Strategic R&D Plan
2017-2022
Introduction

A convergence of circumstances brings us to this important moment in time.

Right now, AgriFutures Australia sits on the brink of possibility, with an opportunity to capitalise on changes within our organisation to set new, ambitious goals that will benefit rural industries across Australia.

With a new location, a new Chair, a new Managing Director and a new team, we are surrounded by new possibilities for established and emerging industries. This Strategic Research and Development (R&D) Plan sets out our roadmap for the future – a future where we build on strong foundations to realise the many opportunities on the horizon.

The next five years will centre on four arenas: people and leadership; national challenges and opportunities; growing profitability; and emerging industries. Our success in each of these arenas will be measured by the real outcomes of real people and it is with a sense of renewed energy and commitment that we embark on this work.
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Like never before, AgriFutures Australia must take its place at the cutting edge of research and innovation to ensure that our established and emerging rural industries not only survive but truly thrive in the turbulent years ahead.

As global economic and environmental forces meet with the explosion of new technologies, we must be ready to recognise the challenges and harness the many opportunities this creates.

With the mining boom over, the soft commodities boom has well and truly commenced and Australian agriculture presents immense opportunity for the national economy.

We will do this by forging new frontiers of learning, pushing for greater collaboration across sectors and investing in new and emerging industries.

We will do this by taking calculated risks and implementing what we learn quickly.

We will do this by building the capability of the very people who will lead us forward into a prosperous future – our emerging leaders – and fostering an environment that prizes collaboration, entrepreneurship and real commercial outcomes.

Like no other Research & Development Corporation, AgriFutures Australia is uniquely positioned to ensure the productive and competitive future of Australia’s rural industries. It’s our duty to not only see the path ahead but to lead the way.

Over the next five years, AgriFutures Australia will assist to shape the future of Australian agriculture and deliver benefits to the entire nation. We welcome the challenges ahead and look forward with excitement.

Mrs Kay Hull AM
Chair
AgriFutures Australia
The opportunities for our established and emerging industries have never been better, and AgriFutures Australia is well positioned to lead the way.

Having relocated to the regions, we have never been closer to the industries and communities we serve.

Seizing on this opportunity to review our strategic direction, we have embraced a clear and unyielding mandate to grow the long-term prosperity of Australian rural industries through research and innovation. This means openly and emphatically staking our claim to encompass all rural industries.

These four arenas will guide all research and investment efforts over the coming five years and hold us accountable to the challenge we have set to build sustainable and profitable rural industries and communities.

The single greatest strength of this Strategic R&D Plan is its cross-sectoral commitment. Through strong partnerships, we will tackle the issues that all rural industries face to the benefit of the Australian people.

The next five years will be characterised by experimentation, risk taking, rigour, failure, success, collaboration, learning and triumph. The pace of change may be rapid, but rest assured we have the systems, strategies, people and commitment to rise to the challenge.

We look forward to partnering with you to realise this plan.

Mr John Harvey
Managing Director
AgriFutures Australia

From the Managing Director

As we stand on the threshold of a new era in Australian agriculture, now is the time the nation must invest in our rural industries.

Mr John Harvey
Our vision

is to grow the long-term prosperity of Australian rural industries

AgriFutures Australia is guided by an ambition to be known as an organisation that places our people, our rural industries and regional communities at the heart of everything we do.
Our approach

1. Listening & influencing

We must maintain and continue to build a deep understanding of our stakeholders’ needs. This means the entire AgriFutures Australia team must be well connected and nurture strong relationships with our stakeholders and research partners. This translates to lots of travel and face-to-face contact, hundreds of phone calls, thousands of emails and ongoing active participation in social media.

This connectivity is essential to ensure that AgriFutures Australia understands the opportunities and challenges confronting each of our unique stakeholder groups, and is well placed to invest in the innovation and research activities that are likely to create the greatest impact and benefit.

While listening and understanding is critical, it is also important that AgriFutures Australia, itself, is influential. Driving and challenging our stakeholders to consider new technologies, alternative management practices, new products and different value propositions in a bid to improve industry performance is part of our remit. Creating discussion and debate is a critical first step towards catalysing change.

2. Delivering results

Investing in great research is only the starting point. Until a farmer does something different on their farm as a consequence of that research, the return on investment is zero. AgriFutures Australia will market and deliver research outputs via high quality information products and services. These may be in electronic and hard copy formats and may include events like seminars and workshops. Emphasis will be on challenging farmers to do something differently on their farms and in their businesses as a consequence of the research.

3. Partnerships & collaboration

Partnerships and collaboration allow AgriFutures Australia to:

- bring together different capabilities, knowledge, skills and experience
- facilitate and foster cross-disciplinary interactions and relationships
- encourage knowledge and skills transfer
- facilitate the wider adoption, application and use of research outputs and outcomes
- leverage investment to achieve a greater outcome
- utilise best practice methods

All AgriFutures Australia investments rely on partnerships with research providers and other investors to deliver outcomes to rural industries. This Strategic R&D Plan signals AgriFutures Australia’s intention to further strengthen its commitment to partnerships and collaborations.

AgriFutures Australia will seek to partner with other RDCs to improve cross-sectoral Research, Development & Extension (RD&E), by facilitating priority setting, information sharing, collaboration and co-investment.

Where there are common objectives that benefit rural industries, AgriFutures Australia will seek to partner with the private sector to access intellectual property, skills and other resources.

AgriFutures Australia will strengthen current partnerships and seek new partnerships both domestically and internationally to address larger, more complex challenges and opportunities.

4. Performance culture

Ultimately, AgriFutures Australia’s performance is dependent on the skills, knowledge and commitment of its staff and Board. This Strategic R&D Plan commits AgriFutures Australia to building a high performance culture within the organisation.

5. Efficient business practices

AgriFutures Australia commits to building efficient business processes. This is important in ensuring that our partners and stakeholders have a good experience when they interact with us. It is also important in ensuring that expenditure on R&D is maximised.

AgriFutures Australia will embrace a more commercial approach to research and innovation that results in practice change on-farm, across rural industries and within regional communities.

In addition to research partnerships with our traditional public sector partners, AgriFutures Australia will be actively seeking commercial partnerships within the private sector over the next five years.
Today’s operating environment

All Australian rural industries operate in a complex and dynamic environment, and face a common set of evolving challenges and opportunities due to global, national and local change.

The sector

Worth $64 billion

1.6 million employed in ag related industries

Biggest employer in rural and regional communities

300,000 people directly employed in ag

Provides 93% of domestic food supply

Exports worth $45 billion per annum or <13% export revenue

135,000 farms

2.3% of GDP

Produces enough food to feed 80 million people

Strategic R&D Plan 2017-22

Section 2
Megatrends

By considering some of the longer-term ‘megatrends’ that may impact on rural industries over the next 20 years, we can identify the challenges and opportunities they may present over the life of this Strategic R&D Plan and beyond.

• A hungrier world – population growth will drive global demand for food and fibre

• A wealthier world – a new middle-income class will increase food consumption, diversify diets and eat more protein

• Choosy customers – information empowered consumers of the future will have expectations for health, provenance, sustainability and ethics

• Transformative technologies – advances in digital technology, genetic science and synthetics will change the way food and fibre products are made and transported

• A bumpier ride – globalisation, climate change and environmental change will reshape the risk profile of agriculture.

Growth will drive global demand for food and fibre

Globalisation, climate change and environmental change will reshape the risk profile for agriculture

Advances in digital technology, genetic science and synthetics will change the way food and fibre products are made and transported

Information empowered consumers of the future will have expectations for health, provenance, sustainability and ethics

A new middle income class will increase food consumption, diversify diets and eat more protein

Megatrends & trends

Australian rural industries are impacted by the following trends:

• Increase in Australia’s total export earnings for agriculture – today, global markets are an important and dominant source of growth for Australian agricultural industries, contributing approximately A$41.2 billion in 2013-14

• Diversification in exports – a vast array of farm, forest and fisheries products have joined staples like cereals/grains, sugar, meat and wool

• The rise of emerging economies – particularly in Asia and to a lesser extent Africa

• Decline in land used for farming – from 500 million hectares (65 per cent of the country’s total land area) in 1973 to 406 million hectares (53 per cent total land area) in 2015

• A decline in the number of farms – from 192,550 farms in 1970 to 135,692 farms today, the trend has been towards amalgamation and increased size of operations

• An ageing workforce

• A shrinking workforce – falling from 8 per cent in 1966-67 to just over 2 per cent in 2013-14

• Increase in labour productivity – despite a decrease in workforce numbers.
Drivers of change

The successful delivery of our Strategic R&D Plan will see better outcomes against specific targets. To develop a framework for the plan, we started by assessing our current operating environment and the factors that will shape that environment over the next five years:

The next generation of rural leaders
- Australian agriculture is seeing a new breed of rural champions – young professionals who are dynamic, entrepreneurial, commercially savvy and strongly connected through social media. They may not come from traditional rural backgrounds and include students strong in STEM (Science, Technology, Engineering and Mathematics) subjects. While highly influential, these leaders may not be strongly affiliated with traditional rural organisations and structures.

An explosion of new technologies
- Emerging technologies reduce production costs, increase yields, increase product differentiation and reduce industries’ environmental footprint. They enable primary producers to manage production more precisely, down to the individual plant and animal scale. We are seeing large capital requirements and strong demand for highly skilled workers and we can expect that to continue. Public perceptions about these emerging technologies and the need for new regulatory frameworks could easily become bottlenecks to adoption.

Innovative international partnerships
- To maintain competitiveness, Australian rural industries need rapid access to new technologies, much of this will be sourced from overseas. Increasingly, this will be achieved through international partnerships.

Private sector partnerships
- The already-increasing involvement of the private sector in the rural innovation process is expected to grow exponentially with the increase in research and development that affects the broader Australian economy.

Collaborative mindset
- The ability to collaborate effectively is the single most important source of competitive advantage. Collaborations give rural industries access to the wide range of intellectual property, skills, expertise and resources they need to innovate and remain competitive. The more industries, sectors and RDCs work together, the more effective innovation and outcomes will be.

Emerging and diverse industries
- New rural industries will continue to emerge with highly differentiated products and customer offerings. Given these factors, our efforts are best focused on the four arenas set out in this plan to ensure we harness the full spectrum of opportunity presented.

AgFutures Australia
Challenges & opportunities

Australian rural industries currently face the following key opportunities and challenges:

• Continued productivity gains (including labour productivity) are required to deal with competitive terms of trade and an ageing labour force in agriculture.

• Australian agriculture is predominantly export-oriented. It is a sector with real comparative advantage and a crucial part of the economy now and in the future. This export orientation means the sector benefits from, and is reliant on, the performance of global markets.

• Variability in returns has increased significantly due to increased climate variability, volatile exchange rates and fluctuations in market demand. Skills and systems to effectively anticipate and manage these increasing risks are a crucial component of the future for the sector.

• The trend to fewer, larger farms continues in response to the need for improved competitiveness. While new business models are emerging, the family farm remains the most common ownership structure and it increasingly faces pressure to grow and to maintain efficiency.

• Rural industries must continually grow and diversify exports in response to structural change in emerging economies. As more people (in the Asian region especially) join the middle-income classes, there will be a stronger demand for conventional products and for a more diverse range of food and fibre products.

• Access to quality production resources (arable land, reliable water) and proximity to markets remain major factors in planning for increased production capacity.

Future thinking, resilient, profitable, and competitive rural industries will be those industries that actively consider what is coming next and are well placed to respond. This not only requires effective R&D at a commodity level, but commitment to developing human capacity and leadership in cross-sectoral R&D – something AgriFutures Australia is uniquely placed to deliver, as set out in the four arenas of this Strategic R&D Plan.
The development of this Strategic R&D Plan 2017–2022 involved an extensive stakeholder consultation process during 2015–16 that considered:

- Analysis and insights on research achievements and impacts
- Current and past performance of the organisation
- How the current and likely future rural industry operating environment might influence research and development investment
- Research priorities and preferences
- Organisational structure, approaches and systems.

Key messages from our stakeholders included:

- AgriFutures Australia’s life-cycle approach to investment is useful and makes industries plan strategically.
- The decline in traditional extension services will require an increased focus by AgriFutures Australia on communicating research outcomes, including investigating new and novel approaches and transfer of technologies across industries.
- Whole of supply chain research is needed, particularly for new and developing industries, to ensure they are agile enough to respond to challenges and opportunities.
- Marketing is the weak link for many new and developing industries and does not keep pace with industry development.
- Research is needed to support Australia’s claim of ‘clean, green and safe produce as industries seek to pursue opportunities in export markets.
- The development of some smaller, newer industries is restrained by a lack of technology in value chains (e.g. mechanisation, processing, logistics).
- New technology will significantly change the way food is produced and industries need to understand how to manage challenges and opportunities.
- AgriFutures Australia’s brokering role in addressing cross-sectoral issues is valued.
- Effective business models should be considered part of the necessary RD&E in the development of successful rural industries.
- All AgriFutures Australia industries would benefit from a better understanding of consumer trends, in particular health and nutrition trends, and functional foods.
- Better understanding of climate change and variability mitigation strategies is essential for future planning, particularly for exploring diversification options.
- Landscape use should be considered in the context of options for diversification and link to issues, including low rainfall regions or saline soils.
- Access to data infrastructure to support technological innovation is essential for industry development.
- A ‘whole of life’ interdisciplinary approach to supporting the development of people and skills capacity in rural industries should be considered.
- AgriFutures Australia’s diverse industry base provides untapped opportunities for internal collaboration.
- Developing international collaborations or partnerships would value-add to Australian research investment.
- A series of seven face-to-face Regional Innovation Conversations around Australia between 7 February 2017 – 6 April 2017 targeting emerging leaders. More than 80 people attended these Conversations.

Key messages from our additional consultation included:

- Alternative farm models: equity partnerships and other non-traditional investment models are key to fuelling business and sector expansion.
- Disruptive Ag-Tech: new technologies necessitate new skills, business structures, infrastructure and capital. Better business planning is needed to prepare for, and implement, transformational technologies to future-proof the sector.
- Explosion of ideas: startups, incubators and accelerators: there is an opportunity to tap into the surge of investment in Ag-Tech to capitalise on innovative ideas and startups for sector growth. There is a unique opportunity for RDOs to create linkages between startups, researchers and farmers to cross-pollinate ideas and create ‘industry fixes’.
- Collaboration: face-to-face collaboration is required to underpin the dominance of social media as the main mechanism for information transfer to ensure a networked cohort of innovators.
- Succession planning and generational knowledge transfer: the opportunity exists to redefine what a future career in the sector looks like, transform the vision of farm ownership and establish new or different pathways for people into and out of the sector.
- Leadership, mentoring, growing networks: there is a need to build ecosystems to support a culture of innovation, practice change and risk taking among a younger cohort of emerging leaders.
- Image of agriculture: the way others perceive the sector impacts almost every facet of the way we do business, from our social licence to farm to the ability of our sector to attract and retain skilled people. The image of agriculture, while difficult to solve, is a major inhibitor to the sector’s success.

In developing this revised Plan, AgriFutures Australia engaged in additional consultation, including:

- Face-to-face meetings with our two declared Representative Organisations – National Farmers’ Federation and the Australian Chicken Meat Federation.
- Face-to-face meetings with a number of our other key stakeholders.
Australian farms supply 93 per cent of the food needs of the nation and produce enough food to feed 80 million people.
## Our focus

### Arenas & program summary table

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| 1 People and leadership                     | Rural industries are equipped with skilled people and the leadership to grow and prosper. | – Rural Women’s Award  
– Horizon Scholarship  
– Emerging leaders  
– Investing in people |
| 2 National challenges and opportunities     | Challenges and opportunities that are common across rural sectors are identified and addressed. | – National rural issues  
– Emerging technologies  
– ExtensionAUS  
– Nationally coordinated initiatives:  
  • The Climate Change Research Strategy for Primary Industries  
  • Primary Industries Health and Safety Partnership  
  • Improved seasonal forecasting  
  • Biocontrol of weeds  
  • Securing pollination  
  • QFever  
  • Australian biomass and bioenergy assessment |
| 3 Growing profitability                     | Industry participants are confident that their levy investment is delivering value. | – Rice  
– Chicken meat  
– Export fodder  
– Honey bee and pollination  
– Thoroughbred horses  
– Smaller levied industries  
  • Ginger  
  • Tea tree oil  
  • Pasture seeds  
  • Goat fibre  
  • Buffalo  
  • Kangaroo  
  • Deer  
  • Ratite |
| 4 Emerging industries                       | High-potential emerging rural industries established.                    | – New and emerging rural industries  
Some examples are:  
  • Kakadu plum  
  • Camel milk  
  • Quinoa |

These four arenas will guide all research and investment efforts and hold us accountable to the challenge we have set to build sustainable and profitable rural industries and communities.
Our arenas

Four distinct arenas define our Strategic R&D Plan and represent the organisation’s broad commitments in delivering on the priorities of the Australian Government, our stakeholders and our ultimate goal to create thriving rural industries and vibrant regional communities.

1 People and leadership

To support the people driving the future prosperity of Australian rural industries and regional communities by providing them with learning opportunities and experiences.

This Strategic R&D Plan puts people at the forefront of all that AgriFutures Australia will undertake over the coming five years.

To build prosperous and sustainable rural industries, we need rural leaders with the skills and knowledge to make informed decisions about the future of their enterprises and industries.

We believe that human capacity to drive improvements in competitiveness through the adoption of R&D outcomes and innovation is just as important as the research itself.

While new technologies, systems, processes and business models are important, people are the critical element in ensuring the growth of Australian rural industries. As such, AgriFutures Australia is committed to supporting rural people through continued investment in leadership, capacity and skills development programs, like the Rural Women’s Award and the Horizon Scholarship.

Rural industries are equipped with skilled people and the leadership to grow and prosper.

Building the capability of future rural leaders

– Skilled leadership is one of the most crucial elements in the health and prosperity of any rural industry. But it is not always easy to have the right people assume leadership roles at the right time, nor those with leadership potential to step forward.

Future leaders and decision makers from across industry sectors need to be supported so they can share ideas, be motivated, engage in learning, capacity building, knowledge sharing and community building.

AgriFutures Australia has an ongoing commitment to developing the leadership and human capacity of rural industries and their communities, through our programs such as the Rural Women’s Award and the Horizon Scholarship.

Attracting capable people into careers in agriculture

– Currently the supply of people into agricultural careers is not keeping up with the demand created by an ageing workforce. In fact, most categories of agricultural occupations are undersupplied and action is required now to ensure the future of the sector.

Additionally, with the explosion of new technologies emerging from digital disruption, agriculture also needs more highly skilled people with a diverse range of academic, technical and practical backgrounds.

Introducing agricultural career pathways in schools is critical. Agriculture needs to be promoted as a successful and respectable career path, not just for students from a family farming background.

In short, agriculture needs an image makeover. It is time for the branding of the industry to reflect and promote the innovative, diverse, forward-thinking and positive lifestyle farming offers.

AgriFutures Australia will collaborate with the other RDCs, government departments, the private sector and not-for-profit organisations to highlight to young people the opportunities a career in agriculture has to offer.
Our arenas

2 National challenges and opportunities

Goal
To identify and nurture research and innovation opportunities that are synergistic across rural sectors.

Australian rural industries are faced with challenges and opportunities that are both industry-specific and common across rural sectors. Beyond the commodity level, our rural industries require leadership to identify and respond to national rural issues and enhance shared benefits.

Unlike other RDCs that represent one or a few similar industries, AgriFutures Australia manages R&D for a diverse portfolio of plant and animal industries. As such it is uniquely placed to assist Australian rural industries to prioritise and drive cross-sectoral RD&E.

Over the coming five years AgriFutures Australia will broker partnerships, facilitate priority setting and provide advice to strengthen the national agricultural research and innovation effort.

It will also complement individual industry RD&E by investing in research of cross-sectoral value, in areas such as climate change, natural resource management, and safety and welfare.

Outcome
Challenges and opportunities that are common across rural sectors are identified and addressed.

Priorities
Informing debate on issues of importance to rural industries
– At any time, there are a number of complex opportunities and challenges confronting the rural sector that require careful research and analysis before informed, meaningful policy can be developed and debated by industry and government.

This priority is about delivering research and analysis relevant to broad contemporary issues that are not sector-specific.

These issues are expected to change significantly over time in response to changes in industry and government circumstances.

Adapting new technologies for use across rural industries
– Emerging technologies are changing the way agricultural products are made, marketed and transported. Advances in genetics, sensory systems, the Internet of Things, device connectivity and remote sensing, automation, and food traceability will all disrupt the supply chain. Likewise, new synthetic food and fibre products will disrupt demand.

This priority is about collaborating across rural sectors with other RDCs, our research partners, government and the private sector to realise the benefits these new technologies present.

Working collaboratively on issues common across rural sectors
– Many issues impact more than one rural industry. For example, succession planning; climate forecasting and managing the impact of climate; pollination services; extension and adoption; biosecurity; and animal welfare are all issues that impact more than one sector. Collaboration and information sharing is essential.

Over the coming five years, AgriFutures Australia will broker partnerships, facilitate priority setting and provide advice to strengthen the national agricultural research and innovation effort.
Goal

To enhance the profitability and sustainability of our levy industries. Regional communities and the broader Australian economy depend on profitable farms.

We know that there is a clear link between economic prosperity and our capacity for innovation and uptake of new technology. Rural industries that are well placed to adopt new ideas and use technology to create productivity benefits establish their competitive advantage and are structured for sustainable growth.

That's why AgriFutures Australia invests in research, innovation and learning initiatives that enhance the profitability and sustainability of AgriFutures Australia’s levy industries.

AgriFutures Australia supports rural industries with an R&D levy that do not have an industry-specific Research and Development Corporation.

For example, the Australian rice industry which has the capacity to produce up to 1 million tonnes of rice per annum and feed 20 million people per day. Over the past 20 years the rice industry has drastically improved its water use efficiency, using 50 per cent less water than the global average per kilogram of rice produced.

AgriFutures Australia also supports the chicken meat industry. Ninety per cent of Australians eat chicken meat at least once a week and a third of us are eating it three or more times a week. Total consumer expenditure related to chicken meat in its various forms is estimated to be $5.6 billion.

The Australian honey bee industry produces between 20,000 and 30,000 tonnes per annum of honey from more than half a million hives. Over 100,000 hives are used annually for essential pollination services to the horticulture and grains industries. AgriFutures Australia also supports farmers producing export fodder, pasture seeds, ginger, kangaroo, buffalo, goat fibre, ratite and deer.

Over the next five years, AgriFutures Australia will empower our levy-paying industry participants to help shape R&D&E priorities, encourage industry uptake of innovation, and support our rural industries to adapt to changing environments – at operational, market and regulatory levels.

Outcome

Industry participants are confident that their levy investment is delivering value.

Priorities

Engaging industry participants in determining R&D&E priorities

– Our research is targeted at rapidly unearthing commercial solutions and significantly increasing the profitability of real farms for real people. To achieve this, we actively scan the horizon for emerging technologies and innovations and connect with our stakeholders to identify priorities and optimise the R&D&E portfolio for their industries.

Investing in innovation that assists levy industries to be more profitable

– Each industry has an agreed R&D&E Plan. Based on this Plan we identify R&D&E investment opportunities. Industry panels advise AgriFutures Australia on the allocation of levy funds to individual projects.

Each Program requires ongoing management. In partnership with each industry panel, we intervene when projects are not delivering the outcomes anticipated and when priorities change.

The industry panels consist of industry stakeholders, scientific experts and AgriFutures Australia staff.

Delivering outcomes to maximise industry uptake and adoption

– AgriFutures Australia’s investment is focussed on delivering practical actions that individual farmers can implement on their farms to improve the long-term profitability of their businesses. Our success depends on farmers innovating. Until a farmer does something different on their farm and sees a benefit, their return on investment is zero.

Commercial uptake of research findings is critical. Research findings are communicated to farmers through events like field days and workshops and through communication channels including e-newsletters, emails, social media and publications.
Our arenas

4 Emerging industries

Goal

To support new and emerging rural industries.

With global environmental and market trends impacting food consumption, Australian rural industries have an opportunity to identify new food types and connect with and drive new and expanding markets.

As such, AgriFutures Australia is dedicated to identifying and supporting the development of new rural industries that can meet changing demand and make an economic contribution to Australia.

Over the next five years, AgriFutures Australia will focus on identifying new industries with high potential. This will result in a strong alignment of research activities that address AgriFutures Australia’s legislative requirements and the government’s research priorities.

AgriFutures Australia will build partnerships with key stakeholders, including partners in the private sector, to support the development of these high-potential emerging rural industries.

Outcome

Commercially viable and sustainable emerging rural industries established.

Priorities

Supporting the early stage establishment of high potential rural industries

AgriFutures Australia will target high potential emerging rural industries by supporting rigorous feasibility assessments and identifying critical impediments that can be addressed through R&D.

Over the next five years, AgriFutures Australia will focus on identifying new industries with high potential.
Monitoring and evaluation

AgriFutures Australia has an evaluation framework which is published on our website. AgriFutures Australia programs have R&D Plans which are also published on our website.

Throughout the life of this Plan, AgriFutures Australia will measure, evaluate and report on the progress being made towards achieving the objectives of each Program. The frequency of evaluation will match the rate of change anticipated. Results will be used to alter the investment mix where required, and to make improvements in the management of RD&E investments in order to achieve the outcomes as effectively and efficiently as possible.

At the end of the planning cycle for each Program (either three or five years), a full economic evaluation and impact assessment will be undertaken by an independent expert according to the methodology agreed by the Council of Rural Research and Development Corporations, with results published on our website: agrifutures.com.au

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### Measuring success

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<td></td>
<td>• Building the capability of future rural leaders</td>
<td>Percentage of participants who feel their confidence as a leader has increased significantly or very significantly as a result of participation in an AgriFutures Australia sponsored activity</td>
<td>Survey of participants</td>
<td>80%</td>
</tr>
<tr>
<td>National challenges and</td>
<td>• Informing debate on issues of importance to rural industries</td>
<td>Impact of AgriFutures Australia sponsored studies on debates of national significance to rural industries</td>
<td>Number of significant National Rural Issues (NRI) studies published each year</td>
<td>5</td>
</tr>
<tr>
<td>opportunities</td>
<td>• Adapting new technologies for use across rural industries</td>
<td>New technologies adapted for use in Australian rural industries</td>
<td>Number of new technologies entering commercialisation phase with private sector participation</td>
<td>1 per annum</td>
</tr>
<tr>
<td></td>
<td>• Working collaboratively on issues common across rural sectors</td>
<td>Evidence of collaboration between RDCs in cross sector investment initiatives</td>
<td>Number of collaborative initiatives involving other RDCs</td>
<td>10 per annum</td>
</tr>
<tr>
<td>Growing profitability</td>
<td>• Engaging industry participants in determining RD&amp;E priorities</td>
<td>Percentage of growers comfortable or very comfortable paying the R&amp;D levy</td>
<td>Annual stakeholder survey</td>
<td>80%</td>
</tr>
<tr>
<td></td>
<td>• Investing in innovation that assists levied industries to be more profitable</td>
<td>Degree to which the objectives of the industry-based R&amp;D plans are being achieved</td>
<td>Percentage of KPIs met in each Industry Program R&amp;D Plan (see appendix 2)</td>
<td>85%</td>
</tr>
<tr>
<td></td>
<td>• Delivering outcomes to maximise industry uptake and adoption</td>
<td>Stakeholders rate the value of AgriFutures Australia’s information products and services as high or very high</td>
<td>Annual stakeholder survey</td>
<td>75%</td>
</tr>
<tr>
<td>Emerging industries</td>
<td>• Supporting the early stage establishment of high potential rural industries</td>
<td>Number of new rural industries reaching or exceeding $10m per annum threshold</td>
<td>Number per annum</td>
<td>1</td>
</tr>
</tbody>
</table>
Communications & commercialisation

Doing great research is just the start. Until a farmer does something different on their farm as a consequence of that research, the return on investment is zero.

Communication

AgriFutures Australia will communicate with target audiences through workshops, field days, emails, newsletters, social media, webcasts, media engagements and our websites.

AgriFutures Australia will produce and market its research outputs in high quality information products and services. AgriFutures Australia communications will be future facing and, at the same time, will focus on providing information that encourages people to take practical actions on their farms or in their businesses.

AgriFutures Australia will develop and grow a powerful Customer Relationship Management Database (CRM) that will help us to customise communications with key stakeholder audiences.

AgriFutures Australia intends to significantly increase its media profile and customer awareness over the next five years.

Commercialisation

Commercial partnerships are a cost effective way of delivering the benefits of research and innovation to our stakeholders. Both public and private sector partnerships allow AgriFutures Australia to access skills and expertise, new technologies, market knowledge and additional capital to accelerate the delivery of research results. Partnerships also reduce AgriFutures Australia’s exposure to risk by sharing costs.

Over the next five years AgriFutures Australia will actively seek public sector and private sector partnerships to access new technologies and commercialise and deliver research and innovation outcomes to stakeholders.
Alignment of AgriFutures Australia’s arenas & priorities with government priorities

The Strategic Science and Research Priorities and Rural Research and Development Priorities of the Australian Government provide an overarching framework for public investment in rural R&D, and all R&D investments made by AgriFutures Australia are guided by these priorities.

AgriFutures Australia addresses the Australian Government’s research priorities in the following way:

- The strategies in this Strategic R&D Plan align with the government’s priorities.
- Each levied industry has its own program five or three year R&D plan, which incorporates industry and government research priorities and is aligned with the Strategic Science and Research Priorities and Rural Research and Development Priorities.
- Through Annual Reports, AgriFutures Australia reports on the outcomes from AgriFutures Australia investments against the Strategic Science and Research Priorities and Rural Research and Development Priorities.

<table>
<thead>
<tr>
<th>Arenas</th>
<th>Priorities</th>
</tr>
</thead>
<tbody>
<tr>
<td>People and leadership</td>
<td>• Attracting capable people into careers in agriculture</td>
</tr>
<tr>
<td></td>
<td>• Building the capability of future rural leaders</td>
</tr>
<tr>
<td>National challenges and</td>
<td>• Informing debate on issues of importance to rural industries</td>
</tr>
<tr>
<td>opportunities</td>
<td>• Adapting new technologies for use across rural industries</td>
</tr>
<tr>
<td></td>
<td>• Working collaboratively on issues common across rural sectors</td>
</tr>
<tr>
<td>Growing profitability</td>
<td>• Engaging industry participants in determining R&amp;D&amp;E priorities</td>
</tr>
<tr>
<td></td>
<td>• Investing in innovation that assists levied industries to be more profitable</td>
</tr>
<tr>
<td></td>
<td>• Delivering outcomes to maximise industry uptake and adoption</td>
</tr>
<tr>
<td>Emerging industries</td>
<td>• Supporting the early stage establishment of high potential rural industries</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Science &amp; Research Priorities</th>
<th>Rural Research Development &amp; Extension Priorities*</th>
<th>Rural Industries Priorities*</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Food</td>
<td>• Advanced technology</td>
<td>• Business skills</td>
</tr>
<tr>
<td>• Health</td>
<td>• Biosecurity</td>
<td>• Careers in agriculture</td>
</tr>
<tr>
<td>• Environmental change</td>
<td>• Adoption of research and development</td>
<td>• Leadership training</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Next generation farmers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Innovation networks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Mentoring</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Food</td>
<td>• Advanced technology</td>
<td>• Disruptive technologies</td>
</tr>
<tr>
<td>• Soil and water</td>
<td>• Biosecurity</td>
<td>• Connectivity</td>
</tr>
<tr>
<td>• Transport</td>
<td>• Soil and water and managing natural resources</td>
<td>• Access to capital</td>
</tr>
<tr>
<td>• Resources</td>
<td>• Adoption of research and development</td>
<td>• Transport and infrastructure</td>
</tr>
<tr>
<td>• Energy</td>
<td></td>
<td>• Trade</td>
</tr>
<tr>
<td>• Environmental change</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Health</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A balanced research portfolio

AgriFutures Australia’s investment in R&D&E is driven by the needs of its stakeholders. This Strategic R&D Plan aims to deliver against the strategic national priorities and is guided by two overarching factors:

- Strong stakeholder engagement
- Applying a life-cycle approach to target investment

The life-cycle approach provides clarity around the appropriate levels of intervention and investment in industries as they progress from new to emerging and established. The life-cycle approach ensures the R&D&E investment is fit for purpose and targeted to the industry’s developmental stage.

AgriFutures Australia allocates its expenditure using a range of measures that ensure a balanced, financially responsible approach to its investment of both industry and core funds. AgriFutures Australia’s investments integrate the triple bottom line objectives of economic, environmental and social responsibility.

The majority of investment will be aligned with short-to-medium-term adaptive research outcomes and investment returns with the remainder contributing to long-term strategic research objectives.

AgriFutures Australia’s project management system enables the portfolio of investments to be viewed through various perspectives including:

- Government research priorities
- Program objectives
- Project length
- Levels of risk, return and leverage

AgriFutures Australia will not be focussing on cybersecurity and advanced manufacturing.

*Identified during industry consultation and by AgriFutures Australia advisory panels.
Financials

AgriFutures Australia’s funding sources

AgriFutures Australia receives funds for RD&E investment from the following sources:

- An annual Australian Government appropriation
- Industry levy funds with a matched Australian Government contribution
- Voluntary industry contributions
- Other contributions from Australian Government-specific programs, private companies, rural RDCs, state and territory governments and research providers.

<table>
<thead>
<tr>
<th>Income Forecast</th>
<th>2017-18 ($M)</th>
<th>2018-19 ($M)</th>
<th>2019-20 ($M)</th>
<th>2020-21 ($M)</th>
<th>2021-22 ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C/wealth appropriation</td>
<td>9.3</td>
<td>9.4</td>
<td>9.2</td>
<td>9.4</td>
<td>9.6</td>
</tr>
<tr>
<td>C/wealth matching</td>
<td>5.8</td>
<td>5.5</td>
<td>5.3</td>
<td>5.3</td>
<td>5.5</td>
</tr>
<tr>
<td>Levies</td>
<td>5.5</td>
<td>5.2</td>
<td>5.2</td>
<td>5.3</td>
<td>5.3</td>
</tr>
<tr>
<td>External contributions</td>
<td>4.0</td>
<td>3.7</td>
<td>4.1</td>
<td>1.3</td>
<td>1.4</td>
</tr>
<tr>
<td>Interest</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Other income</td>
<td>1.8</td>
<td>1.8</td>
<td>1.7</td>
<td>0.4</td>
<td>0.5</td>
</tr>
<tr>
<td>Total Income</td>
<td>27.0</td>
<td>26.2</td>
<td>26.1</td>
<td>22.3</td>
<td>22.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expenses</th>
<th>2017-18 ($M)</th>
<th>2018-19 ($M)</th>
<th>2019-20 ($M)</th>
<th>2020-21 ($M)</th>
<th>2021-22 ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Arena 1</td>
<td>1.3</td>
<td>1.1</td>
<td>1.1</td>
<td>1.1</td>
<td>1.1</td>
</tr>
<tr>
<td>Total Arena 2</td>
<td>7.9</td>
<td>6.9</td>
<td>6.8</td>
<td>3.6</td>
<td>4.0</td>
</tr>
<tr>
<td>Total Arena 3</td>
<td>14.5</td>
<td>14.4</td>
<td>13.6</td>
<td>12.4</td>
<td>14.0</td>
</tr>
<tr>
<td>Total Arena 4</td>
<td>3.0</td>
<td>2.5</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Corporate</td>
<td>3.3</td>
<td>3.1</td>
<td>3.1</td>
<td>3.6</td>
<td>3.1</td>
</tr>
<tr>
<td>Total Expenses</td>
<td>30.0</td>
<td>28.0</td>
<td>26.6</td>
<td>22.7</td>
<td>24.2</td>
</tr>
</tbody>
</table>

(3.0) (1.8) (0.5) (0.4) (1.3)
Corporate governance

The Australian Government provides the legislative framework under which AgriFutures Australia operates. The government also provides a core appropriation through the Department of Agriculture and Water Resources and matching Commonwealth funds to those AgriFutures Australia industries with a statutory R&D levy.

Our stakeholders

AgriFutures Australia partners with Australian rural industries and the Australian Government through the Department of Agriculture and Water Resources.

AgriFutures Australia supports established rural industries that do not have their own Research & Development Corporation, including the rice, chicken meat, honey bee and pollination, horse, pasture seeds and export fodder, ginger, and tea tree oil industries. We also invest in research and development to accelerate the establishment of new and emerging rural industries.

AgriFutures Australia’s cross-sectoral mandate supports us to focus on national opportunities and challenges that affect multiple rural industries. Our future orientation enables us to not only tackle the rural challenges and opportunities that we face today, but to identify and unearth the challenges and opportunities of tomorrow. We will do this by listening, connecting and collaborating with the emerging leaders in agriculture, industry bodies, other RDCs and government.

Other stakeholder groups include research providers, the CSIRO, other RDCs, compliance agencies, supply chain companies, community leaders, individual farmers and the general public.

Our funding

AgriFutures Australia is primarily funded by an annual Australian Government appropriation.

Other funding sources include:

- Industry levy funds (R&D expenditure is matched dollar for dollar by the Australian Government) and
- Voluntary industry contributions.

Other contributions come from Australian Government-specific programs, private companies, rural RDCs, state and territory governments and research providers.

These funds are invested to achieve AgriFutures Australia’s strategic research, development and extension goals.

AgriFutures Australia Board

The AgriFutures Australia Board, comprising a Chairperson, a Managing Director and five to seven nominated Directors, provides strong leadership to the Corporation. The Board has combined expertise in production, processing, marketing, R&D administration, business management, social science, technology transfer and environmental and ecological science.

Directors other than the Managing Director are appointed by the Minister for Agriculture and Water Resources and hold office for a specified term not exceeding three years. The Managing Director is appointed by the Board for a specified term.

The Board and the Managing Director have powers derived through the PIRD Act.

The AgriFutures Australia Board Charter sets out the function, duties and responsibilities of the Board in order to facilitate Board and management accountability for AgriFutures Australia’s performance and strategic direction. All members of the Board agree to be bound by the principles contained in the Board Code of Conduct, which provides guidance on their responsibilities including to act ethically, honestly, and with due care and diligence.
## Corporate governance

### Elements of AgriFutures Australia's corporate governance framework

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
</table>
| Accountability   | Through its Board, AgriFutures Australia is accountable to the Australian Parliament through the Minister for Agriculture and Water Resources. AgriFutures Australia formally reports to its declared Representative Organisations, the Australian Chicken Meat Federation and the National Farmers' Federation. AgriFutures Australia also communicates with stakeholders through a range of channels, including:  
  - Regular meetings with and reports to the Department of Agriculture and Water Resources  
  - Publications and online content  
  - Consultation with levied industries and R&D partners  
  - Social media, media, conferences, workshops, grower updates and similar activities. |
| Audit processes  | Internal and external audits are applied to AgriFutures Australia's financial, risk, fraud, quality and RD&E management. Established as a sub-committee of the Board, the Audit Committee oversees preparation and implementation of the Corporation's Fraud Control Policy. The Corporation's Fraud Control Plan is approved by the Audit Committee and Board. |
| Conflict of interest | Directors and senior management must declare potential for conflict of interest for through an annual declaration and a standing agenda item at each Board meeting. Where a material potential conflict is identified, the Director must vacate meetings during discussion and decision making. Potential conflicts are recorded in the Board minutes and are available for consideration by the auditors. Members of the Audit Committee also provide an annual written conflict of interest declaration to the Board. |
| Financial control | The decision making process for financial transactions, including related entity transactions, is guided by AgriFutures Australia's Accountable Authority Instructions and Financial Policy and Procedures. All AgriFutures Australia staff are bound by the Corporation's Financial Policy and Procedures and related Accountable Authority Instructions. The Accountable Authority Instructions detail powers delegated to AgriFutures Australia staff under sections 90 and 91 if the PIRD Act 1989. AgriFutures Australia's Conflict of Interest Policy also applies to all staff who are delegated the power to approve financial transactions. |
| Industry panels  | Industry advisory panels, consisting of individuals with skills relevant to AgriFutures Australia research programs, ensure that R&D projects are properly guided and that industry and government funds are invested wisely. |
| Policies and procedures | Each year, the Board reviews policies and processes concerning all major areas of Board operations, including Board induction processes; Director and Board performance; risk management; conflicts of interest; Board sub-committees; and the Managing Director's performance. Refining and updating management policies and procedures is standard practice within the organisation. |
| Reporting        | For the purposes of reporting on operations, AgriFutures Australia has two organisations declared under Section 7 of the PIRD Act, the Australian Chicken Meat Federation and the National Farmers' Federation. AgriFutures Australia is required to report to these organisations annually on its activities each financial period. This accountability runs parallel to AgriFutures Australia's Annual Report to the Minister and the Parliament. Each year's Annual Report includes a description of how strategic directions, policies and processes have been applied during the year. Under Section 143 of the PIRD Act, the Minister may give written directions as to the performance of its functions and the exercise of its powers. Under Section 22 of the PGPA Act, the Finance Minister may make an order that specifies a policy of the Australian Government that is to be applied to the organisation. |
Corporate governance

Elements of AgriFutures Australia's corporate governance framework

<table>
<thead>
<tr>
<th>Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk management</td>
<td>AgriFutures Australia's risk management policy articulates the philosophy, processes and practices in place to identify, communicate and manage key risks across the organisation, ensuring that responsibilities have been appropriately allocated and communicated. The AgriFutures Australia Board oversees the establishment and implementation of the risk management framework, annually reviews the effectiveness of the framework, sets the risk appetite, and confirms risk management policy and strategy. Risk management is shared across AgriFutures Australia, from staff to management. Management reports to each Board and Audit Committee meeting on the status and progress of key risks. The policy is reviewed annually by both the Audit Committee and the Board to ensure all risks are reviewed where there have been changes in the internal or external operating environments and to consider any emerging risks. The control framework comprises a risk assessment methodology and a risk register with relevant mitigation strategies. This methodology guides and supports risk management activities, from high level whole-of-organisational risk assessments down to day-to-day risk management activities conducted by all staff.</td>
</tr>
</tbody>
</table>

Appendix

All of the established levied industries in AgriFutures Australia’s portfolio have individual Program five year RD&E plans, as does the New and Emerging Animal Industries program and the Primary Industries Health and Safety Partnership that AgriFutures Australia administers. AgriFutures Australia’s New and Emerging Plant Industries program has a three-year RD&E program.

As of 1 July 2017, the AgriFutures Australia programs that had individual program five year or three year RD&E plans were:

- Chicken Meat
- Export Fodder
- Ginger
- Honey Bee and Pollination
- New and Emerging Animal Industries
- New and Emerging Plant Industries
- Pasture Seeds
- Primary Industries Health and Safety Partnership
- Rice

The full three or five year RD&E plans for each of the programs can be accessed via the AgriFutures Australia website: agrifutures.com.au
## Situation analysis

<table>
<thead>
<tr>
<th>Driver</th>
<th>Outlook/Impact/Effect</th>
<th>Outlook Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth of global markets</td>
<td>Australian agriculture is predominantly export-oriented and as such, benefits from the growth of these global markets.</td>
<td>Strength</td>
</tr>
<tr>
<td>New investors</td>
<td>In response to changing global conditions, agribusiness is increasingly attracting investment and capital from new sources.</td>
<td>Strength</td>
</tr>
<tr>
<td>New innovations</td>
<td>Digital disruption has created an explosion of new technologies and innovations that will drive advances in Australian agriculture.</td>
<td>Strength</td>
</tr>
<tr>
<td>Demand for diversity</td>
<td>Emerging economies (especially in Asia) have increased the demand for a more diverse range of farm, forest and fisheries products.</td>
<td>Strength</td>
</tr>
<tr>
<td>Emerging economies</td>
<td>Australia is well positioned to increase exports into emerging economies (particularly in Asia and Africa) and improve food security.</td>
<td>Strength</td>
</tr>
<tr>
<td>Labour productivity</td>
<td>Labour productivity has increased, largely due to innovation, the adoption of technology and the discovery of new ways to make more products with the same or fewer inputs.</td>
<td>Strength</td>
</tr>
<tr>
<td>Global market changes</td>
<td>Farm-gate returns have become increasingly unpredictable as a consequence of climate variability, volatile exchange rates and fluctuations in market demands.</td>
<td>Weakness</td>
</tr>
<tr>
<td>Amalgamation and increased size of operations</td>
<td>The family farm remains the most common ownership structure and faces increasing pressure to grow and maintain efficiency as the trend toward fewer, larger farms continues.</td>
<td>Weakness</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Driver</th>
<th>Outlook/Impact/Effect</th>
<th>Outlook Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade barriers</td>
<td>Despite recent successes by the Australian Government to negotiate Free Trade Agreements with major trading partners, the food sector in many countries remains highly subsidised and trade barriers restrict Australian exports.</td>
<td>Weakness</td>
</tr>
<tr>
<td>Less land for farming</td>
<td>Global urbanisation has reduced the amount of productive land for farming.</td>
<td>Weakness</td>
</tr>
<tr>
<td>Demand for more food</td>
<td>The world must increase its agricultural output to feed a growing population, and access to quality production resources will remain major factors in planning for increased production capacity. Australia is well positioned to increase exports into expanding global food and fibre markets and improve food security.</td>
<td>Opportunity</td>
</tr>
<tr>
<td>Changing agricultural landscape</td>
<td>Australia is well placed to export agricultural expertise and know-how to emerging economies as they seek to develop their own agricultural sectors in challenging conditions.</td>
<td>Opportunity</td>
</tr>
<tr>
<td>Rising wealth</td>
<td>Particularly in the developing Asian regions, rising wealth is driving an increase in food and fibre consumption as people increase their average daily calorie intake and move out of subsistence production. Australian rural industries are well positioned to connect to new and expanding markets.</td>
<td>Opportunity</td>
</tr>
<tr>
<td>Changing diets and demands</td>
<td>Diets are shifting from staple foods towards high-protein foods, demands for boutique foods such as wine, tropical fruits and nuts are growing, and foods with specialised characteristics are becoming increasingly popular. Australian rural industries have an opportunity to identify new food types and connect to new and expanding markets.</td>
<td>Opportunity</td>
</tr>
</tbody>
</table>
## Situation analysis

<table>
<thead>
<tr>
<th>Driver</th>
<th>Outlook/Impact/Effect</th>
<th>Outlook Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Choosy customers</strong></td>
<td>Information empowered consumers of the future will have high expectations for health, provenance, sustainability and ethics. Australian industries already have a market advantage as healthy, safe and fresh, and communicating the benefits to consumers presents a great opportunity for Australian rural industries.</td>
<td>Opportunity</td>
</tr>
<tr>
<td><strong>Demand for diversification</strong></td>
<td>A growing demand for a more diverse range of food and fibre products in the emerging economies presents AgriFutures Australia with an opportunity to promote collaborative research into enterprise mixes and assist producers to minimise their risk exposure from single output farming.</td>
<td>Opportunity</td>
</tr>
<tr>
<td><strong>Transformative technologies</strong></td>
<td>Advances in digital technologies are changing the way producers make decisions, with improved access to risk and farm management tools, crop support, supply chain management and quality assurance systems. With all agricultural industries affected by these technologies, an opportunity exists to facilitate cross-sectoral R&amp;D.</td>
<td>Opportunity</td>
</tr>
<tr>
<td><strong>Climate change</strong></td>
<td>Climate change is elevating the frequency and severity of extreme weather events such as droughts, heatwaves, floods and bushfires. These events have the potential to impact on crop and livestock systems, and on the regions that are suitable for particular enterprises.</td>
<td>Threat</td>
</tr>
<tr>
<td><strong>Water scarcity</strong></td>
<td>Balancing productive water use with environmental needs will continue to challenge policy makers and producers.</td>
<td>Threat</td>
</tr>
<tr>
<td><strong>Renewable energy demands</strong></td>
<td>Food and fibre production land may be impacted by the establishment of energy infrastructure, the production of biofuel crops or achievement of greenhouse gas mitigation targets.</td>
<td>Threat</td>
</tr>
<tr>
<td><strong>Genetic science and synthetics</strong></td>
<td>Cotton, wool, leather and natural fibres are likely to experience increased competition as manufacturers improve the performance qualities of synthetic clothing and footwear. Advances in food manufacturing are likely to see the emergence of new genetics and synthetic substitutes for meat and dairy products.</td>
<td>Threat</td>
</tr>
<tr>
<td><strong>Greater risk profile</strong></td>
<td>The coming decades will see changes in the global climate, environmental systems and world economy creating new and potentially deeper risks for farmers.</td>
<td>Threat</td>
</tr>
<tr>
<td><strong>Variability in returns</strong></td>
<td>Climate variability, volatile exchange rates and fluctuations in market demand have led to significant variability in returns to agriculture. Skills and systems to effectively anticipate and manage these increasing risks will be a crucial component of the future.</td>
<td>Threat</td>
</tr>
<tr>
<td><strong>Globalisation of supply chains</strong></td>
<td>The globalisation of supply chains increases the risk of supply chain breakdowns. Understanding supply (and price) shocks will help mitigate risks and build more secure supply chains.</td>
<td>Threat</td>
</tr>
<tr>
<td><strong>Biosecurity</strong></td>
<td>With the greater movement of people and goods across national borders, the biosecurity risk is increasing. Australian agriculture has adapted and responded well to biosecurity risks in the past and, with today's innovative technologies and deeper knowledge base, is well positioned to respond to risks of the future.</td>
<td>Threat</td>
</tr>
</tbody>
</table>