

## **Rural Industries Skill Training submission to the Australian Governments White Paper on Agricultural Competitiveness**

### **Executive summary**

This submission is aimed at providing background information and some proven strategies to address three of the key points raised in the White Paper Issues:

- improving farm gate returns, including drought management
- competitiveness through the value chain
- enhancing agricultural exports

### **Background**

- The gross value of sheep and cattle production on-farm exceeds \$13 billion per annum.
- Australia is well placed to capitalise on expanding Asian societies and other markets demanding produce of the highest quality.
- Farmer training builds capacity and leads to adoption of productivity-enhancing innovations that result in higher farm profits and greater self-reliance.
- Reduced numbers of graduates in agriculture science, reduced investment in research, development and extension and declining productivity growth will reduce our ability to meet the increasing demand for food and fibre.
- Rural Industries Skill Training (RIST) and its national network of trainers is the largest provider of training to the sheep and beef industries across Australia.
- Farmer training courses developed and managed by RIST have achieved unparalleled changes in on-farm management practices that are predicted to deliver more than \$0.5 billion to the Australian economy by 2020.
- A sound basis for government investment exists in extension and farmer training that will aid livestock producers and their industries to improve their global competitiveness by further investing in producer training. This would enable even greater gains in areas such as animal welfare and genetics and greater rates of return on federal governments' investments in Agricultural Rural Development Corporations and Cooperative Research Centres.

### **Value of livestock to the Australian economy**

Agriculture and livestock production play a vital role in Australia contributing to our social, economic and environmental sustainability. More than 40,000 beef farms and 30,000 sheep farms occupy and manage about 60% of Australia's landmass, and more than 200,000 people are directly employed full-time on these farms. The gross value of cattle and sheep production in 2011-12 was \$13.2 billion, comprising \$7.8 billion for cattle and calves and \$5.4 billion for sheep, lambs and wool. The economy wide benefits of sheep and cattle production, including indirect or flow-on economic

effects on income, employment or value adding along the supply chain, would exceed \$50 billion per year.

### **Opportunities for livestock production in Australia**

The prospects for agriculture and livestock production from Australia are huge, with the need to feed and cloth a booming world population that is expected to exceed 9 billion by 2050. Within the next decade, it is predicted that half the world's population will be on Australia's northern doorstep, and economic growth in the greater Asian region represents unparalleled opportunities for Australia's economy and livestock producers.

### **Challenges for livestock production in Australia**

The challenge for Australian agriculture and our livestock producers is to increase production to meet this increasing demand, at a time of declining arable land, declining terms of trade, less water and less human resources, increased climate variability and uncertainties regarding long-term climate change and climate change policy (Garnaut 2011). Farmers have demonstrated a capacity to adapt to these challenges and remain internationally competitive through improved efficiencies and productivity growth. Efficiency gains through development and successive adoption of new technologies and small short-term changes in management practices, achieved on the back of research and development, have enabled Australian agriculture to grow at 2.8% per annum over the three decades prior to 2003/4. However, over the last decade productivity growth has slowed to 1% per annum and even less for livestock producers. A number of poor seasons and a long-term reduction in public investment in Research Development and Extension (RD&E) have undoubtedly contributed to this decline in productivity across the sector. This illustrates the need for an increased spend on RD&E to ensure the industry can meet the increasing demand for our food and fibre. Building adaptive capacity to respond to climate variability and other shocks to the system are essential for the long-term sustainability of agriculture and livestock production in Australia.

### **Role of extension and building capacity**

The complexity of modern farm management places great demands on the skill, knowledge and capability of farm managers. Keeping abreast of the emerging technologies and innovations that can affect farm enterprises, and knowing how best to marshal the required resources for profitable farm production, is an important part of farm management. There is strong evidence that training increases the human capital of the farmer and this leads to adoption of productivity-enhancing innovations that result in higher farm profits (Kingwell and Xayavong 2014). Agricultural educators, administrators and policy makers need to be aware of the value generated by improved farm management. This implies a potentially beneficial role for continued productivity-enhancing research, complemented by education and extension activity to support farm management and boost farm performance.

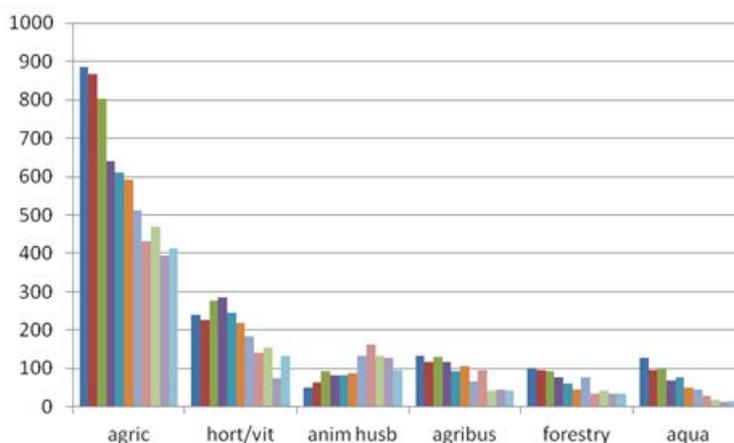
## **Sheep and beef extension landscape in Australia**

Extension to the beef and sheep industries is undertaken by Rural Development Corporations, like Meat and Livestock Australia (MLA) and Australian Wool Innovation (AWI), in partnership with state agencies, universities and the private sector to ensure their optimum and rapid adoption of innovations, thus maximising the return on investment in RD&E. In 2013, MLA and AWI invested around \$9 million in extension projects. The traditional public extension channel for disseminating information to farmers is in rapid decline. The extension capacity within state agencies has decreased by about 30% in the last 3-4 years, has lost significant expertise and credibility, and there is a significant shift towards the government role being considered a 'development' function rather than an 'extension delivery' function. This trend has been exacerbated by the recent cessation of the Beef CRC and the pending closure of the Future Farm CRC. Less than 50% of RDC expenditure in 2013 was for extension projects with state agencies, indicating that most extension services to the sheep and beef industry are now provided by the private sector.

There is no question that the reductions in productivity growth are aligned with reduced investment in RD&E. In contrast to Australia, other countries such as Brazil, Argentina and China are increasing their RD&E investment. Research and Development Corporation levy funds are being diverted to short-term delivery and extension type projects as state governments reduce their investment. Reinvigorating extension through building on successful private models is a headline strategy for the Blueprint for Australian Agriculture (2013-2020). Information overload, inconsistent messaging, access to information from electronic sources, as well as the changing structure of businesses from specialist to larger diversified operations, means that more efficient and targeted information delivery and skill building activities are required for the future.

## **Agricultural education and graduate employment**

Sustainable RD&E services, either public or private, to drive productivity growth in the livestock industry and agricultural in general are underpinned by agricultural education at undergraduate level. The Australian Council of Deans in Agriculture (ACDA) and agricultural graduate company, Rimfire Resources, have established that the job market has consistently required 5 to 6 times as many graduates as the Universities have been able to supply over the last 5 years (Pratley 2014). More than 90% of graduates in agriculture have full time employment within 8 months of graduation. However, during the period from 2001 to 2011, the real number of undergraduate completions in agricultural has declined from just under 900 to about 400, a 53% decline (Fig. 1). This is despite an increase in the number of completions for animal husbandry due to an increase in the number of universities offering the degree. Nevertheless, it is clear that if there is no action to boost government investment in tertiary education and RD&E related to agriculture, then our RD&E system will continue to decay and along with it our competitiveness in food production.



**Figure 1. Undergraduate completions for primary industries 2001-2011 inclusive (derived from DIISRTE data 2012) (from Pratley 2014).**

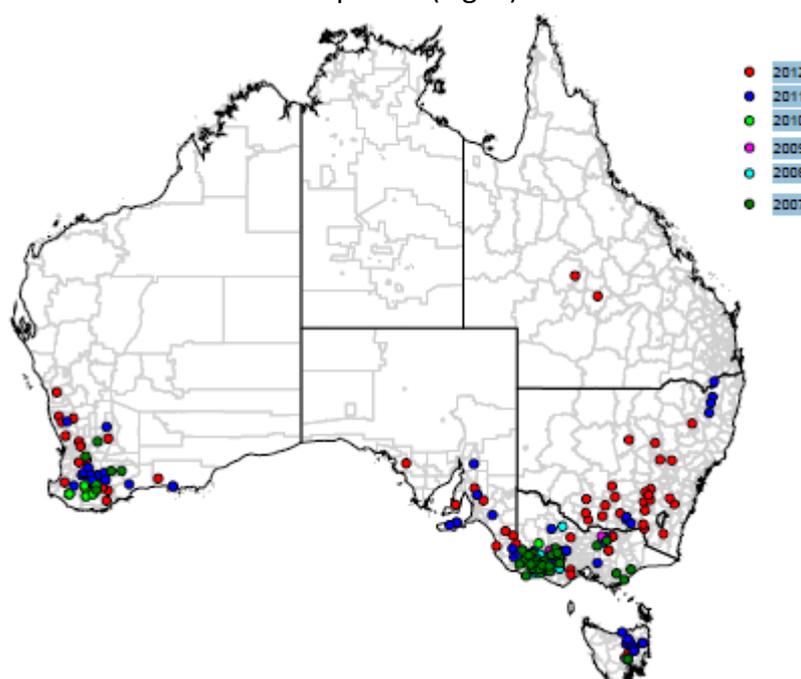
### Rural Industries Skill Training

Rural Industries Skill Training Inc. (RIST) is a Registered Training Organisation based in Hamilton, in southwest Victoria. RIST has been delivering accredited and non-accredited training across Australia since its establishment in 1992, and has trained over 17,200 students including 1,200 students in 2012/13. RIST has 14 staff and contracts with 65 trainers across Australia to deliver its training. It is the largest private provider of accredited and non-accredited training to the sheep and beef industries across Australia. The organisation delivers agriculture-focused training from Certificate II in Agriculture through to the Diploma of Agriculture, plus a wide range of shearing and wool handling qualifications and short courses such as Lifetime Ewe Management, High Performance Weaners, Lifetime Genes and Lifetime Beef Production.

Training courses developed, administered and delivered by RIST have achieved significant changes in farmers' behaviours and practices on farms across Australia. There have been major advances in understanding farmers' behaviours and motivations to change practices, and these principles underpin the training programs developed by RIST. Key attributes of these courses include working in small groups, farmers working with their own livestock, re-enforcement and skills development to build confidence over 12 to 24 months, hands-on experience and access to credible and local facilitators. Farmers' life goals and identity play an important role in the way they make decisions about their farming practices. RIST understands this heterogeneity of producers and recognises that a 'needs-based' approach to extension that is more responsive to the needs of individual farm businesses has a higher chance of success than a 'product push' extension approach that is often adopted. The latter often fails to recognise differences in needs, perspectives and preferences between producers and members within the family that influence decision-making. RIST's extensive network of trainers across Australia means that most trainers have local connections to the regions where the courses are delivered, so the trainers better appreciate the context in which farm management decisions are made.

## Lifetime Ewe Management case study

Lifetime Ewe Management (LTEM) is a flagship-training program for sheep producers across Australia. LTEM is designed to assist sheep producers to improve their understanding of ewe nutrition and to develop the skills and confidence to improve their management. More than 2000 producers managing more than 7 million breeding ewes or almost 20% of the National ewe flock have enrolled in the LTEM training program between 2006/07 and 2013/14. For the last two years, 60 to 70% of producer groups have been located outside Victoria and 55 to 65% of all groups have been located in the wheat-sheep zone (Fig. 2).



**Figure 2. National distribution of Lifetime Ewe Management producer groups across years; 2013 groups (n = 100) and 2014 groups (n = 120) are not shown.**

The LTEM training course is based on groups of 5 to 6 sheep producers who meet 6 times per year or 12 times over two years with a trained facilitator. During these hands-on sessions, the group visits each participating farm and learn skills in assessing pastures and livestock and best practice ewe and weaner management to increase reproduction efficiency and wool production, mainly through reducing ewe, lamb and weaner mortality.

A recent analysis of changes in attitudes, skills, management practices and productivity of producers who graduated from LTEM between 2008 and 2012 indicates that the impacts from participation in LTEM have been consistent across the five-year period. On average, participants increased stocking rates by 13% (7.9 vs. 9.1 DSE/ha), increased whole farm lambing marking percentage by 11% (92.7 vs. 103.7%) and reduced adult ewe mortality by 33% (4.0 vs. 2.7%) (Table 1). A comparison of lambing marking percentages in the different ABARE zones between 2006 and 2011 (2012 data not available) indicates that the productivity gains made

by participants of the two-year course, which have largely been located in the high rainfall zone, are almost entirely due to participation in LTEM rather than favorable seasonal conditions. The animal welfare benefits achieved by LTEM participants are massive, and this will again assist in marketing Australian lamb and wool both domestically and internationally as clean, green and ethically produced.

**Table 1. Average farm characteristics and productivity for producers prior to and after participating in Lifetime Ewe Management. This data represents the average of all participants that graduated between 2008 and 2012 as the responses were generally similar for participants across years.**

	Pre-LTEM	Post-LTEM
<i>Farm features</i>		
- Property size (ha)	1393	1455
- Area cropped (ha)	246	332
<i>Productivity settings</i>		
- Stocking rate (DSE/ha)	7.9	9.1
- Marking % - Whole farm	92.7	103.7
- Marking % - Cross bred	109.7	121.3
- Marking % - Merino to Merino	80.8	89.3
- Marking % - Merino to other	87.7	96.7
- Annual ewe mortality (%)	4.0	2.7

These productivity gains achieved by participants of LTEM can be attributed directly to changes in their use of management practices including managing pastures, managing ewes and their nutrition and measuring total flock performance (Table 2). The continual requirement for LTEM participants to make informed nutrition decisions not only developed their management skills but participants also underwent significant changes in their belief in the importance of managing ewes to condition score targets as a determinant of farm profitability.

It is clear that LTEM has had a very significant impact on the Australian sheep industry. An independent analysis, commissioned by Australian Wool Innovation, has indicated that its own investment in LTEM has and will deliver very significant returns to Australian sheep producers. The return on investment was estimated to be between \$19 and \$106 for every dollar invested in building the capacity of wool producers (Collins 2012). A separate analysis commissioned by RIST indicated a return on investment of about \$30 for every dollar invested (Young 2012).

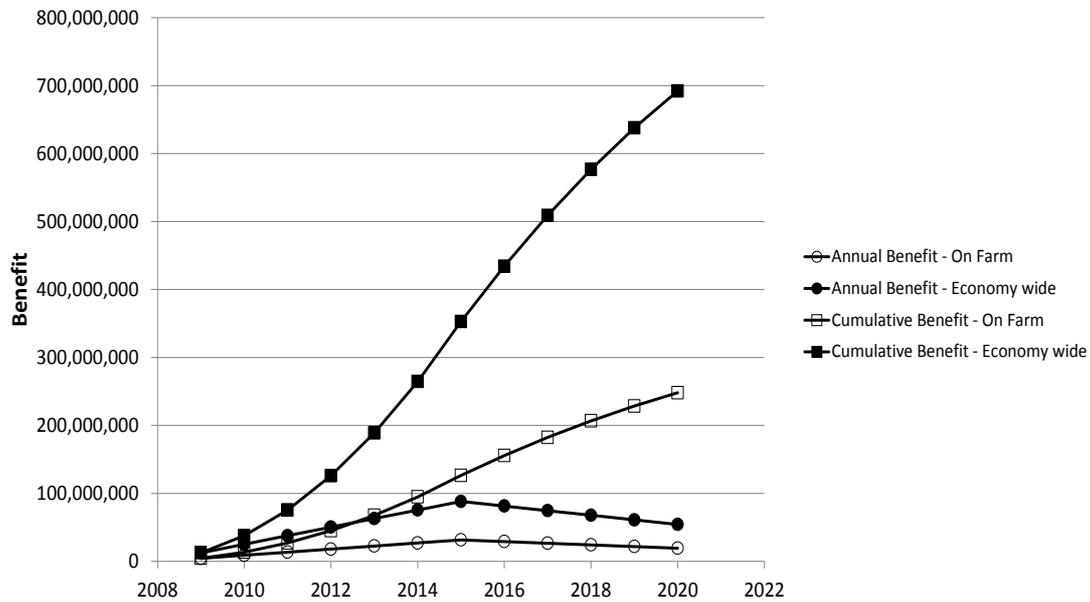
**Table 2. The proportion of Lifetime Ewe Management participants using specific pasture and sheep management practices prior to and after participating in LTEM. This data represents the average of all participants that graduated between 2008 and 2012 as the responses were generally similar for participants across years.**

Management skill	Pre-LTEM	Post-LTEM
<i>Managing pastures</i>		
- Assess feed on offer	16	82
- Assess pasture quality	13	83
<i>Managing ewes</i>		
- Condition scoring ewes	2	88
- Draft ewes on condition	0	48
- Pregnancy scan for multiples	17	55
<i>Managing ewe nutrition</i>		
- Manage to achieve CS profile	4	87
- Calculate energy balance	0	62
- Adjust rations after assessing ewes and pastures	1	70
- Paddock allocation based on energy balance	8	78
<i>Measuring performance</i>		
- Quantify lamb survival rates	6	52
- Quantify ewe mortality rates	27	68

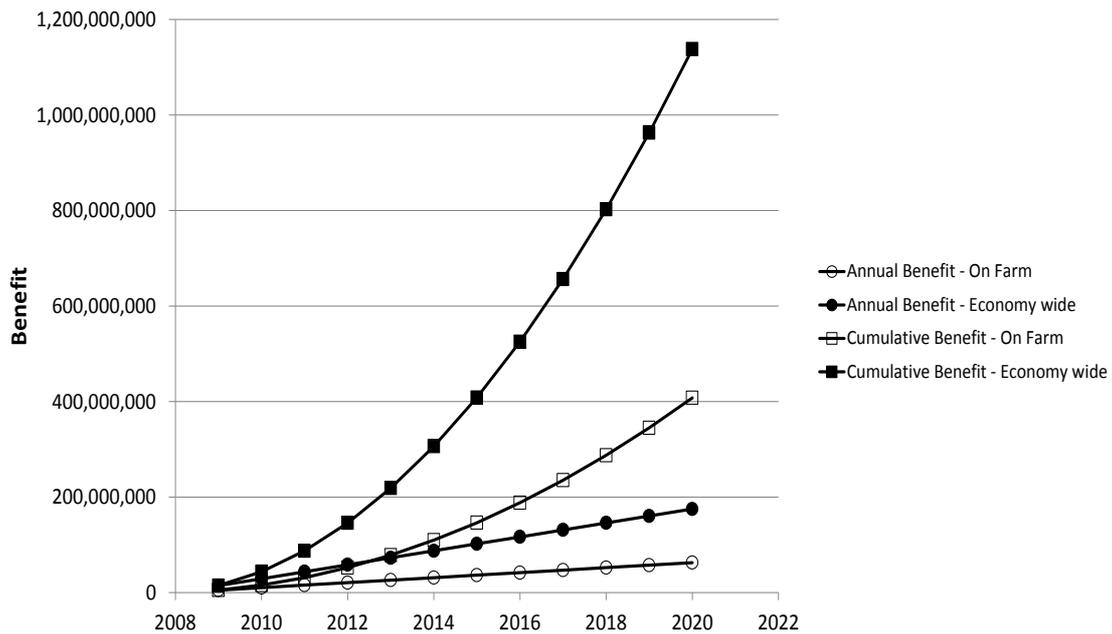
### **Funding farmer training and pay-offs to the Australian economy**

Farmers value training more when they need to pay for the service, and participating producers in LTEM have contributed one-third to the total cost, which is \$2,100 per farmer for 6 training sessions over 12 months. Australian Wool Innovation (AWI) or the Federal Government have paid for the balance via schemes such as the FarmReady program and AWI funding which is contracted until July-2014. The

cumulative on-farm benefits from funding of the LTEM program until July 2014 are estimated to be at least \$200M by 2020, and the industry wide benefits greater than \$600M (Fig. 3). We estimate that if funding could be extended by 4-5 years, then the industry wide benefits would exceed \$1B by 2020 (Fig. 3). Few if any other practice change programs for the sheep industry will achieve this impact.



**Figure 3. On-farm and economy wide benefits achieved from funding of the Lifetime Ewe Management program until 2013/14.**



**Figure 4. On-farm and economy wide benefits that could be achieved from funding of the Lifetime Ewe Management program until 2017/18.**

## Conclusion

The above case study of a significant proportion of sheep producers in Australia demonstrate emphatically that strategic investment by government in industry focused training will address the following issues raised in the White paper;

1. Improving farm gate returns for farmers and building their financial and management capabilities to manage drought.
2. Competitiveness through the values chain by addressing animal welfare issues and positioning their product in a premium class for world export.
3. Enhancing exports through greater productivity on farm, thus producing a larger quantity and higher quality export product.

The investment by Government does not have to be significant – as shown in the RiST Lifetime Ewe Management case study the return for each \$ of investment can be as produce between \$19 - \$106 benefit to the Australian economy.

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