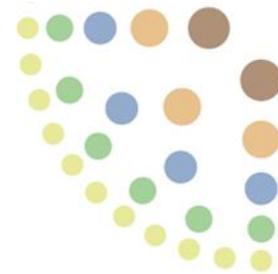




Australian Government
Rural Industries Research and
Development Corporation



16 April 2014

Agricultural Competitiveness Taskforce
Department of the Prime Minister and Cabinet
PO Box 6500
CANBERRA ACT 2600

Dear Sir / Madam

Thank you for the opportunity to contribute to the development of the White Paper on the Competitiveness of the Agriculture Sector.

Attached is the Rural Industries Research and Development Corporation's (RIRDC) submission on the Issues Paper.

RIRDC manages a broad industry and public-good research portfolio. The outcomes from the research go to many of the questions raised in the Issues Paper and may provide a useful input to the Government's policy process. We have summarised the key reports and outcomes in the submission.

Please do not hesitate to contact me if you would like any further information.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Craig Burns'.

Craig Burns
Managing Director





Australian Government

**Rural Industries Research and
Development Corporation**

Agricultural Competitiveness Issues Paper

**Submission from the Rural Industries Research and
Development Corporation**

16 April 2014

Rural Industries Research and Development Corporation
Level 2, 15 National Circuit
BARTON ACT 2600

PO Box 4776
KINGSTON ACT 2604

Phone: 02 6271 4100
Fax: 02 6271 4199
Email: rirdc@rirdc.gov.au
Web: <http://www.rirdc.gov.au>

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Introduction

The Rural Industries Research and Development Corporation (RIRDC) is one of the research and development corporations (RDCs) that undertake research on behalf of the Australian Government and primary production industries.

Approximately \$490 million is invested collectively each year through the RDCs (Productivity Commission, 2011). This investment is used to develop ideas and technologies to support the future productivity and profitability of Australia's agricultural industries.

RIRDC managed \$21.4 million of the national investment in 2012-13. \$4.6 million was contributed by industry through levies and \$14.6 million by the Australian Government in the form of matching contributions and Commonwealth appropriations.

RIRDC works with a wide range of rural industries, making it unique in the RDC framework. The RIRDC portfolio extends from new and emerging crops and animal products such as quinoa and tea tree oil, through to the \$255 million rice industry and the \$2.158 billion chicken meat industry. To help ensure an equitable and justifiable allocation of funding between portfolio industries, RIRDC has adopted a life cycle approach which measures an industry's level of maturity in the Australian market and directs investment decisions on this basis.

RIRDC also has a significant cross-sectoral, public good research, development and extension (RD&E) role, which again, makes it unique in the RDC context. This work is funded through Commonwealth appropriations and is directed towards broader research into issues such as workplace health and safety, trade, food security and leadership and capacity building in rural communities.

RIRDC welcomes the opportunity to contribute to the government's deliberations on the future of agricultural competitiveness. Our industry and public-good research responsibilities deal with many of the questions raised in the Issues Paper, and we have summarised the key reports and outcomes in this submission. The information is grouped under five headings:

- The value of RD&E
- Agricultural competitiveness
- Improving productivity and profitability
- Workforce issues
- Leadership and capacity building.

Links to RIRDC fact sheets and final reports are provided and further information can be made available if that would be of assistance.

Value of RD&E

The Productivity Commission's inquiry into the rural RDCs thoroughly examined the value of rural RD&E to industry and the broader community. In the process, the Commission questioned the justification for public expenditure on rural RD&E, in particular whether the government's investment was simply passing the cost of an already financially attractive proposition for the private sector to the taxpayer.

The Commission concluded that RD&E has a significant role to play in enhancing the productivity and competitiveness of Australia's agricultural industries, with significant payoffs for producers and the community from past investments. In relation to government investment, it found that genuine value could be generated where that funding induced additional, socially valuable research. It linked soundly based RD&E, partly supported by public funding, to broader benefits including improved food security and building stronger regional communities (Productivity Commission, 2011).

The Issues Paper suggests that Government remains supportive of the RDC model and understands the value that can be generated through government investment for specific outcomes. However, it does indicate that, through this Green Paper/White Paper process, the Government is keen to examine whether there are changes that could be made to improve the efficiency and effectiveness of current arrangements.

As noted in the Issues Paper, the Productivity Commission made a range of recommendations on how to improve the current system, some of which have been implemented and some of which have not. Of particular interest to RIRDC was the Commission's findings on the capacity of the current system to meet broader rural RD&E needs—where for example, the benefits of research flow to the wider community (public good) or are thinly spread across a wide range of industries (cross sectoral). The Commission argued that these were the areas in which government investment was actually most warranted and that, to drive the public good and cross sectoral research agenda, a separate non-industry RDC should be established.

RIRDC's view is that the challenge around how to most effectively address cross sectoral and public good RD&E remains.

There are many good examples of RDC collaboration occurring where there is a shared priority. However it is rare to attract funding from all RDCs and collaboration is less successful where there is a strong public good dimension rather than a direct benefit to levy payers of the investing industries. The transaction costs associated with project-level collaboration can also be prohibitively high, with a certain scale required before co-investment becomes a feasible option.

The issues which fall into the public good category include social and institutional issues: sustaining rural communities; food security; trade; investing in young farmers and capacity building. They also include resource management issues such as water efficiency, weed management, climate change adaptation and soil health. These are the types of issues identified in the Issues Paper as critical to the future of agricultural competitiveness, and as a result, the shortfalls identified by the Productivity Commission should be of interest to the Taskforce.

RIRDC's view, expressed in the Commission's Inquiry process, is that while the public good and cross sectoral RD&E investment needs to be strengthened, a separate RDC is not needed. RIRDC has a mandate to address exactly these types of issues and is already undertaking related research through its National Rural Issues and Global Challenges Program. RIRDC has demonstrated capability in selecting appropriate investments and in managing and brokering collaborations with other research agencies, including RDCs. RIRDC is also skilled in working with Australian Government agencies to deliver research products relevant to their policy deliberations. RIRDC's linkages with its portfolio

industries helps to ensure it remains informed about industry needs and priorities. Rather than establishing an additional RDC, RIRDC's view is that it would be more effective and efficient to confirm and further expand RIRDC's role in this type of research.

Agricultural competitiveness

What influences competitiveness?

The competitiveness of a country, industry or region is influenced by a range of factors. Attempts by the World Economic Forum, European Union and OECD to identify those influencing factors have variously included: institutions; infrastructure; macroeconomic environment; health and primary education; higher education and training; goods and labour market efficiency; financial market development; technological readiness; market size; business sophistication; innovation; growth in value added; growth in Balassa index (revealed competitive advantage); growth in export share; growth in labour productivity; productive capacity; trade and investment policy and industry institutionalisation. Other factors such as exchange rates, business confidence, reputation and supply chain relationships can also have an impact.

The World Economic Forum uses a range of these factors to develop its *Global Competitiveness Report 2013-14*. The report is an assessment of the competitiveness landscape of 148 economies, providing an insight into their productivity and prosperity. The report shows that Australia's competitiveness has declined since 2009-10, from a rank of 15th to 21st. Factors which are listed as positive contributors in Australia's ranking include its financial market development, higher education and training, the macroeconomic situation, reductions in the budget deficit, inflation and the public debt-to-GDP ratio. Areas assessed to be of concern include rigidity of the labour market and government regulatory burden (World Economic Forum, 2014).

While this assessment applies to the Australian economy as a whole, the conclusions have relevance to the different sectors that comprise the economy, including agriculture. The Issues Paper suggests that these matters will be considered in the Green Paper / White Paper's assessment of opportunities to improve agricultural competitiveness, and this approach should be supported. Importantly, the positives and negatives identified for Australia's national competitiveness are all influenced by policy discussions which fall outside agriculture portfolio. It would be beneficial to examine how well agriculture (policy, industry and research) engages in debate on these broader issues on an ongoing basis—for example, the policy discussions underway on Australia's energy future and infrastructure needs. From RIRDC's perspective, there is potential for government to work more closely with industry and research bodies to ensure that there is a coordinated portfolio of research in place to inform agriculture's input to policy debates which can profoundly affect its productivity and profitability.

Looking regionally

In addition to looking nationally at the factors that influence agricultural competitiveness, there is a need to understand competitiveness at a more local scale. RIRDC has commenced a program of work that is examining the factors affecting the performance of agriculture at a regional level. The rationale is that the factors influencing agricultural competitiveness play out differently on a region by region basis. There is value in working with industry and communities on this scale to develop a regionally relevant assessment of improving competitiveness, and in then considering the results across regions to identify common themes for consideration in state and national policy discussions.

An early project in North West Tasmania has developed a framework that could enable the contribution of the agricultural sector to be consistently and effectively considered. The framework considers the capital of a region (regional endowments), innovation (facilitators and inhibitors of productivity) and a range of scenarios for the future to develop possible actions (plans, strategies and policies) to influence future agriculture performance in a considered way. The results are still being

developed, but the process has revealed actions which are highly specific to the region: aiming to capitalise on regional endowments and productivity facilitators, and address inhibitors of productivity.

Further information can be provided on this work if required.

Competitiveness internationally

While domestic markets are important for Australian agriculture, approximately two thirds of production is exported. This position is unlikely to change given the exponential growth that has occurred, and continues to occur, in world trade.

Research which will soon be released by RIRDC shows that the world export of goods and services has increased from 12 per cent of world GDP in 1960 to 32 per cent in 2011 (Adams et al, 2013). Many factors have driven this growth, principally rising incomes in developing countries, falling costs of transport and communications as globalisation took hold, and falling protection for manufactured goods, particularly in developing countries. However, the most striking change has been the ‘hyperglobalisation’ of trade since the mid-1990s (Subramanian and Kessler, 2013). Facilitating agriculture’s participation in the growth in world trade is, and should remain, an important focus for the Australian Government.

A recent RIRDC report on the impact of Free Trade Agreements (FTAs) demonstrates the importance of strategically applying efforts to access international markets. The report, titled *The impacts of Free Trade Agreements on Australia, a model-based analysis*, examined the implications of recently implemented and potential future FTAs for Australian agriculture. Australia has been part of a general shift towards bilateral trade negotiations, however there are some major trading partners with which we have not secured an agreement where competitor exporting economies have. The report showed that Australia’s exports may be displaced in key markets by those competitors. However it also showed that there are potential benefits from new agreements that would more than offset the effects of those existing agreements where Australia is not a party.

A copy of the report can be found at: <https://rirdc.infoservices.com.au/items/14-013>

In addition to applying market access efforts strategically, it would be useful for the sector to develop a more detailed understanding of areas in which it has a comparative advantage and areas in which it is out-performed by competitors. This information, which we describe as a competitiveness index for agriculture, could be used to guide policy development and the application of limited resources towards improving the sector’s competitiveness internationally. RIRDC is currently considering work to further develop this concept and its potential value for the sector.

New and emerging industries

Exploring and fostering new and emerging industries are also an important part of securing future agricultural competitiveness. The value of these new industries should not be overlooked in terms of the opportunities that they offer to producers and to Australia as an exporter.

Over 60 per cent of farmers now have multiple enterprises, with diversification providing an opportunity to spread risk and build business resilience. The value of emerging industries is growing in this context. For example, industry statistics show that over the last five years, the value of production of the emerging plant industries has grown faster than the total of all plant-based industries in Australia. A recent study estimated the value of 30 of Australia’s emerging industries to be \$912 million per annum. Many of these industries are export oriented, with total exports of \$491 million per annum.

A continued investment in RD&E for these new and emerging industries is an important part of opening new markets and providing producers with opportunities to respond to changing consumer needs and fashions, and to increase their profitability and sustainability.

The potential for industries to develop around the use of Australian native plants is an interesting example. Research is showing that native plants and their extracts have considerable potential as functional foods, natural preservatives, shelf-life extenders for food-based agricultural products and as a basis for animal or plant health based formulations. There is strong interest from Asia in functional ingredients and products with complementary medical end-uses and there are opportunities for Australia to supply to the Chinese and Japanese market. Some of these industries have the potential to be developed in remote Indigenous communities, using enrichment planting methodologies consistent with important social and environmental co-benefits.

It is however, a long road from initial discoveries to the more widespread use of Australian native plants as agricultural products. Their development relies on cutting edge RD&E and innovations, many of which could have spillover benefits to other agricultural industries.

While RIRDC is not arguing for an undue focus on new and emerging industries by the Australian Government, providing space in the government's RD&E investment for this type of early work is an important part of creating future opportunities for farmers to improve their returns and for Australia to market high value, niche products overseas.

Opportunities in Northern Australia

The Issues Paper also discusses the opportunities that Northern Australia presents for Australian agriculture.

Northern Australia is undergoing an economic and demographic transformation, underpinned by major resource developments totaling tens of billions of dollars. Larger population centres have grown faster than other national and state populations, generating new infrastructure demands and a more dynamic economy. By 2050, over half the population will be Indigenous, with a large proportion living in remote communities. The area is also the frontline to Australia's Asian neighbours.

Northern Australia is however climatically, environmentally and culturally different from the rest of Australia. Indigenous people continue to live on large tracts of their ancestral lands and have a direct management responsibility for over 40 per cent, and recognised interests in over 80 per cent, of these lands. The region is home to immense biological and cultural diversity that is unique to the world. This uniqueness requires protection and respect to be managed sustainably into the future.

Agriculture, including aquaculture and fisheries, can play a strategically important part in transforming the region. It can diversify and balance regional economies by attracting private investment, developing trade with domestic and overseas markets, sustainably drawing on natural resources, creating demand for infrastructure development, working with and creating business opportunities for Indigenous communities, increasing local employment opportunities, improving liveability of local communities and creating demand for new skills.

There are already a number of exciting, new projects under way or at the feasibility stage. While these are optimistic developments, many similar endeavours have failed to meet expectations over the years and it is important to understand why. Climatic and soil constraints, and pest and disease outbreaks, have played a part, however these are now more manageable with better understanding and improved agronomic technologies and practices. The more common reasons for past failures were inadequate management, planning and financing over the development cycle, the inability to secure market access, and supply chain costs that were uncompetitive.

De-risking and lowering investment thresholds and strengthening comparative advantage of the North for accessing South-East Asian and domestic markets are crucial to sustainable agricultural development. How agricultural development projects work with Indigenous communities and with environmental and planning regulations is also crucial. Indigenous Traditional Owners in relevant regions expect to be actively included, and can assist with co-investment and brokering of appropriate Indigenous knowledge, and as a resident source of skills and labour. Governments of northern Australia have stated their intentions to harmonise planning requirements to reduce compliance costs.

The opportunity now is to bring entrepreneurial ingenuity and public investments in science, technology development and policy coordination together in new, effective ways. To achieve this, the Queensland, Western Australian and Northern Territory Governments, with a consortium of research, education and commercial partners have joined forces to bid for a new Cooperative Research Centre (CRC). If agreed by the Australian Government, the CRC would undertake the research and innovation, technology development and capacity building needed to transform ‘doing agribusiness’ in the north.

Its activities would cover strategic investigations to prioritise public investments in technologies and infrastructure for supply chain development and market access; investment criteria and thresholds for regional development success; science for sustainable water and land use which protects regional cultural and environmental values; enterprise-specific and general purpose innovation and technology development to support new and diversified agribusiness ventures; strategies for Indigenous economic participation and improving community livability; and knowledge exchange, education and training.

RIRDC is leading the CRC bid development and would strongly encourage Australian Government support for this coordinated and collaborative approach.

Climate adaptation

The Bureau of Meteorology and the CSIRO recently released the *State of the Climate 2014* which described changes to Australia’s climate: some of which have already occurred, and some of which are projected to come. The projections include continued increases in temperature for Australia, with more extremely hot days and fewer extremely cold days. Average rainfall for Southern Australia is projected to decrease, and with increases in heavy rainfall occurrences over most parts of Australia. There are also predicted changes in relation to drought frequency and intensity, extreme fire-weather days, tropical cyclones and sea level changes (Bureau of Meteorology and CSIRO, 2014).

Australia has a highly variable climate and farmers have been dealing with this reality for some time. However, the likelihood and consequence of projected long-term changes should be part of discussions about the future of agriculture—whether those discussions are occurring at the business or national level. While the Issues Paper makes reference to weather events and climate variability, there would be value in more explicitly considering climate adaptation needs for agriculture in the Green Paper / White Paper process. Such an approach should move beyond individual climate events and look to the challenges and opportunities presented by the types of changes projected in the *State of the Climate 2014*.

A considerable body of work is already underway in this area. RIRDC and other RDCs are involved in programs aimed at preparing farmers to deal with the challenges and opportunities of climate change. One example is the Climate Change Research Strategy for Primary Industries (CCRSPI) which aims to improve coordination of climate change research across research organisations. RIRDC is a partner in this strategy along with most of the other RDCs, the Australian Government, the states and territories and the CSIRO. While the CCRSPI partners are working collaboratively to address climate research needs, a strong statement around the importance of climate adaptation would provide valuable signal in terms of RD&E priorities.

There is also a significant opportunity for the Australian Government to engage more directly to progress the systems and tools needed to help manage climate risks. Many of the RDCs, including RIRDC, have been working in this area for their industries (and from a cross-sectoral perspective) for some time. An example is the Managing Climate Variability Program which has been investing for over 15 years to improve the reliability, timeliness and accuracy of seasonal forecasts. The Program has driven significant improvements in Australia's forecasting systems. However, as recent climatic extreme events—floods, cyclones, fires and drought—have shown, improved forecasting is needed by all rural industries, along with communities, the wider public and service providers such as Emergency Services and the insurance industry. Recent work under the Program has estimated that improved forecasting would deliver between \$0.96 and 1.93 billion per annum in quantifiable benefits to agriculture and an additional \$388 million in combined benefits to eleven other major sectors of the Australian economy. The Australian Government could achieve significant public good outcomes by using some of its \$100 million rural research commitment to broker a broader collaboration across the RDCs on tools and systems to manage climate risks, with flow on benefits to the Australian community more broadly.

RIRDC is also working directly with its industries on practices and technologies to deal with particular climate scenarios and events. An example is recent work with tropical primary industries to help reduce the damage caused by tropical cyclones. These events pose a significant risk for communities in Northern Australia, and the impact of Cyclone Larry and Cyclone Yasi highlighted the need for farmers to develop production strategies to mitigate the damaging effects. In response to this need, RIRDC commissioned two projects to identify and address cyclone-related issues for primary producers in northern Australia.

The first project, *Lessons learned from cyclones*, helped to identify on-farm operational practices that are more effective in withstanding cyclones. One 'stand-out' is the use of trellising for exotic tropical fruits, where trellised fruit was found to survive with little damage while nearby untrellised trees were destroyed. Practical steps such as removing the canopies from banana trees to reduce potential wind damage have also been developed, and were used with mixed success in the lead-up to Cyclone Yasi. Industry research has since further refined this strategy.

A copy of the report can be found at: <https://rirdc.infoservices.com.au/items/13-071>

The second project, *Improving the capacity of primary industries to withstand cyclonic winds*, is addressing ongoing operational practices as well as strategies to better prepare farmers in the event of a cyclone. This work is being conducted by the Queensland Department of Agriculture, Fisheries and Forestry and is a collaborative effort involving a number of government and private sources. In that project, insurance has emerged as a specific and significant financial risk management issue for primary producers in northern Australia. Insurance issues are being discussed with the insurance industry, and the possibility of a public-private partnership model is being explored. This approach is used overseas to protect growers from a range of natural disasters.

IMPROVING PRODUCTIVITY AND PROFITABILITY

Opportunities to reduce costs and improve productivity

The Issues Paper raises a number of questions about the potential to improve farm gate returns for producers. Australia's research system has an important contribution to make in this area by providing producers with options to improve their productivity and profitability through new industries, technologies and practices.

The emergence of microwave treatment for weed control is a good illustration of the way in which research activity can translate to productivity benefits to farmers.

Interest in microwave treatment has increased because of the rapid development of herbicide resistant weed biotypes and concerns about the impact of herbicides on human health and natural ecosystems. Microwave treatment is immediate, chemical free, and leaves no residue at the treatment site. Treatment can take place regardless of the prevailing weather conditions and there is no withholding period once treatment is completed. Microwave treatment also reduces the number of pathogenic organisms in the soil and increases the rumen digestibility of treated plant materials, such as ryegrass or crop stubbles, by about 10 per cent. These characteristics offer real benefits for farmers in a range of industries, including intensive horticultural enterprises, broadacre cropping and turf curation. The technology also has possible wider application: for example on public land, within municipal jurisdictions, in sporting facilities and by landscape gardeners.

RIRDC recently managed research to design, fabricate and test a microwave weed control system. We are now working with the other RDCs to further develop the applicability of the technology with a view to possible commercialisation internationally.

RIRDC's work with the beekeeping industry on options for trapping queen bees in the hive is another good example of the potential for research to significantly improve productivity of producers. This research, undertaken by the University of Sydney and industry, will deliver benefits to honey producers, but also to critical pollination services that honeybees provide for crop producers in Australia.

To maintain highly productive bee hives, beekeepers catch and replace the less productive queen bees. Searching by eye for the queen among the thousands of bees is very time consuming. Early results from the research indicate that a trap can be used to catch the queen without the beekeeper needing to locate her. The trap could save significant time and money for commercial beekeepers, some of whom have hundreds or thousands of hives, increasing the productivity of the beekeeper and the industry as a whole. The trap is also likely to be adopted internationally.

Developing new industries, technologies and practices is only part of the picture. Ensuring that farmers are aware of their options is a critical part of improving farm gate returns.

As part of its broader research responsibilities, RIRDC is currently in the process of developing an Australian-first online resource to help farmers identify diversification opportunities that are particularly suited to their farm and enterprise. This is a gap in the existing extension system. The website will not be a definitive or complete source of information. Rather, it will provide farmers with a starting point to identify options to complement, or amend, their existing operation.

The website, www.farmdiversity.com.au, is scheduled to go live in 2014 with approximately 100 plant and animal entries. The industries that the portal will cover include new and emerging industries from

within RIRDC's research portfolio, to major established industries such as wheat, dairy and beef cattle.

Biosecurity

Australia's pest and disease status impacts on the productivity and profitability of farmers and on the ability of Australian producers to make claims in relation to the quality of their products in international markets. Investment in the biosecurity system, including underpinning RD&E, is an issue that the Taskforce may wish to consider explicitly in the Green Paper / White Paper process.

The RDCs play an important role in Australia's post-border biosecurity system. They work with governments, industries and producers on a wide range of activities, from pest and disease response arrangements, through to the development and extension of good biosecurity practices to producers. In this context, RIRDC has a particular capacity to work across sectors on biosecurity programs that require national collaboration. This capacity is demonstrated through RIRDC's involvement in the National Weeds and Productivity Research Program, the plant industry response to myrtle rust and the delivery of the Pollination Program.

The National Weeds and Productivity Research Program was an Australian Government funded initiative which focused on cross-sectoral research to tackle the spread and impact of weeds across the country. RIRDC managed the program, which invested up to \$12.4 million in more than 50 research projects in 2011-12.

The program delivered a cross-sectoral approach to research and development on the weeds management. It also demonstrated the need for a more integrated approach to be adopted for managing pest and weed threats into the future. Weeds have a significant impact on agricultural productivity, and while substantial research continues through commodity groups, and national and international research institutions, the absence of national coordination undermines the potential of that aggregate investment. Given weeds do not respect the boundaries of agricultural systems or regions, a more integrated national approach would increase benefits from existing investment.

In the case of myrtle rust, RIRDC led the response for the relevant RIRDC plant industries. It supported a range of research projects for tea tree, native foods, essential oils and wildflower industries that were consistent with the broader national transition to management program. Chemical and farm-based management approaches to myrtle rust were considered and the residue levels were established for chemicals suggested on the emergency permits. Longer term breeding responses were developed and are now being integrated into established breeding programs. Noting that communication is key whenever biosecurity incursions occur across industry (large and small), environmental and community sectors, RIRDC supported a publication that was workshopped around the nation to inform stakeholders from all sectors about the identification and treatment of myrtle rust. A new range of scholars were also engaged in RD&E associated with the myrtle rust response. It is hoped that this will go some way to ensure Australia is well placed with respect to research capacity in the face of future incursions.

The Pollination Program, jointly funded by RIRDC and Horticulture Australia Limited, aims to secure the pollination of Australia's horticultural and agricultural crops into the future. A major recent focus has been preparing for the arrival of Varroa mite in Australia. Australia is the last major honey producing country in the world to be free of the mite that causes significant problems for the beekeeping industry. The value of Australia's Varroa-free status should not be underestimated. Approximately 65 per cent of Australian agricultural production depends on pollination by European honeybees. Crops vary in how much they rely on or respond to pollination by bees. Some industries, such as almonds, apples, pears and cherries, depend almost totally on bees for fruit and nut production. In 1999-2000, pollination services to the 35 most important honeybee dependent crops

were valued at \$1.7 billion (RIRDC and Horticulture Australia Limited, 2013). Many of these are horticultural crops, and that sector was valued at \$3.8 billion in the same period.

The Pollination Program has invested in research to identify ports at the highest risk of an incursion, increase the likelihood of detection, and prepare farmers and orchardists for how to live with the mite if it does become established in Australia. The Program is currently funding the modification of the National Bee Pest Surveillance Program, managed by Plant Health Australia and delivered by each state and territory, to incorporate the outcomes of Pollination Program investments.

Access to finance and infrastructure

The Issues Paper makes a strong link between access to finance and infrastructure, and the ability of farmers to grow their business and capitalise on new opportunities. RIRDC has produced several reports relevant to these matters.

The first, *Advancing the Securitisation of Australian Agriculture: Hybrid Equity*, was released in 2004. It built on an earlier RIRDC project *Efficient Equity and Credit Financing for the Rural Sector: New directions*. That original research examined the subject of rural financing in Australia, considering, from a financial sector viewpoint, how rural and agribusiness financing differed from mainstream contemporary practice in the financial sector. The later report was prepared because of evidence that, unlike other sectors of the Australian economy, agriculture had not enjoyed the benefits of sophisticated financial techniques, most particularly securitisation. The aim was to provide a reference document and platform for the progressive take-up and commercialisation of securitisation techniques. RIRDC is currently considering a further update to this report in a contemporary context.

A copy of the report can be found at: <https://rirdc.infoservices.com.au/downloads/04-055>.

The second, *Successful Land Leasing in Australia—A guide for farmers and their advisers*, released in 2011, was prepared to assist broadacre farmers and their advisers with decisions relating to the sustainable leasing of land. The report suggests that farm businesses may be able to improve their financial situation by leasing land and investing some of the income into land improvements. Land leasing is a relatively under-utilised form of tenure in Australia, although leasing and share-farming represent the most common alternate form of tenure after ownership. Traditional lease agreements have been placed under pressure by rising land prices and fluctuating incomes, leading to a search for alternatives.

The report aims to identify the circumstances under which leasing farm land represents a suitable form of business expansion. It examines how leased land can be managed in a sustainable manner that is fair to both landowner and tenant.

A copy of the report can be found at: <https://rirdc.infoservices.com.au/items/11-052>

The third report, prepared by the Centre for International Economics, deals with the issue of logistics and the ability to move farm produce through domestic and global food supply chains. Published in 2011, *Transport Infrastructure for Australia's Agricultural Needs*, found that the information base for infrastructure planning was limited both in terms of current flows and bottlenecks. It also found that existing transport task forecasting methods did not account for potential structural changes in agriculture. Instead, they tended to be based around aggregate agricultural production. Addressing these two issues were seen as a priority in terms of improved infrastructure planning. Finally, the report noted that agriculture is only one of many sectors that require transport infrastructure. Planning of infrastructure investments should consider the entire Australian freight task and likely volumes and patterns of demand for transport services.

A copy of the report can be found at: <https://rirdc.infoservices.com.au/items/11-096>

WORKFORCE ISSUES

The Issues Paper touches on a number of workforce issues relevant to the future of agriculture. They include questions about the next generation of farmers, where will they come from and how can they be attracted to farming, as well as issues around competition for workers. RIRDC conducted research resulting in a number of publications that offer useful information on these issues. The outcome of this research has been the initiation by RIRDC of a variety of programs to address workforce issues in agriculture (for example those described in the 'Leadership' section below).

Next generation of farmers

A new report published by RIRDC sheds light on the decline in the number of young farmers in agriculture: the factors behind the changes and how Australia is faring in this area relative to other countries.

The study, undertaken by Dr Neil Barr from the Victorian Department of the Environment and Primary Industries, reported that there has been a 75 per cent decrease in the number of young farmers (aged under 35) over the last 30 years. This is a significant decrease, however, the analysis found that at least 68 per cent of the decline is attributable to a decrease in the number of farms. The trend towards larger farms is part of the response to productivity and profitability challenges. However the implications of this in terms of opportunities for new entrants may not have been widely discussed.

The second biggest contributor to the decline in young farmers was found to be changes in the age structure of the Australian workforce more broadly. As baby-boomers age, they are increasing the share of the workforce in the older age groups. At the same time, younger Australians are entering the workforce later, lowering their share of the workforce. These changes have also occurred in agriculture, and explain approximately 10 per cent of the decline in the young farmer population.

The study also found that the decline relates to:

- Later farmer retirement
- Changes in the age of marriage which delays the entry of women farmers
- Declining attractiveness of farming as an occupation in comparison the opportunities that are available
- The distribution of farm sizes, with the statistics on young farmers influenced by the many small farms (and their associated older farmers) versus the smaller number of large farms (which tend to be the enterprises which attract younger farmers and which produce the bulk of Australia's agricultural output).

The report concludes there is little cause for concern over any link between farm sector structural ageing, low recruitment of younger persons into agriculture, and food security. In fact, the study found that Australia has a relatively young farmer population compared with other countries. The changes do however have implications for rural communities, including the types of services and support that may be required to support these communities in the future.

A summary of the report can be found here: <https://rirdc.infoservices.com.au/items/14-010>

Labour shortages and skilled labour

Without adequate supplies of labour, the economic and social functions of businesses are restricted, and the capacity for expansion is reduced. A report published by RIRDC in 2009 found that industries and communities within rural Australia had been particularly hard hit by labour shortages, with many small and medium businesses struggling to secure skilled and unskilled labour. The report, *Australia's Rural Workforce—An analysis of labour shortages in rural Australia*, was prepared by researchers at the University of Western Australia, and found that the causes of labour shortages were complex, related to a myriad of social, economic and political processes and were geographically and sectorally variable. Understanding this variability is fundamental to the design and implementation of effective strategies to tackle labour shortages.

Given current concerns around workforce issues, RIRDC is currently considering more research in this area. However, the findings of the previous study are worth noting. It found that skilled labour shortages in rural Australia tended to be caused by a general shortage of labour rather than a lack of adequately skilled workers. Overall labour shortages reflected the nationwide tightness in the labour market at the time. However, it was found that many rural businesses were feeling the impact of this tightness more severely than metropolitan counterparts due to the relatively small size of rural labour markets and the underlying difficulties in attracting and retaining labour.

Barriers to labour attraction and retention were widely regarded as being the most critical factors underpinning labour shortages across rural Australia. The most significant barriers to labour attraction and retention related to: negative perceptions of rural employment and lifestyle opportunities; limited health and education facilities and services; lower wages and cost of living considerations; and cost, availability and quality of housing.

A copy of the report can be found here: <https://rirdc.infoservices.com.au/items/09-008>

A 2010 RIRDC report analysed the issue of skilled labour in more detail. That report, *The Mobile Skilled Workforce—Optimising the benefits for rural communities*, found that many small rural communities found it difficult to attract skilled workers but had a flow of skilled people through the community as locums, seasonal workers or contractors. The study, undertaken by Professor Sue Kilpatrick and colleagues, investigated the question of how rural communities could capture maximum benefit from professional and other highly skilled workers in the context of an increasingly mobile and transitory workforce. It was the first Australian study of this nature.

The study found that the effectiveness of integration processes determined the nature and extent of the contribution that mobile skilled worker made to a rural community. Community settings that encouraged and supported mobile skilled worker integration were identified in terms of culture, leadership and interactional infrastructure. These same settings also influenced mobile skilled worker retention. It found that rural communities needed to be proactive in matching worker and community characteristics and that mobile skilled workers needed assistance and support to develop a primary social contract.

A copy of the report can be found here: <https://rirdc.infoservices.com.au/items/10-077>

RIRDC is also currently examining the contribution that immigrants make to productivity in the sector, as farm managers as well as workers, with a view to identifying how this can be enhanced in the future. Preliminary work has shown that immigrant communities historically have played a central role in the development of the agricultural sector in Australia, particularly in horticulture and market gardening. Yet while there has been some detailed research on immigrants in regional and rural Australia, there has been very little recent research specifically focused on immigrants in the agriculture sector. Amongst other things, the research is looking at where new immigrants are located, the capital (financial, human, cultural and social) that they bring with them, the contribution of

temporary immigrant labour, lessons that can be applied from overseas and policy implications for Australia.

Further information on this project can be provided if required.

Opportunities for Indigenous farmers

The opportunities for Indigenous Australians should also be considered in the context of questions around the agricultural workforce and future farmers. RIRDC has funded a project that is examining how to develop and implement an Indigenous workforce development strategy in rural Australia.

The research has recommended the adoption of an integrated approach to workforce development that sits on a firm foundation of established local support. It recognises that there are potential benefits to replacing the competitive project-funded approach to workforce development with a comprehensive and cooperative approach that responds to regional demand and is implemented by local service providers with a track record. The research highlights the benefits that the adoption of a community development model that considers the individual participant in the broader context of his/her family and community could contribute to the overall shortage of skilled workers in agriculture.

The framework has potential currency across Australia for regional development projects that involve establishing pathways to full employment for minority groups including refugees, migrants, volunteers as well as Indigenous people.

Further information on this project can be provided if required.

RIRDC has also recently completed a project for the Australian Government to help Indigenous pastoral businesses to become commercially viable and sustainable. The *Northern Australia Beef Strategy Indigenous Pastoral Project* was funded under the Northern Australia Sustainable Futures Program.

A central component is a step-by-step manual which helps both Indigenous pastoral enterprises and those Indigenous land owners wishing to become pastoral businesses. The manual aims to build on the relationships already forged between northern Australian extension staff and the Indigenous pastoral industry, and to provide them with a tool to enable them access to all available resources.

The manual incorporates the many resources, extension materials, and training programs already available. Case studies of successful Indigenous pastoral businesses are also included, aiming to assist in engendering community support and engagement of Indigenous youth in the Indigenous pastoral industry; as well as demonstrate some of the many pathways to success.

A key factor in the successful development of the manual was extensive consultation with stakeholder groups, including Indigenous pastoral communities, Indigenous pastoral companies, the Indigenous Land Corporation, jurisdiction extension officers and trainers and non-Indigenous pastoralists (focusing on properties who already work with Indigenous communities).

The manual was launched by the Minister for Agriculture earlier this year. A copy can be found here: <http://www.rirc.gov.au/publications>

LEADERSHIP AND CAPACITY BUILDING

Agriculture faces a significant challenge in feeding a rapidly growing global population. ABARES has identified farm and farm manager characteristics as important determinants of productivity growth, particularly the extent to which farmers are able to innovate (ABARES, 2014). A discussion panel at the conclusion of the 2014 ABARES Outlook Conference also focused extensively on the capacity of to innovate, implement new technologies and manage increasingly complex businesses as characteristics of a successful farmer. The development of skilled, educated, innovating and entrepreneurial people is therefore an important issue for future agricultural competitiveness.

There are a wide range of existing initiatives which contribute to leadership and capacity building in the agriculture workforce. Several of these are managed by RIRDC and are described below. There is however, a real need to have a more strategic, collaborative and coordinated approach across the RDCs, government, educational institutions and extension service providers in this area. The development of a skilled workforce strategy would help to ensure that existing resources are being deployed in the most effective way possible to meet future needs. This opportunity warrants further consideration in the context of the Australian Government's \$100 million research commitment and is an area of work that could potentially be progressed under the National RD&E Framework.

RIRDC Programs

RIRDC's Investing in People Program develops leadership and human capacity for primary industries and their communities and contributes to enhancing future labour supply to meet demand in primary industries for skilled occupations.

The three major initiatives within the Investing in People Program are the RIRDC Rural Women's Award, the Horizon Scholarship and Postgraduate Scholarships. The Program also invests in externally-run capacity building programs, such as ABC's Heywire youth program and the Australian Rural Leadership Program.

The RIRDC Rural Women's Award is Australia's pre-eminent award for rural women. The Award identifies and supports emerging leaders and change agents who have the capability and resources to drive innovation, productivity and sustainability within primary industries, and build economic and social development within rural communities.

The Award acknowledges that women offer a unique approach to leadership, which involves connecting and collaborating to effect change and influence, often without the need for position or authority. The Award also encourages primary industries and rural communities to embrace diversity in leadership to successfully navigate future challenges. Since its inception over 75 per cent of the alumni have gone on to positions of leadership. Outcomes from the Award have confirmed the flow-on effect of empowering women: holding true to the global view that if you empower one woman she will in turn empower four other people.

The Horizon Scholarship is targeted at young people who are passionate about agriculture and are keenly interested in the future of Australian agricultural industries. Through the program, RIRDC, in partnership with industry sponsors, supports undergraduates studying agriculture at university. They receive a bursary of \$5,000 per year for the duration of their degree along with annual industry work placements that give them first-hand exposure to modern agricultural practices, access to industry leaders, professional development workshops and opportunities to network and gain knowledge at a range of industry events.

The postgraduate scholarships program aims to foster research training in disciplines that contribute to the Corporation's research priorities. Currently the program provides funding for scholarships

covering a variety of subjects including new and emerging plants; natural resource management; political anthropology; plant molecular biology and bioinformatics, biofuels, ethanol, energy and plant sciences; genetics; biological science; marine science and management; and vaccine development.

Continuing this theme, RIRDC has recently commissioned work on entrepreneurship in agriculture. The project will examine the experiences, thinking, influences and characteristics that have shaped successful farm entrepreneurs. The aim is to provide an insight into how modern farmers can be better prepared to take advantage of emerging opportunities which could contribute to increasing profitability at a time when productivity growth is declining.

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