially responsible cotton on the globe**
- **Tough - resilient and equipped for future challenges**
- **Successful - exciting new levels of performance that transform productivity and profitability of every sector of the industry**
- **Respected - an industry recognised and valued by the wider community for its contribution to fibre and food needs of the world**
- **Capable - an industry that attracts and develops highly capable people**

In achieving the above elements, the industry would be well positioned to deal with foreseeable emerging challenges such as peak oil, competitiveness with food crops, bio-identical cotton substitutes and additional issues yet to be identified.

## The Destination - What Industry Looks Like in 2029

### Differentiated

- In 2010 the Australian cotton industry recognised the need to differentiate its product and build a brand and strong positioning in the global marketplace to support this. The industry's pre-existing reputation for quality, contaminant free and environmentally responsible production characteristics provided a good basis. A collaborative approach across the chain was developed to better understand future consumer and manufacturing needs and competitive forces. The combined effort and resources have led to the development of a **uniquely Australian brand** owned and supported by the whole industry.
- Over time **unique varieties** adapted to Australian conditions have been developed to meet the brand requirements.
- Improved productivity and returns have resulted in a **dedicated cotton production sector** committed to best management practices. Extensive effort has been put into developing people with the knowledge and skills to achieve quality standards and maintain production levels.
- New traceability technology helps ensure **product integrity** and has **transformed supply chain logistics**.
- A small **onshore manufacturing capacity** has been established, supporting a 100% Australian natural fibre product niche, as growth in local manufacturing became viable based on the emerging interest in 'on-shoring' (return to local manufacturing as transport costs escalate), new manufacturing technology and proper environmental accounting.
- The industry has **new partnerships** with leading global and Australian brand owners in developing and marketing **new textile products**.
- International consumers readily recognise the Australian cotton brand which enjoys a **favourable reputation** of similar standing to Egyptian Cotton, Supima, French champagne or Belgian chocolate – elite quality.
- **Personal success and recognition** reignite a sense of belonging, identity and passion for the cotton industry. Community spirit and collaboration have helped the industry pull together to achieve stretching goals and to weather hard times.

### Responsible

- Once perceived by those outside the industry as an environmental vandal and water waster, Australian cotton is now valued for its credentials as **the most environmentally friendly cotton production system on the globe** with the lowest water use, carbon footprint and chemical use of any cotton producing region.
- Australian cotton is the world's first cotton producer and first Australian agricultural sector to achieve international recognition for **carbon neutrality**. It is now the highest rating cotton producer on the international **Corporate Social Responsibility Index (CSRI)**<sup>5</sup>.
- Environmentally friendly easy care cotton products have been developed and are increasing their share of apparel sales world wide.
- The industry boasts the **best health and safety record** of any agricultural industry through its dedication to improved health and safety practices for employees and business owners.
- Working conditions surpass those of all other cotton producing nations.
- Through continuous improved performance on efficiency and responsibility of water use, cotton has a reputation as a valued and responsible water user.

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<sup>5</sup> Such an index does not exist at this time but we anticipate something of this nature into the future.

## Successful

- Industry enjoys improved profitability overall through successful **positioning in a high value market segment** and new levels of industry performance.
- **High returns and improved productivity** of elite cotton ensure production is competitive with food production.
- Australian cotton was a leader in the advancement of energy and water saving technology, soil bio-enhancement, varietal improvement and supply chain efficiency to create **exciting new levels of industry performance**.
- While water availability continues to be variable in 2029, innovation and new technology has enabled **vastly increased water efficiency**. Cottons previously enviable productivity per litre of water has surpassed all expectations – returns are comparable to, and sometimes greater than, the highest value food crops. Successful advocacy has translated this into improved water access and security.
- Water efficiency improvements have been achieved not only through production and manufacturing practices but also due to new low and no water washing technology contributing to the overall lifecycle efficiency of cotton. Lowest environmental footprint of all fibres, ease of recycling and natural, wearable characteristics of cotton are its key selling points and help maintain its **competitiveness with synthetic fibre choices**.

## Respected

- Industry has gained **recognition from government and community** for the quality of its products, sustainable practices and contribution to the fibre and food needs of the world.
- As a leading industry in productivity growth through innovation, there are **significant spillovers from** the knowledge, practices and technology developed through cotton **R&D** being adapted and applied in the production of food crops.
- Australian consumers can now purchase and are **proud to wear Australian cotton** garments and textiles, confident in the quality and the story behind the product which supports their values and makes them feel good about supporting their local industry and the people in it.
- International consumers readily recognise the **Australian cotton brand** which enjoys a **favourable reputation** of similar standing to Egyptian Cotton, Supima, French champagne or Belgian chocolate – elite quality.
- People recognise the long term value of the **contribution** made by industry **to the community** and the benefits that industry provides them in terms of social, emotional and financial wellbeing.

## Tough

- Industry has a capacity for **strategic awareness** and is responsive to emerging challenges and opportunities.
- The cotton production sector has developed **business and financial management practices that make it resilient to the impacts of water scarcity**. Some larger enterprises are spreading risk with operations in multiple growing regions while smaller operators have well established risk management systems, improved financial reserves and improved water security through new management systems and increased efficiency.
- Production risk is accurately measured and is part of financial institutions requirements for funding agricultural activities.
- Plant breeding has continued to deliver varieties of high quality and yield adapted to changing environments.



- **Improved farming systems** especially those employing the benefits of a range of technologies have allowed much higher water use efficiencies to be achieved as well as increasing the resilience of farming operations to climate volatility.
- The industry continues to invest in improving its productivity and market performance.

### **Capable**

- Industry continues to recognise the **importance of people** and their capacity to the future success of the industry.
- Cotton is an attractive industry to be a part of as it is progressive, profitable and ethical.
- The values and achievements of the industry and the resources available brings interest from new entrants, researchers and environmentalists.
- The cotton industry's mindset has always been at the forefront of agriculture in terms of forward thinking and nurturing people. This trait has paid off with cotton being a most **attractive employer in the rural and research sectors**, attracting talent from both Australia and overseas.
- This is reflected in the industry's adoption of best HR practices and career development programs including scholarships.
- The industry is renowned for its **culture of innovation and responsiveness to change**.

## **8.5 Stakeholder Opinion Survey 2 – Summary**

### **Background**

A link to an online survey with 11 questions was forwarded to an identified list of stakeholders via email as well as being advertised on the Cotton Australia website.

Total survey responses: 52

Breakdown by sectors (please note total numbers below are greater than total responses as some respondents indicated multiple sectors/occupations):

Cotton producers/farmers: 19

Research: 13

Inputs/suppliers: 9

Consultants: 6

Education: 5

Processing/Classing/Merchants/Distribution: 4

Other: 2

Phone interviews were also conducted with a small number of people (predominantly growers plus research and service provider). All interviewees had completed the online survey prior to being interviewed. Additional information and comments from the interviews have been incorporated within this report.

A similar range of comments and perspectives were raised in the interviews as in the survey responses. Below is the analysis of the survey responses plus insights from the interviews. A selection of some of the interesting points raised or different perspectives noticed in the interview process are provided at the end of this report.

### **General Observations**

Overall there seems to be a high level of support for the Preferred Future. Most respondents seem to agree with the broad direction with a focus on differentiation and most of the other key elements (responsible, tough, successful, respected, capable). The positive nature of the Preferred Future is also well liked.

Issues raised in the survey and interviews that are worth consideration are the following observations, assumptions, oversights, and questions:

- Engagement to ensure ownership of the vision – in particular mentions made of grass roots growers and R&D (provider) sector
- Need for strategy, targets and measures – great to have a vision but useless unless there is action
- Water – assumption around improved availability, view there is potential benefit to industry from a leading role in solving national water crisis
- Cotton as part of farming systems rather than stand alone industry not addressed, “no farm is a cotton farm alone”.
- Assumes all cotton produced will be high quality – options needed
- Value added cotton products not addressed
- Role in building or being involved in regional communities not adequately addressed
- “I have a testing question, will the vision that is presented encourage capital to be committed to the industry or will the current flight be maintained?”
- “Seems a bit elitist”
- “I like cotton clothes but the negative image of the cotton industry is a problem. This envisions turning it around and letting me wear cotton without guilt”.

From this point there is a need to ensure that the nature of the positive Preferred Future story is realistic and not based on any weak assumptions.

**Summary of Survey Question Responses**

**Overall Satisfaction** – the majority of respondents, 86%, either liked or strongly liked the vision for the Preferred Future. Only two respondents indicated they disliked the vision while five were neutral. Many indicated they liked the positive and clear nature of the vision.

Not at all	1	1.92%
Slightly dislike	1	1.92%
Neutral	5	9.62%
Somewhat like	22	42.31%
Strongly like	23	44.23%

**Likes** – there were a wide variety of comments as to what people most liked, with many relating to the positive benefit of having a vision to focus the industry that is realistic and achievable.

Common mentions were:

- Positive, optimism
- Differentiation
- Realistic, achievable, stretch
- Goals, forward, vision
- Comprehensive, clear, easy to understand
- Integration, whole of industry
- Responsible, respected

**Dislikes** – there were a wide variety of comments on dislikes while a few (5) indicated there was nothing they didn't like.

A few dislikes worth mentioning include:

- Over confident, optimistic
- On-shoring
- Justification for the present
- Ignores that not all production will be high quality
- ignores practical reality that there will be less water
- ignores that resources and people are disappearing
- no mention of engaging regional communities
- underestimates change of culture required

**What's Missing** – there were a wide variety of comments on missing elements while quite a few respondents felt there was nothing missing (15).

A few missing elements worth mentioning include:

- Need for the 'How' - strategy, targets, measures
- Need for a concise, clear vision statement
- Farming systems perspective, cotton as part of diverse cropping systems
- Future of dryland cotton
- Additional cotton products eg. Seed, oil etc
- Responsible use of pesticides not covered
- Missing 'Innovative' aspect, vision is more conservative and lacks a little excitement factor
- Resource limitations/water impact on reliability and contribution of this to reputation
- Not all cotton produced will be high quality, other markets required
- Industry unity
- Energy use
- Role in rural communities
- Strengthen references to BMP and role of R&D
- One alternative perspective of a preference to address the vision more as an irrigation industry as opposed to cotton industry

**Believable** – the majority of respondents, 65%, thought the Preferred Future was moderately or very believable. A number of those that thought it was very believable commented that there were existing initiatives addressing the vision. Those that thought the Preferred Future was not at all or only slightly believable cited lack of resources, government policy, community/media awareness, lack of interest and involvement from growers, and unforeseen future hurdles as reasons. These are all potentially actionable issues so the lack of credibility that some see in the Preferred Future may potentially be remedied with the development of strategy.

Not at all	2	3.85%
Slightly	9	17.31%
Moderately	16	30.77%
Very	18	34.62%
Extremely	7	13.46%

Interesting comments made were:

- *"I think we have tied ourselves to what we have now. Sell it to me, convince me to invest. Ask what others outside the cotton industry think, are they excited?"*
- *"Synthetics are improving all the time, by 2029 "smart fibres" will make cotton look "old". To counter this the industry must start repositioning cotton now in the minds of the consumer as "the Natural" fibre that synthetics can only mimic by using chemicals".*
- *"The best way to predict the future is to invent it. By stating what our vision is we will be on the track to delivering it".*

**Ambitious** – the majority of respondents, 63%, thought the Preferred Future was moderately or very ambitious while a significant number, 23% also thought it was not at all ambitious (no clear pattern was evident as to why they thought this). The variation in responses probably indicates that the level of ambitiousness is about right for a vision with a degree of stretch and achievability.

Not at all	12	23.08%
Slightly	5	9.62%
Moderately	19	36.54%
Very	14	26.92%
Extremely	2	3.85%

**Changes** – a wide variety of comments were made in relation to changes. Some of these related to style/layout or specific wording of the document while others made specific mention of different elements of the Preferred Future (see full survey responses for examples). The need for strategy and targets was mentioned a number of times.

Interesting question raised:

- *"What would it take for someone with unlimited capital to invest, why would they do it?"*

**Level of Support** – the majority of respondents, 82%, either mostly or strongly agree that they support the vision being used by industry organisations to align thinking about the future. Many positive comments were made about the need for alignment of the industry and having a focus and direction.

Strongly disagree	3	5.77%
Mostly disagree	1	1.92%
Undecided	5	9.62%
Mostly agree	19	36.54%
strongly agree	24	46.15%

**Other Comments** – a range of interesting comments were made – see full survey analysis section for details.

**Vision** – despite responses to this question being optional, a very high number of people (38 out of 52) chose to respond to this question indicating a good level of enthusiasm and interest. Suggestions for a vision statement were extremely varied with a range of these focusing on best production while others focused on consumer choice.

Common vision themes are represented in the word clouds below (a word cloud simply represents frequency that words are mentioned – the larger the size of the word the more frequently it was mentioned). The first word cloud contains is unedited while the second cloud has been edited to remove the most frequently mentioned words so as to see underlying themes better.



Cloud 1: All words retained, no editing



Cloud 2: Words removed: Australian, Australia, Australia's, cotton, Cotton, industry, phrase