Australian Government

rural R&D CORPORATIONS

Cotton Research and Development Corporation

Fisheries Research and Development Corporation

Grains Research and Development Corporation

Rural Industries Research and Development Corporation

Council of Rural Research and Development Corporations

Response to

House of Representatives Standing Committee on Agriculture and Industry Inquiry into Agricultural Innovation

November 2015

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EXECUTIVE SUMMARY

The Council of Rural RDCs welcomes the opportunity to make a submission to this inquiry into the role of technology in improving agricultural productivity in Australia. As in other sectors of the economy, technology will play a major and potentially disruptive role for our rural industries and drive extremely rapid change. This will be both directly, through the technologies available to producers to apply and use within their businesses, and indirectly including through facilitating services and enabling infrastructure that change how services are delivered to producers and how industry connects with, manages, maintains and optimises value chains from production to consumption.

Innovation is critical for Australian agricultural industries to remain competitive in the face of global pressures, to meet environmental, social and economic challenges, and to capitalise on new opportunities. Innovation, driven and supported by a sustainable and effective rural research, development and extension effort, will be the crucial element in long-term competitiveness of the Australian rural sector. The level of investment in research, development and extension (RD&E) is one of few factors that can be readily adjusted by industry and governments to change the productivity performance of the sector. Without innovation, our industries will not be able to compete against increased production in lower-cost jurisdictions. The development and implementation of new technologies enables of this transformation.

At issue for governments is ensuring that policy settings and regulations are appropriate and fit-for-purpose, that markets can operate as freely as possible and that the necessary infrastructure is established and maintained. Once a technology, process or practice is demonstrated to be safe and effective, governments should limit interference that prevents adoption, while maintaining such control necessary to ensure fair and equitable behaviour within the marketplace.

The Rural RDCs play a key and particular role in the innovation system, including prioritising and funding research, development and extension of new technologies that can improve the economic, environmental and social performance of Australia's rural industries. The RDCs work to ensure industry has sufficient and appropriate levels of information to determine whether a technology is suitable and under what circumstances, what benefits it offers, and what risks may need to be managed should it be adopted. Through the investments in R&D the RDCs may be involved in the creation of new technologies and innovations, and through work in extension may have a role in promulgating technologies through industry.

This submission seeks to provide the Committee with background information about the role of the Rural Research and Development Corporations within Australia's rural innovation system, and also to explore some of the issues regarding the interplay between public and private investment in research and innovation. The submission also provides a general high level response to each of the terms of reference for this inquiry.

The Council of Rural RDCs represents all 15 of the Rural RDCs. Some of the individual RDCs will also make submissions to this inquiry. Questions relating to specific industry examples of the impact and adoption of technologies within different industry sectors will be best directed to those organisations who will be able to respond with more comprehensive knowledge of the particular circumstances involved.

INTRODUCTION

The Council of Rural Research and Development Corporations (the Council) welcomes the opportunity to make a submission to the House of Representatives Standing Committee on Agriculture and Industry inquiry into the role of technology in increasing agricultural productivity in Australia. This response is provided on behalf of Australia's 15 Rural Research and Development Corporations, and, as such, will focus on high level issues and policy settings. Individual RDCs will also make their own submissions focused on their own industries and circumstances, and the arrangements that apply in each case.

The Council of Rural Research and Development Corporations (the Council) is the structure through which the 10 industry-owned companies and 5 statutory corporations, collectively known as the Rural Research and Development Corporations (RDCs), collaborate and coordinate collective efforts on matters of common interest.

Table 1: The 15 Rural Research and Development Corporations

Industry Owned Companies	Statutory Corporations & Authorities
Australian Egg Corporation Australian Meat Processor Corporation Australian Pork Limited Australian Wool Innovation Dairy Australia Forest & Wood Products Australia Horticulture Innovation Australia Livecorp (the Australian Livestock Exporters Corporation) Meat & Livestock Australia Sugar Research Australia	Cotton Research and Development Corporation Fisheries Research and Development Corporation Grains Research and Development Corporation Rural Industries Research and Development Corporation Wine Australia (the Australian Grape and Wine Authority)

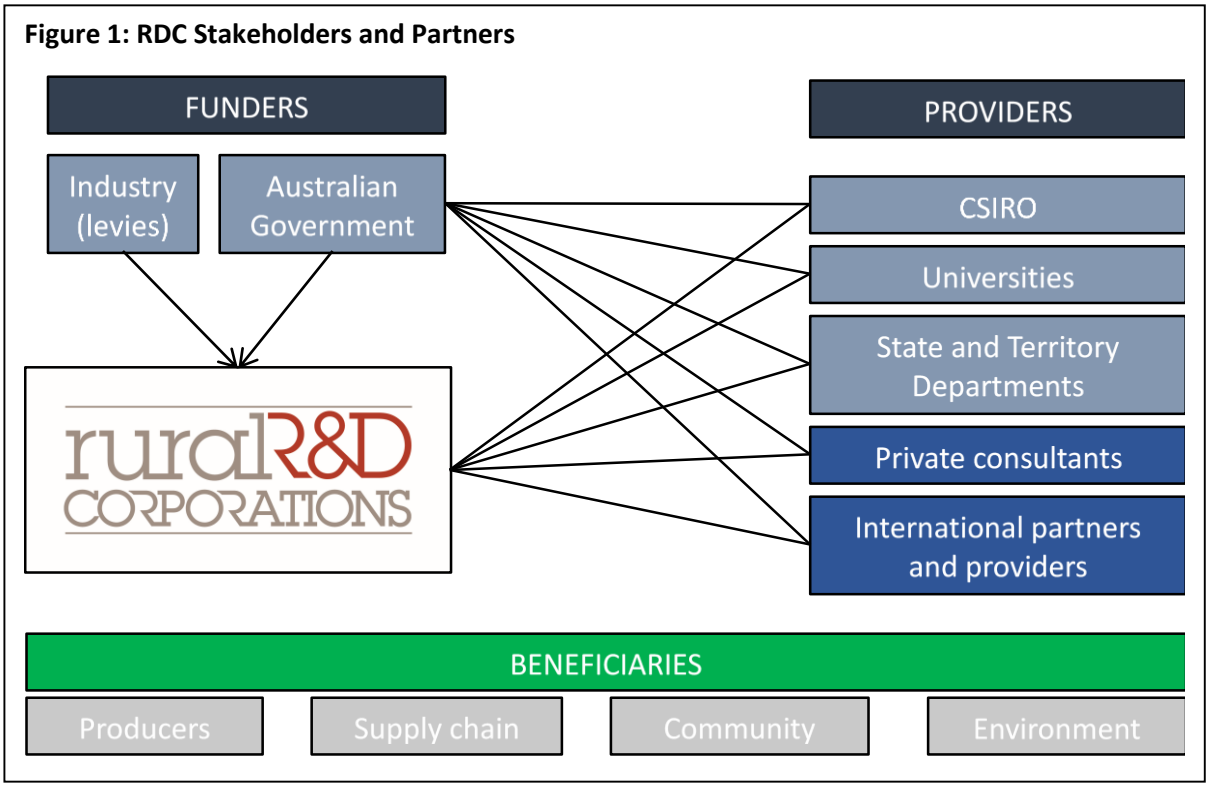
The role of the Council is to support and facilitate the RDCs to fulfil their broad purpose where action by any of the individual organisations would be impossible, impractical, inefficient or ineffective. The Council provides a mechanism for the RDCs to harness the strength of their combined resources and networks, aggregate intelligence, amplify and disseminate messages and engage with common stakeholders. In particular the Council operates on behalf of all RDCs to promote, strengthen and provide advocacy for Australia's highly regarded rural RDC model, the research investment made and the benefits delivered.

Throughout this submission, unless otherwise indicated, the term "RDC" refers collectively to the 10 industry-owned companies (IOCs), and 5 statutory research and development corporations, who have responsibility for research and development for their respective industries.

The Rural Research and Development Corporations

The rural RDCs are a long-standing partnership between industry and government to plan, invest in, manage and evaluate RD&E that delivers economic, environmental and social benefits for rural industries and the nation. They prioritise, coordinate and integrate the needs of industry and government and align the capabilities of research providers responsible for primary industries RD&E. They are funded through a co-investment model which involves levies on production and a matching government contribution for RD&E. The RDCs are service providers to industry, and importantly, do not own, manage or maintain internal research capacity[1]. Over time and where industries have determined there to be a benefit, in a number of cases separate industry services providers have been merged together. Subsequently, some of the RDCs also undertake market access, market development, promotion or other industry services. Functions that are not related to RD&E are not eligible for matching funding from the Australian Government.

Figure 1: RDC Stakeholders and Partners



The RDCs support activities across the spectrum from basic research to applied science and product development, and they fund, manage and are engaged in the translation, extension and adoption of R&D outcomes. The RDCs balance effort across the whole production and supply chain — from the environment in which production occurs, through transport, storage, processing and marketing of intermediate and consumer products, often well into our overseas markets. RD&E touches a wide range of industries, businesses and workers, and the benefits are felt widely throughout the community. New technologies, services and products are some of the pathways through which research findings can move from the lab to the field.

[1] Except for Sugar Research Australia which owns and manages a number of research facilities on behalf of the Australian sugar industry, and does employ researchers acting in that capacity. Strict internal controls are maintained to ensure transparency and robust review of all RD&E projects funded from SRA's available funds.

The RDCs do not seek to dictate to industry what technologies will be adopted. Instead they work to ensure industry has sufficient and appropriate levels of information to determine whether a technology is suitable and under what circumstances, what benefits it offers, and what risks may need to be managed should it be adopted. Through the investments in R&D the RDCs may be involved in the creation of new technologies and innovations, and through work in extension may have a role in promulgating technologies through industry.

Innovation and Australia's rural industries

While Australia's rural industries are only a small of the overall Australian economy (farm gate GVP is less than 3% of total national product), they provide a critical foundation for society. The food and fibre products derived from rural industry are essential for life — they are consumed every day by all members of the community. Few non-rural goods have such pervasive consumption patterns and naturally wide distribution of benefits. The agriculture, fisheries and forestry industries also provide inputs for a number of downstream industries. The overall agricultural supply chain is estimated to account for approximately 12 percent of GVP and more than one and a half million jobs (NFF 2012).

Innovation is critical for Australian agricultural industries to remain competitive in the face of global pressure, to meet environmental, social and economic challenges, and to capitalise on new opportunities. Innovation, driven and supported by a sustainable and effective rural research, development and extension effort, will be the crucial element in long-term competitiveness of the Australian rural sector. The level of investment in research, development and extension (RD&E) is one of few factors that can be readily adjusted by industry (and governments) to change the productivity performance of the sector. Without innovation, our industry will not be able to compete against increased production in lower-cost jurisdictions. The development and implementation of new technologies enables transformation.

The rural sector has a strong culture of innovation of processes, practices, knowledge and skills. Industries are actively seeking out and adopting leading edge technologies to improve business decision-making, improve practices and production, enhance supply chains and connect with consumers. We note the committee's interest in understanding the role, opportunities and barriers for technology within production industries, and this submission will focus at this level and the role the RDCs play in facilitating the identification of new technologies, researching their usefulness, understanding potential impact and, where appropriate, facilitating adoption. That said it is also important to recognise that investment in research, development and extension, and the access to and adoption of technology for production purposes that may arise from this work is only one piece of the innovation and productivity challenge for the rural sector. Other issues include access to capital, markets and labour-supply. Of course, technology can, is and will also have a role in how industry also responds to these challenges.

Public vs private funding of innovation

The different roles played by public and private funding of innovation should also be noted. Funded by both industry and government, the RDCs are a co-investment partnership and a demonstration of how public and private funding are complementary. This is particularly so when investments are managed strategically to meet agreed and aligned values and priorities.

Research by the Australian Bureau of Agricultural Resource Economics and Sciences (Sheng et al, 2011) identified that there is a strong evidence that public investment in RD&E is an effective way for government to promote agricultural productivity growth, and consequently that any changes in government policy will significantly affect productivity growth rates in the longer term. This research

also noted that R&D strategies investing over the long-term and with a view to permanently increasing knowledge stocks delivered higher returns than those looking for short-term gains.

Analysis of the economic significance of science in the UK (Haskel et al, 2014) suggests there is a 'crowding-in' effect of public sector R&D on additional industry investment, and that a 'virtuous circle' operates between the two. Industries that have more research funding available may reflect higher research needs, and thus a greater level of interest from industry in the R&D work being funded to address key research questions. But within a given industry there is also a need for investment by industry to ensure it has the internal capacity that enables publicly supported R&D to be translated from research findings and into productivity outcomes. Both these effects are likely to be important, that is, industries with higher levels of public R&D investment encourage greater investment by industry to take advantage of the research findings. Industries with high levels of capacity may have greater understanding of their research needs and research questions, improving the opportunities to successfully attract funding.

A further consideration is that research and development is not a linear process with a smooth progression, but involves an interplay between curiousity-driven and applied research, and a long term series of incremental gains. This interplay continues through to adoption as outcomes and ideas are tested and refined.

The Productivity Commission (2015) highlights that since 1989-90, multifactor productivity growth in agriculture, fisheries and forestry displays an average growth rate of 2.7 percent per annum, although there is significant volatility year-to-year. The aggregated performance of our rural industries has exceeded the rest of the market sector economy, where the average growth rate has been just 0.9 percent over the same period. The Commission also points out that future growth will depend on the more productive use of land, water and other natural assets, including by using the most up-to-date equipment and technologies. A key difference between the rural industries and other parts of the economy has been a long-term series of consistent, strategic and targeted investments into R&D and innovation.

As service providers to industry and government, and operating at arms' length from both, the RDCs have responsibility for preparing and executing strategic plans that address the needs of all stakeholders. They aim to strike a balance between short-time to impact work that addresses today's issues, and longer-term activity that prepares for over-the-horizon challenges. Underpinning the policy framework of the RDCs is also the concept of 'market failure', which simply put means the RDCs focus their efforts in areas of need but where the private sector will not or does not. Meeting the market failure test generally means the RDCs are not directly involved in the commercialisation of new technologies, although they will enter into commercial arrangements as necessary to ensure there is an appropriate return for stakeholders for preceding investments.

RESPONSE TO TERMS OF REFERENCE

Improvements in the efficiency of agricultural practices due to new technology, and the scope for further improvements

Each of the Rural RDCs has a myriad of examples of how technology is having a positive impact and improving efficiency of practices within their industries and along supply chains. A small selection of these have been provided to the committee through individual RDC submissions. The response of each industry, scope for improvements, applicability of emerging technologies and barriers to adoption will vary on a case-by-case basis depending on the circumstances and operations of individual businesses and overall industries.

The work of the RDCs is assisting the development and implementation of new technologies in multiple ways, from basic research building our knowledge base, to applied research for practical implementation, field testing of new genetics, products, processes and tools, and to the promotion and promulgation of these results which enable producers and other industry participants make decisions about adoption. We will be pleased to provide additional details of there are specific technologies or industries that the Committee wishes to investigate.

A snapshot of the breadth of work and scale of opportunities came through this year's Australian Museum Eureka Prizes, where the Rural Research and Development Corporations sponsored a prize for rural innovation. This prize sought to promote and reward outstanding scientific research, development and innovation that has, or has the potential to have, a significantly positive impact on rural industry productivity and sustainability.

A competitive field of entries was ultimately narrowed down to three finalists and won by Professor David Raftos, Macquarie University. Professor Raftos is working with the $200 million a year oyster industry where he and his team are implementing an innovative breeding program to produce disease-resistant, environmentally tolerant oysters. Disease outbreak can wipe out oyster populations in a single day, ruining small farmers and hurting surrounding communities. The better, stronger oysters delivered through this research program instead promise a 10 to 20 percent increase in yields for Sydney Rock Oysters, and may also deliver benefits for other farmed marine creatures including abalone and prawns.

The other finalists in the Rural RDCs Eureka Prize for Rural Innovation related to the dairy industry and research into bees. FutureDairy, a robotic rotary dairy co-developed as an international first between DeLaval International and the University of Sydney, with support from Dairy Australia and the NSW Department of Primary Industries, is the latest in automated milking systems. Voluntary cow traffic and automated milking systems will mean cows in large-herd Australian dairy farms can bring themselves in from the pasture to the dairy, to be milked by robots without human assistance. These systems offer significant savings in labour requirements on dairy farms.

Professor Ben Olroyd and Dr Nadine Chapman from the University of Sydney have created the first reliable genetic test to identify Africanised 'killer' bees, and enable the importation of bee strains that are resistant to the *Varroa* mite. It has been estimated that 65 percent of agricultural production in Australia is dependent on pollination by European honey bees, while the honey and bee products industry has an estimated gross value of production of $92 million a year. The impact from exotic pests and diseases of bees could be devastating across a number of industries. Scientists believe a *Varroa* mite incursion is almost inevitable as it has already reached three of our nearest neighbours, Papua New Guinea, Indonesia and New Zealand.

Emerging technology relevant to the agricultural sector, in areas including but not limited to telecommunications, remote monitoring and drones, plant genomics, and agricultural chemicals

When it comes to new and emerging technologies there are many and varied options for investment, representing a challenge for R&D investors such as the RDCs. Many submissions to this inquiry have noted specific instances of emerging technology relevant to the rural sector, and the likely impact they will have. In Australia and around the world there are many different ideas worth research, development or extension investment. The challenge for investors is one of prioritisation, balancing risk and return, identifying which were most likely to be adoptable and adopted by producers and thus offering the greatest potential for returns to levy payers.

The RDCs manage these issues in a number of ways, including through robust strategic planning and stakeholder consultation processes to ensure strong awareness and alignment to the current and future needs of industry, direct and indirect engagement with the international research and industries communities to maintain knowledge of trends and opportunities, and arrangements with international partners to leverage a broader set of knowledge, skills, experience and capabilities for the benefit of Australian industry.

The RDCs actively collaborate with each other to increase the efficiency and effectiveness of their R&D investments. Currently the RDCs are working together on project bids under the Australian Government's $200 Million Rural Research for Profit Program with proposals being developed in precision agriculture, transformative technologies, digital agriculture and automation. Twelve projects were approved under round one of this program, announced in May 2015, with most directly pursuing the implementation of new technologies for improved industry efficiency and productivity. More than 35 project partner organisations, in addition to the RDCs will be involved in the delivery of these projects. A full list of these projects is provided at Appendix 1.

The RDCs are also working with the other participants in the rural innovation system through the National Primary Industries Research and Development Framework. This Framework was endorsed by primary industries ministers in 2005, and brings together the Australian Government, State and Territory Governments, the Rural RDCs, CSIRO, the Bureau of Meteorology and the university sector through the Australian Council of Deans of Agriculture, to deliver a more coordinated and collaborative approach to RD&E for rural industries in Australia. The framework has facilitated a process through which national RD&E capacity can be more effectively focused and efficiently deployed through RD&E strategies for 14 primary industry sectors, and 8 cross-sectoral issues. Through this process the RDCs can work with the research providers to identify potentially useful emerging technologies and then strategically invest as and where needed along the pathway to adoption.

Barriers to the adoption of emerging technology

The Rural RDCs are highly experienced and professional managers of investments and activities designed to generate positive impacts for producers and rural industries. Indeed, there is a strong focus within the RDCs of ensuring our investments have clearly articulated pathways to adoption. That said, there are some inherent risks when it comes to investing in research and development. To manage these issues the RDCs have policies that ensure the overall investment portfolio balances out high, medium and low risk activities across, short-medium and long-term time to impact.

The reasons why a technology or innovation is adopted or not can be many and complex, and may differ from farm to farm, enterprise to enterprise, and region to region. The decision of whether to adopt a technology or not is, for the most part, one that is the responsibility of an individual producer or business based on their own circumstances. Factors and characteristics that may be involved include knowledge and awareness, credibility, relevance, timing, appropriateness of scale, accessibility, level of complexity, flexibility, compatibility to existing practices and values, level of additional learning and capital outlay required, and the level of risk and uncertainty (Land & Water Australia, 2005). It is impossible to be narrowly prescriptive about how a technology or piece of research knowledge should be adopted, and it is the responsibility of research providers and funders to design and develop research activities and outputs that are well suited to the needs and circumstances of the industry in order to maximise adoption outcomes.

Traditionally, the agricultural extension paradigm in Australia has been seen as an issue of information and knowledge transfer, and that a simple lack of information was the primary barrier to adoption. As explored in the submission to this inquiry from the Grains Research and Development Corporation, this 'expert-driven' model of technology transfer and adoption sells producers short as competent scientific thinkers and researchers in their own right, and as risk and business managers. Newer thinking about extension and adoption recognises that a decision to adopt a new technology, whether it is a variety, practice, or piece of equipment, is carefully considered and based on an understanding of the relative costs and benefits, the risks and opportunities. Participatory approaches to R&D and to extension can be effective in generating the sub-regional and local level data and experience regarding a new technology that enables producers to make informed decisions of whether to adopt it or not.

There is an ongoing challenge about how to facilitate and resource such approaches. The provision of extension and related services for Australia's rural industries is changing, particularly as state and territory primary industries departments have significantly reduced the level of budget and human resources available. In some industries, where there are commercial opportunities, the private sector is stepping in to fill some of the void. The adjustment to different arrangements is taking longer in other industries depending on circumstances.

In general the RDCs support a position where markets should be allowed to operate freely, with individual producers able to make decisions about their own businesses based on good quality information and transparency in market signals. This is not to advocate a *Laissez-faire* approach, but to understand that there are specific and particular roles for government in terms of ensuring policy settings and market-place regulations are appropriate and effective, that controls are in place to ensure effective competition, prevent market manipulation and abuse of market power, and that necessary infrastructure is in place and maintained.

The Council notes that there are a range of specific issues at the moment that present barriers to greater adoption of productivity-advancing technologies that cut across multiple industries. These include the often variable, poor and or limited coverage of telecommunications and internet services. The Council notes and supports the government's ongoing investments to improve telecommunications throughout rural, regional and remote Australia and suggests that this is critical infrastructure that will unlock a wide range of economic and social benefits.

Another area of concern for the Council relate to the regulatory controls, costs and timeframes associated with the registration of new chemicals and novel plants and animals, some of which relates to differences in approaches between states and territories. The Council acknowledges and welcomes the efforts being made by the Australian Government and outlined in the Agricultural Competitiveness White Paper, including a focus on streamlining approvals for agricultural and veterinary chemicals and making funding available to improve access to new products. Once a product or technology has been demonstrated on the best available evidence to be safe and effective, the Council is of the view that governments should limit their interference in the choice to adopt that technology by producers. We acknowledge there is a role for industry and its service providers to engage in discussions with the wider community about the role of new and novel technologies.

CONCLUSION

The Council of Rural RDCs welcomes the opportunity to make a submission to this inquiry into the role of technology in improving agricultural productivity in Australia. There is no doubt, as per other sectors of the economy, technology will play a major and potentially disruptive role for our rural industries and that change can happen rapidly. This will be both directly, through the technologies available to producers to apply and use within their businesses, and indirectly including through facilitating services and enabling infrastructure that change how services are delivered to producers and how industry connects with, manages, maintains and optimises value chains from production to consumption.

The key issue for government in this space is ensuring that policy settings and regulations are appropriate and fit-for-purpose, that markets can operate as freely as possible and that the necessary infrastructure is established and maintained. Once a technology, process or practice is demonstrated to be safe and effective, governments should limit interference that prevents adoption, while maintaining such control necessary to ensure fair and equitable behaviour within the marketplace.

The Rural RDCs play a key and particular role in the innovation system, which includes prioritising and funding research, development and extension into new technologies that can improve the economic, environmental and social performance of Australia's rural industries. We will be pleased to appear before a hearing of the Committee as necessary to explore these issues in greater detail.

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APPENDIX 1 – PROJECTS APPROVED UNDER ROUND ONE OF RURAL R&D FOR PROFIT PROGRAMME

Multi-scale monitoring tools for managing Australian tree crops - industry meets innovation

Project leader: Horticulture Innovation Australia Limited
Partners: University of Queensland (UQ); University of Central Queensland; University of New England; University of Sydney; Avocados Australia; Simpson Farms; Australian Mango Industry Association; Australian Macadamia Society
Approved grant: $3.45 million
Total project investment: $7 million

The project will utilise the latest high resolution satellite imaging systems, cloud-based computing, data discovery and computationally efficient analytics together with on-ground robotics and an increasingly 'connected' producer base to provide growers with key innovative and transformative pathways to improve production and farm gate returns. This multi-stakeholder, multi-industry and collaborative project will deliver Australia's tree crop industries with:
1. A national audit capability framework identifying the location, area and tree population of every commercial avocado, mango, macadamia orchards and banana plantations across Australia, and
2. A farm-level decision support tool utilising satellite image data streams and novel on-ground sensor systems, including machine vision and spectro-radiometric sensors, and robotic platforms for mapping fruit yield and quality, tree health and inflorescence counts.

More information: http://www.horticulture.com.au/news/

Smarter Irrigation for Profit

Project leader: Cotton Research and Development Corporation
Partners: Sugar Research Australia, Rural Industries RDC, Dairy Australia, University of Southern Queensland, National Centre for Engineering in Agriculture; Tasmanian Institute of Agriculture; CSIRO; NSW DPI; South Australian Research and Development Institute; Victorian Department of Economic Development; GVIA; Sundown Pastoral Co; Auscott Limited
Approved grant: up to $4 million
Total project investment: $10 million

This project is a partnership between the major irrigation industries of cotton, dairy, rice and sugar. It will target 3,000 irrigators to improve their individual enterprise profit by $20,000-40,000 per annum. The project has 10 key activities, four industries, 16 R&D partners, and 19 farmer managed learning sites across five states.

More information: http://www.crdc.com.au/content/irrigating-profit-government-funds-cotton-dairy-rice-sugar-rd-6-may

Waste to revenue: novel fertilisers and feeds

Project leader: Australian Pork Limited
Partners: Dairy Australia, Sugar Research Australia, Meat & Livestock Australia, Rural Industries RDC, University of Queensland, University of Western Australia.
Approved grant: $0.86 million
Total project investment: $2 million

This project will

a) develop new waste treatment technologies that utilise algae, purple phototrophic bacteria and chemotrophs to recapture nutrients in waste as feed and fertilisers products
b) evaluate nutritive, agronomic and economic benefits of these new products against other alternatives,
c) overcome barriers to adoption by involving primary producers during field trials to assist early adopters through extension activities.

Adoption of these technologies will improve the sustainability, productivity and profitability of primary industry through the generation of new revenue streams and reduced input costs (feed, fertiliser).

More information: http://australianpork.com.au/library-resources/media/

Fast-tracking and maximising the long-lasting benefits of weed biological control for on-farm productivity

Project leader: Meat & Livestock Australia
Partners: CSIRO, NSW Department of Primary Industries, Primary Industries and Regions South Australia, Queensland Department of Agriculture, Forestry and Fisheries, Victorian Department of Economic Development, TasWeed
Approved grant: $1.89 million
Total project investment: $5.8 million

The project will improve the control of six national priority agricultural weeds (parkinsonia, parthenium, blackberry, silverleaf nightshade, cylindropuntia, gorse). Success will be achieved by fast-tracking delivery of eight biocontrol agents to producers and is expected to reduce weed competition and herbicide use.

More information: http://www.mla.com.au/About-MLA/News-and-media/Media-releases

Market and consumer insights to drive value chain innovation and growth

Project leader: Meat & Livestock Australia
Partners: Victorian Department of Economic Development; Horticulture Innovation Australia Limited; CSIRO; Australian Seafood Cooperative Research Centre
Approved grant: $2.87 million
Total project investment: $5.8 million

The project will identify opportunities in export markets and help producers and their supply chain partners respond effectively to those opportunities to grow their businesses. It aims to build the capacity of agri-food supply chains to innovate and collaborate for market advantage by creating easy-to-access tools and strategies, including online resources and face-to-face workshops.

More information: http://www.mla.com.au/About-MLA/News-and-media/Media-releases

A profitable future for Australian agriculture: biorefineries for higher-value animal feed, chemicals and fuel

Project leader: Sugar Research Australia
Partners: Forest and Wood Products Australia; Cotton RDC; Australian Pork Limited; Queensland University of Technology, Sugar Research Limited, Southern Oil Refining, Agrifuels Ltd
Approved grant: $3.09 million
Total project investment: $6.2 million

Australian agriculture must continually adapt to remain competitive in an environment of rising production costs, climate variability, pests and disease, compliance costs, and changing global patterns of production and consumption. One of the key pathways to a profitable future for Australian agriculture is to create biorefineries which generate higher value products from agricultural primary products, off-specification primary products, and low value or waste by-products. This project will engage Australia's leading researchers in this field to develop the technologies needed to convert Australian agricultural and forestry feedstocks into new value-added animal feeds, chemicals and advanced fuels.

More information: http://www.sugarresearch.com.au/icms_docs/216622_Bio-refineries_research_project_to_drive_positive_outcomes_across_industries.pdf

Improved use of seasonal forecasting to increase farmer profitability

Project leader: Rural Industries RDC
Partners: Cotton RDC, Grains RDC, Meat & Livestock Australia, Fisheries RDC, Sugar Research Australia, Horticulture Innovation Australia Limited, Bureau of Meteorology, university of Southern Queensland, Monash University, Birchip Cropping Group, Department of Economic Development Victoria, NSW Department of Primary Industries, South Australian Research and Development Institute, Department of Agriculture and Food, Western Australia
Approved grant: $1.83 million
Total project investment: $3.5 million

This project will improve the productivity and profitability of Australian farmers by bridging the gap between seasonal climate forecasts and on-farm business decisions. New tools will be developed and information and training provided so farmers are better able to use existing seasonal forecasts. The project will also look to improve seasonal forecasting capabilities of Australia's primary forecasting model (POAMA/ACCESS).

More information: http://www.rirdc.gov.au/news/2015/05/06/government-grant-gives-green-light-for-seasonal-forecasting-r-d-project

Adaptive area-wide management of Queensland Fruit Fly using SIT: Guidelines for efficient and effective pest suppressions and stakeholder adoption

Project leader: Horticulture Innovation Australian Limited
Partners: Australian Grape and Wine Authority; Biobee; CSIRO; Queensland University of Technology (QUT); NSW Department of Primary Industries (DPI); Primary Industries South Australia (PIRSA); VIC Department of Primary Industries & Environment (DEPI)
Approved grant: $2.35 million
Total project investment: $4.7 million

The project will help to control the Queensland Fruit Fly, a major pest of Australian horticulture. It will integrate the release of sterile male flies into area-wide integrated pest management programmes. This will reduce crop losses caused by Queensland fruit fly damage, and will help Australian horticulture industries to access new markets for their products.

More information: http://www.horticulture.com.au/news/

Stimulating private sector extension in Australian agriculture to increase returns from R&D

Project leader: Dairy Australia
Partners: Meat & Livestock Australia, Horticulture Innovation Australia, Cotton Research and Development Corporation, Australian Pork Limited, Sugar Research Australia, University of Melbourne, Victorian Department of Primary Industries, NSW Department of Primary Industries
Approved grant: $1.59 million
Total project investment: $3.2 million

This project will:

- Improve profit on farm through a private sector that is more engaged in driving innovation based on the latest research and industry best practice;
- Make research more accessible to farmers through a more integrated and co-operative extension system; Identify barriers to private sector involvement in delivering R&D to farmers;
- Stimulate further growth of a capable private sector, through training and retention of professionals to ensure we have the extension skills and capability to meet industry needs;
- Build a stronger connection between end users and researchers by trialling different approaches to increase engagement.

More information: http://www.dairyaustralia.com.au/Standard-Items/Media-Releases/2015/May/06-05-Government-funds-dairy-R-and-D-to-build-a-more-profitable-industry.aspx

Consolidating targeted and practical extension services for Australian Farmers and Fishers

Project leader: Rural Industries RDC
Partners: Australian Egg Corporation Limited, Australian Grape and Wine Authority, Australian Pork Limited, Australian Wool Innovation, Cotton RDC, Dairy Australia, Grains RDC, Horticulture Innovation Australia Limited, Meat & Livestock Australia, Sugar Research and Development Corporation, Victorian Department of Primary Industries, Tasmanian Institute for Agriculture, Northern Territory Department of Primary Industries and Fisheries, NSW Local Land Services
Approved grant: $0.81 million
Total project investment: $1.63 million

This project is addressing the national issue of fragmentation of Australian agriculture extension activities which has been identified as reducing productivity and profitability for all stakeholders. Extension services have been a key approach in assisting Australian farmers and fishers to be responsive to change and be able to apply the latest innovation to their business. Over the last decade, the delivery of extension services has seen considerable change. In Australia we have extensive knowledge and expertise on extension options, implementation and needs but due to the considerable change that has occurred this knowledge is not readily accessible to inform decision making about optimising extension delivery as it could.

MIRprofit : integrating very large genomic and milk mid-infrared data to improve profitability of dairy cows

Project leader: Dairy Australia
Partners: Victorian Department of Economic Development; National Herd Improvement Association; Australian Dairy Herd Improvement Scheme; Teagasc; University of Liege
Approved grant: $0.927 million
Total project investment: $1.9 million

The project combines very large genomic datasets and phenotypes derived from mid-infrared spectra of milk samples which are routinely assayed on milk samples on a very large scale across the industry. We will integrate the genomic and MIR information to provide farmers with accurate predictions of which cows will be most profitable at each lactation, the basis for selection and culling decisions.

More information: http://www.dairyaustralia.com.au/Standard-Items/Media-Releases/2015/May/06-05-Government-funds-dairy-R-and-D-to-build-a-more-profitable-industry.aspx

Growing a profitable, innovative and collaborative Australian Yellowtail Kingfish aquaculture industry: bringing 'white' fish to the market

Project leader: Fisheries Research and Development Corporation
Partners: South Australian Research and Development Institute, Clean Seas Tuna Ltd, NSW Department of Primary Industries
Approved grant: $3 million
Total project investment: $6 million

The project aims to develop more cost effective Yellowtail Kingfish feeds and feeding strategies. This will drive immediate production gains for Yellowtail Kingfish aquaculture. An additional focus is to build a Yellowtail Kingfish aquaculture R&D network to strengthen adoption of research outcomes.

More information: http://frdc.com.au/knowledge/news_and_media/Pages/default.aspx#news