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Rural Industries Research and
Development Corporation



RURAL INDUSTRIES
Research & Development Corporation

Animal Industries - New, Developing and Maturing

Five Year RD&E Plan 2013-2018



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**Rural Industries Research and
Development Corporation**

ANIMAL INDUSTRIES
**- New, Developing and
Maturing**

FIVE YEAR RD&E PLAN
2013-2018

October 2014

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Foreword

New, developing and maturing animal industries play an important part in the Australian agricultural landscape. In addition to contributing to Australia's economy, they provide alternative enterprises and in some cases, tourism and eco-benefits. Some could grow into major industries.

This Animal Industries Five Year RD&E Plan is the distillation of a significant effort to identify the salient opportunities to support new, developing and maturing animal industries through targeted research, development and extension (RD&E).

The profitability, productivity and sustainability of rural industries is RIRDC's core business, and the Corporation works with its portfolio industries to invest in their priority RD&E needs. RIRDC fosters strong relationships with industry partners, including the new and developing animal industries described in this Plan.

RIRDC has three strategies to increase profit and productivity in rural industries:

1. Undertake priority research development and extension which meets specific industry needs.
2. Facilitate investments which deliver economic, social and environmental benefits for rural industries and the broader community.
3. Adopt a life-cycle approach to investment in new, developing and established industries.

RIRDC takes a life-cycle approach to its investments in new and developing industries. This means that the investment made recognises the development stage of the industry – new, developing, maturing or established. Industries have different RD&E needs depending on their development stage. The life-cycle also encourages industries to co-invest in their RD&E needs as they progress along the development pathway.

RIRDC has worked closely with its animal industry and government stakeholders to prepare this plan, and will continue to engage with those stakeholders to ensure the outcomes of this plan are adopted and used.

Craig Burns

Managing Director

Rural Industries Research and Development Corporation

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What is a Five Year RD&E Plan?

This Five Year RD&E Plan has been developed by RIRDC, in consultation with animal industry stakeholders. The plan outlines the animal industries' research, development and extension (RD&E) objectives from 2013/14 until 2017/18. These objectives have been shaped by the goals and strategies of the RIRDC Corporate Plan 2012-2017 which is available on the RIRDC website, www.rirc.gov.au/about-rirc.

In preparing this Animal Industries Five Year RD&E Plan, the New and Emerging Industries National RD&E Strategy has been considered. The National RD&E Strategy sits under the Primary Industries Standing Committee RD&E Framework which aims to ensure more efficient and effective RD&E in primary industries, through better coordination and collaboration.

The Animal Industries (New, Developing and Maturing) Program

Profile of new, developing and maturing animal industries

The objective of the RIRDC Animal Industries Program is to conduct RD&E for new, developing and maturing animal industries that contribute to the profitability, sustainability and productivity of regional Australia. A wide range of industries fall within the program. Four of these (buffalo, deer, fibre goat and kangaroo) have statutory levies while a fifth, alpaca, makes an annual voluntary contribution to RD&E through its industry association. The remaining industries do not have a levy or voluntary contribution arrangement.

The new and developing livestock industries examined in this report (including aquaculture) had an estimated gross value of production of \$346 million in 2011–12, and they earned export revenue of around \$217 million (Foster 2013). In comparison, the annual value of all Australian livestock products in 2011–12 was \$21.2 billion. Some of the industries have the potential for significant growth. The new and developing industries also provide alternative enterprises for some farmers and make a valuable contribution to rural communities not only from a primary production perspective but also, in some cases, through tourism and eco-benefits.

A detailed description of the industries included in this Plan is provided by Foster (2013). A summary is provided in Table 1.

Table 1: Overview of industries included in this Plan

Industry	Annual turnover	Number of operators	Growth prospects	Industry assoc'n	Comments
Alpaca	\$2.6m (fibre only)	132,000 animals with average holdings of 25	Neutral / positive	Yes	Very active industry with voluntary contributions
Buffalo	\$1m (was up to \$5m)	12,000 on est. 65 farms	Positive	Yes	Industry has contracted with recent restrictions on the export of live animals. Reinvigorating this will be a key to increasing demand. Levy in place.
Deer	\$1.7m	45,000 farmed deer on 1,436 farms	Neutral	Yes	Very significant reduction over last decade plus. Lack of processing and supply chain issues may be an impediment. Levy in place, the industry has some funding in RIRDC reserves.
Fibre goat	Cashmere \$0.1m; Mohair \$1.45m	70,000 farmed goats on 5-600 holdings	Neutral	Yes (x2)	Industry has contracted. Availability of animal health products an issue. Lack of processing is perceived as a constraint to growth. Levy in place.

Industry	Annual turnover	Number of operators	Growth prospects	Industry assoc'n	Comments
Kangaroo	\$100M +; \$46m export only	Quota-based (1.7m compared to 5.4m quota)	Neutral	Yes	Opening of new or expanding existing markets a key need. Levy in place, the industry has some funding in RIRDC reserves.
Crocodile	\$15m	13	Neutral / positive	NT only	Growth potential but from increased scale of enterprise rather than new enterprises. Recent overseas investment
Dairy goat and sheep	\$16.5m	Goats - 63 Sheep - 13	Positive	Yes	Very active. Small number of large operators. Some key issues to address, including availability of animal health products
Duck	\$81m	2 primary, numerous out- growers	Positive	No	Two large operators – raises issue of private benefit versus public good from RIRDC funding. Many out-growers
Emu	\$1m	30 (approx.)	Neutral	Yes	Has retracted significantly over last decade but some emerging renewed confidence
Game bird	\$48m	Small number of big players. Many hobby farmers	Neutral	No	Turnover dominated by quail and turkey production. Other game birds relatively small by comparison
Marron	\$2.45m	18	Positive	Yes	Has growth potential. Can compete with high value lobster
Mulloway	\$0.5m	1 (?)	Early industry	No	Will depend on outcome of current project and response of industry
Rabbit	\$3.1m	<10 (?)	Negative	Previous but not now	Industry has regressed due to disease and welfare issues. But demand good
Redclaw	\$0.9m	240	Neutral / positive	Yes	Industry remains very positive. Recent R&D advances important. Renewed interest

Industry position in the RIRDC life cycle

RIRDC's commitment to new and developing industries is to support appropriate RD&E given their stage of maturity in the Australian market. RIRDC clearly defines its role as an investor in industries based on their development stage and the unique attributes of that industry.

The industries covered by this Plan are at various stages of development, as shown in Key: ● Hold funding until significant shift in status

- Progress to another industry RDC

- Continue funding

Figure 1. In the figure, the arrows where present indicate expected movement of the industry over the life of the Plan. The rationale behind the nominated stage for each industry is provided in Table 1.

Industry	New	Developing 1	Developing 2	Maturing	Established
Mulloy	● →				
Rabbit		●			
Crocodile		●			
Ostrich/emu		●			
Game bird		●			
Dairy goat and sheep		● →			
Redclaw		● →			
Marron		● →			
Duck			● →		
Deer			← ●		
Buffalo				●	
Fibre goat				●	
Alpaca				●	
Kangaroo				● - - - - - →	

- Key:
- Hold funding until significant shift in status
 - Progress to another industry RDC
 - Continue funding

Figure 1: Current and five-year projected life cycle stages of industries included in this Plan

Financial commitments

The statutory levy system provides for levy revenues from levied industries (buffalo, deer, fibre goat and kangaroo) to be matched by Federal funding, which comes to RIRDC through the Department of Agriculture levy collection service. Industries which make regular annual voluntary contributions (alpaca) receive matching core funding directly from RIRDC.

RIRDC will invest, from its core funding, in projects to assist non-levied industries and occasionally levy-funded industries where a strong case can be made. Project funding will be competitive across industries.

Preference will be given to projects with significant industry co-funding. Expectations regarding industry co-funding will be guided by the life cycle stage of the industry concerned. For some projects (especially within Objectives 1 and 3 – see below), joint co-funding from several industries will be applicable.

Animal Industries (New, Developing and Maturing) Program RD&E objectives, 2013-2018

Previous RD&E Plans: Review summary

This Plan replaces a series of previous plans:

- Deer Industry R&D Plan 2006-11;
- R&D Plan for the Buffalo Industry 2005-2010;
- Kangaroo Industry Strategic Plan 2005-2010;
- Rare Natural Animal Fibres Research and Development Plan 2009-14 (alpaca, fibre goat); and
- New Animal Products R&D Plan 2006-2009.

Because of the varying timeframes and formats of these plans, performance against them is only referred to in the industry plans below where directly relevant.

Animal Industries Program RD&E objectives, 2013-2018

Development of this plan involved the following stages:

- Review of previous plans, research papers and other relevant documents;
- An online survey, which was sent widely to industry members. The survey sought respondents' views on the major challenges facing their industry, and the most valuable RD&E and priorities for the industries future industry. 145 people responded to the survey across the various industries; and
- Direct telephone contact / interviews with 43 key people across the various industries (acknowledged in Appendix 1).

RIRDC is committed to achieving significant benefits to industry within its available resources, through the implementation of **targeted** and **high-impact** RD&E projects. The consultation process highlighted a number of issues that the Animal Industries Program considers roadblocks to growth and development. Of these impediments, those that can be addressed with targeted RD&E have shaped RIRDC's investment priorities for the next five years. Whilst not every problem raised can be addressed, these priorities aim to achieve high-impact, far-reaching benefits to the industries included in this Plan.

Objective 1: Provide new and developing animal industries with regular and up-to-date market assessments

Strategy

1. Commission market research (or internalise within RIRDC) to identify the market potential of particular industries (e.g. emu, marron)

Key performance indicators

- Two assessments per financial year with reports presented to industry

Rationale/impact

For most new and developing animal industries, the confidence to invest can be a major road-block – especially moving from a cottage style industry (Developing 1) to a commercial scale, and/or encouraging new entrants into an industry at the production or processing stage. Many industries are under-capitalised as a result. Independent assessment of the potential market demand and competitor analysis (e.g. for price points) for a product can provide valuable insights. This should also include a benchmarking analysis to assist existing and potential producers to understand cost of production and profit drivers.

Budget allocation

Approximately 10% of the program budget over 2013-2018 will be allocated to this objective.

Objective 2: Enhance industry success through targeted industry-specific RD&E

Strategies

1. Undertake ex-ante benefit/cost analyses (BCAs) of projects consistent with the priorities of this Plan
2. Conduct an ‘open call’ for research projects on a two-yearly basis. Specific directions should accompany the call, including that projects which have significant industry co-investment (cash or in-kind) and a clear route to market will be favourably received
3. Directly commission projects that RIRDC assesses as providing an adequate risk / reward profile where there are gaps following the open call

Listed below are current examples of specific RD&E that may warrant RIRDC support for non-levied industries. This list should not be seen as definitive or limiting in respect to what industries could apply for in any RD&E ‘open call’.

- A situation analysis of caprine arthritis encephalitis (CAE) in dairy goats, and/or development of cheaper testing procedures
- Nesting and watering requirements in commercial duck farms
- Selective breeding and commercial farming of redclaw
- Extension of results to industry from project ‘Optimising genetics, reproduction and nutrition of dairy sheep & goats’
- Nutritional requirements and genetic improvement in the marron industry

Priorities specific to the levied industries (buffalo, deer, fibre goat and kangaroo), and also alpaca, are listed in the relevant appendices to this Plan.

Key performance indicators

- Open call and project commissioning result in judicious investment in projects which address industry priorities and are thus supported by industry

Rationale/impact

There are numerous ‘researchable issues’ across the various levy and non-levy paying industries. However, there are insufficient funds available to tackle all. RIRDC will make strategic investment decisions to support elements of some industries while deferring investment in others.

Budget allocation

Approximately 60% of the program budget over 2013-2018 will be allocated to this objective.

Objective 3: Facilitate new industry growth through multi-disciplinary approaches that potentially advantage several industries

Strategies

1. Commission research on agreed cross-industry issues
2. Communicate outcomes of analyses to relevant industries

Example cross-industry projects include:

- Enabling technologies/systems and opportunities to progress genetic improvement across new and developing animal industries
- Industry preparedness for evolving animal welfare standards
- Industry preparedness for evolving biosecurity requirements
- The feasibility of processing capacity to accommodate multiple species
- New and developing animal industry preparedness for climate change

Key performance indicators

- Three cross-industry issues identified over the planning period and research commissioned

Rationale/impact

There are a number of issues that present impediments or opportunities to more than one industry. While many may require industry-specific investigation (e.g. nutrition, disease, animal husbandry) some may be successfully addressed in a cross-industry manner, providing benefit to several industries, and enhancing the value of RIRDC investment.

Budget allocation

Approximately 15% of the program budget over 2013-2018 will be allocated to this objective.

Objective 4: Improve capacity across new and developing animal industries

Strategy

1. Via an open call, seek expressions of interest for:
 - Proposals with a research and/or extension capacity building component, addressing the priorities above. This may include undergraduate student, Masters, PhD and/or Post-Doctoral participation, as well as the capacity building of experienced researcher and extension professionals from other agricultural industries.
 - Proposals which enable extension of existing R&D to RIRDC animal industries, through building the capacity of these industries to access R&D and then adopt it, leading to improved outcomes.

Key performance indicators

- At least one project per open call that incorporates undergraduate, Masters, PhD or Post-Doctoral participation

- At least one project per open call to build the capacity of a new, emerging or maturing industry

Rationale/impact

The continuous technical improvement of any industry relies on the availability of capable research and extension people to develop and extend new technologies for an industry, and the capacity of industry practitioners (farmers and service providers) to both access and if applicable adopt new R&D to improve industry outcomes.

Budget allocation

Approximately 15% of the program budget over 2013-2018 will be allocated to this objective.

These objectives will be reviewed annually, as part of RIRDC's Annual Program Review process. Further consultation and feedback will be sought from stakeholders, to adjust or amend objectives as the industries move through RIRDC life cycle stages.

Allocation of funding for these priorities will also be considered annually, as part of RIRDC's Annual Operating Plan (AOP). The AOP is available on the RIRDC website.

Animal Industries sub-program RD&E objectives, 2013-2018

The Animal Industries program comprises a number of sub-programs, for industries that have established an RD&E levy under the PIRD Act (1989). These sub-programs include the buffalo, deer, fibre goat and kangaroo industries, while the alpaca industry makes an annual voluntary contribution. RD&E objectives for these sub-programs can be found in Appendixes two to six of this Plan.

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RIRDC 2005, *R&D plan for the buffalo program 2005-2010*, RIRDC Publication No 05/031, Canberra.

Appendixes

Appendix 1: Interviewees for this Plan

The following individuals were consulted during the preparation of this Plan. Their contributions are gratefully acknowledged.

ALPACA

Fiona Vanderbeek

BUFFALO

Barry Lemcke

Michael Swart

Sam Brown (LiveCorp)

CROCODILE

Sally Isberg

Charlie Manolis

Grahame Webb

DAIRY GOAT & SHEEP

Justin Edselow

Anita Fogg

Sandra Baxendell

DEER

Stanley Brown

Milton Stephens

Jeff Varcoe

Andy Cowan

Ian Moir

Nola Anderson

Sue and Richard Coffin

Zvonko and Peta Repinac

Kevin Wilkie

Andrew and Marika McKinnon

Mike Kasprzac

DUCK

John Millington

Jeff Nutall

Glen Frazer

EMU

Chris Gregory

FIBRE GOAT

Andrew James

GAMEBIRD

Irek Malecki

KANGAROO

Doug Jobson

John Kelly

John Farr

Cliff Dee

MARRON

John Luckens

Sue Harris

Ron Robertson

MULLOWAY

Andrew Carroll

RABBIT

Margaret James

Roslyn Bathgate

Simon de Graaf

Daniel Brown

Gerrit van der Sluys

Nathan Nous

REDCLAW

John Stevenson

Colin Valverde

Appendix 2: RD&E plan for alpaca

Industry profile

Alpaca were introduced to Australia from Peru, Bolivia, Chile and North America from the late 1980s and numbered 132,000 in 2011/12. The herd has been in a building phase, a slow process given alpaca have a gestation period of 11 months and rarely have multiple births. The average size of alpaca holdings was 25 in 2009. More than 90% of Australian animals are of the Huacaya (as distinct from the Suri) type.

The focus on breeding up numbers in Australia has led to an extensive trade in breeding stock with little meat production. An estimated 188t of fibre was produced in 2011/12 for a gross value of \$2.6m.

The industry's peak body is the Australian Alpaca Association Ltd (AAA, www.alpaca.asn.au) which has 13 Regional Committees around Australia.

Donnelly & Teese (2011) found that:

- The industry association is strong and has been involved in the R&D agenda.
- The industry operates largely at sub-commercial scale. There is a large international commodity trade for the fibre, of which Australia is a small player, and a local cottage industry. The industry's global niche in the fine fibre market emphasises the opportunity to excel in quality through breeding and preparation.
- Alpaca has passed a period of speculative expansion and is expected to enter a downsizing phase. The need to scale up to broad acre level presents a challenge and to this extent the industry must offer comparable or better returns than fine wool.
- There is scope for genetic improvement of fleece yield and quality, and research has been addressing this opportunity. However, genetic gain will be hampered by ownership structures ('hobbyists / tree changers / stud breeding-showing'), reflected in the low uptake of an industry group breeding scheme, and this is unlikely to be altered by extension efforts.
- There is an urgent need for a reliable outlet for carcasses from surplus males and cull-for-age alpaca. Assistance in establishing offshore markets could be valuable but may not be an acceptable application of RIRDC funds. Focus on carcase revenue has been partly diminished by the status of many alpaca as companion and show animals.

Financial commitments

There is no levy on alpaca producers. Since 2006/07, the Australian Alpaca Association has made a voluntary contribution of \$40,000 per annum to RIRDC for investment in RD&E (\$20,000 pa prior to that).

RIRDC will provide matching Government funding for invested voluntary contributions from the alpaca industry subject to approval of projects.

Review of previous plan and industry consultation

A five-year R&D Plan for 2009-2014 has been in place for 'Rare and Natural Animal Fibres' (with cashmere and mohair principally, but also rabbit, camel, bison and llama). The plan has three goals:

1. Developing new opportunities
2. Stimulate industry partnerships and adoption
3. Increase competitiveness, capability and capacity

Alpaca industry participants were surveyed and interviewed as part of the development of this Plan. Major impediments to growth identified by respondents were:

- The small size of the industry

- Decline in world markets
- Lack of availability of facilities to process fleece in Australia
- Non-participation in the meat trade
- Lack of alpaca-specific husbandry information
- Costs of inputs.

Sub-program RD&E objectives 2013-2018

The four objectives of the Animal Industries RD&E Plan are applicable.

In relation to *Objective 2: Enhance industry success through targeted industry-specific RD&E*, the industry will maintain an open view on potential RD&E projects over the period of the Plan, with each proposal evaluated on its merits. Broad areas of priority are:

- Genetic evaluation: research into breeding values and genomic tools relating to fibre yield and quality and significant disease traits, and the further development and uptake of the Across-Flock Genetic Evaluation (AGE) system
- Alpaca-specific husbandry advancements, such as label extensions of animal health products, disease management more broadly, and nutrition
- Improved fleece harvesting
- Market research into on-shore fibre processing (in collaboration with other rare natural fibre industries), and also into the development of a meat market for alpaca, including processing options

In addition, the industry will seek opportunities to extend the outcomes from recent and existing research (*Factors impacting Australian alpaca meat and methods to improve quality*; and *Alpaca immunoglobulins phase 2*).

Appendix 3: RD&E plan for buffalo

Industry profile

Buffalo are farmed for either meat or milk. There were approximately 65 buffalo farms across Australia in 2012 with an estimated total of about 12,000 buffaloes. Most of the Riverine buffalo (milking) in Australia are located in five buffalo dairy enterprises in Victoria, Queensland and the Northern Territory.

The industry was significantly affected by the 2011 ban on live exports to Indonesia and its subsequent inability to comply with the new requirements of the Exporter Supply Chain Assurance Scheme (ESCAS) following the trade's re-opening. As a result the gross value of the meat production component of the Australian buffalo industry in 2011–12 was down to only \$841,000 (from around \$5m annually), comprising a small number of live exports and a couple of hundred animals slaughtered.

A federal levy on buffalo slaughtered and exported live has been in place for over forty years. There is an Australian Buffalo Industry Council (www.buffaloaustralia.org) which provides information about the buffalo industry with contacts in each Australian state and territory. There is also a free quarterly newsletter, Buffalo News.

Donnelly and Teese (2011) found that:

- Most of the R&D undertaken in the industry had focused on improving the genetic base via cross-breeding, AI and semen importation (where previous problems have been ironed out). There has also been a focus on branded meat product, and a better understanding of buffalo milk composition and processing characteristics.
- There are now few researchable issues that require attention.
- For the meat component of the industry, one of the biggest impediments is the lack of abattoir facilities in the NT (and elsewhere across Australia – especially for Halal processing). For dairy, it is the lack of availability of quality female stock.
- A new requirement in NSW requires any persons keeping buffalo (non-indigenous animals) to have a licence to do so. Certain fencing and security measures must be met as well as comprehensive livestock records and an annual stock return is to be presented to the Department of Primary Industries. The long term aim of the buffalo industry is to have buffalo reclassified as domestic animals such as sheep and cattle, thus eliminating the need for licensing.

Financial commitments

The statutory levy system provides for levy revenues from levied industries (buffalo, deer, fibre goat and kangaroo) to be matched by Federal funding, which comes to RIRDC through the Department of Agriculture levy collection service.

The industry had RIRDC reserves of \$63,000 at the start of this Plan. It is anticipated that these reserves will be drawn down given the current low level of levy revenue.

Review of previous plan and industry consultation

RIRDC produced an R&D Plan for the Buffalo Program covering the period 2005-2010. Given the length of time since the demise of this Plan, its outcomes have not been reviewed for this current Plan.

Buffalo industry participants were surveyed and interviewed as part of the development of this Plan. Major impediments to growth identified by respondents were:

- The cessation of live exports in 2011. For the industry to grow, or at least return to its previous state, solutions hindering the live export of animals need to be found (specifically in relation to live export preparation and in-market stunning – ability to comply with ESCAS and Halal requirements).

- Lack of local abattoir availability (especially in NT for export and Halal-certified elsewhere).
- Lack of volume to fulfil potential market demand. Many consider that for both meat and milk, there is unmet demand.
- Predominance of small herds.
- NSW government regulation.
- Lack of readily available information on dairy buffalo management in southern Australia (nutrition, supplementation, parasite control etc)

Sub-program RD&E objectives 2013-2018

The four objectives of the Animal Industries RD&E Plan are applicable.

In relation to *Objective 2: Enhance industry success through targeted industry-specific RD&E*, the industry will maintain an open view on potential RD&E projects over the period of the Plan, with each proposal evaluated on its merits. Broad areas of priority are:

- Reinvigoration of the live export program, especially stunning procedures, to allow compliance with ESCAS and Halal
- Examination of opportunities for local processing facilities (including Halal)
- Compilation of specific information for buffalo management (meat and milk)
- Distribution of milk composition information to industry and general public
- Monitoring genetic improvement in buffalo dairying and providing support as possible (e.g. encourage producer input of data into Breedplan to identify superior dairy genetics in Riverines)

In addition, the industry will seek opportunities to extend the outcomes from recent and existing research (for example, *Enhancing productivity improvements in the Australian buffalo* and *Characterisation of buffalo milk, cheese and yoghurt properties*).

Appendix 4: RD&E plan for deer

Industry profile

There were around 190,000 farmed deer in Australia in 1997/98, almost 90% of which were Fallow or Red. Numbers started to decrease from 2002 when the prolonged drought took hold and by 2010/11 there were 45,000 farmed deer on 1,436 farms. In 2011/12 it is estimated that 5,784 deer were slaughtered (223t) in Australia, just 12% of the 2002/03 kill. The gross value of the industry was around \$1.7m in 2011/12 and approximately 85% of venison is exported. In addition, around 12t of velvet antler was produced in 2011/12 at an average export value of \$65.11/kg. Over 95% was exported.

The industry's peak body is the Deer Industry Association of Australia (DIAA, www.deerfarming.com.au) which has around 130 members in 2013. The DIAA produced a hard-copy quarterly magazine, Australian Deer Farming, until May 2013. The newsletter continues to be distributed to members by email.

Donnelly and Teese (2011) found that:

- There has been industry R&D across three of its four strategic areas (see below), but investment in supply chain efficiency was lower than planned. A major value chain project funded by federal funds had had little impact and was not highly regarded. There is a 'supply chain weakness in high-end product development and market servicing'.
- The key issues identified in the R&D Plan had not been addressed to any degree:
 - Declining economic viability
 - Lack of consumer awareness
 - Underutilisation of the deer carcase
 - Lack of suitable product specifications and feedback
 - Competition from NZ at the high quality end of the food service market.
- Industry stakeholders saw little need for additional production R&D. There are extensive reference and training materials available to existing and new industry participants.
- The industry has major issues with industry development, including market development, improving scale, improving technical efficiency and addressing constraints in slaughter and domestic marketing of venison.
- There may not be sufficient industry cohesion to formulate an agreed R&D agenda. Support could be provided to industry leaders to assist proactive RD&E prioritisation.

Financial commitments

The statutory levy system provides for levy revenues from levied industries (buffalo, deer, fibre goat and kangaroo) to be matched by Federal funding, which comes to RIRDC through the Department of Agriculture levy collection service.

The industry had RIRDC reserves of \$348,000 at the start of this Plan. It is anticipated that these reserves will be drawn down given the current low level of levy revenue.

Review of previous plan and industry consultation

RIRDC produced an R&D Plan for the Deer Program covering the period 2006-2011. Given the length of time since the demise of this Plan, its outcomes have not been reviewed for this current Plan (but see comments above by Donnelly and Teese 2011).

Deer industry participants were surveyed and interviewed as part of the development of this Plan. Major impediments to growth identified by respondents were:

- (Export) abattoir access and availability, within a reasonable distance, including carcass weight restrictions – by far the most prominent issue raised (over half of respondents to the survey)
- Lack of volume and economies of scale, including industry dispersion

- Inadequate, or ineffective, product marketing

Other, more R&D-focussed impediments were identified by a small number of survey respondents, including genetics, nutrition, a lack of market for breeding stock, movement protocols for deer from tick declared areas, compliance, and a lack of commercial farmers / leaders in the industry.

Sub-program RD&E objectives 2013-2018

The four objectives of the Animal Industries RD&E Plan are applicable.

In relation to *Objective 2: Enhance industry success through targeted industry-specific RD&E*, the industry will maintain an open view on potential RD&E projects over the period of the Plan, with each proposal evaluated on its merits. Broad areas of priority are:

- Improved handling and restraint facilities
- Improved genetics
- Research to identify impediments to deer processing
- Research on opportunities for multi-species processing
- Extension / training for producers on working with processors to facilitate deer handling and slaughter

Appendix 5: RD&E plan for fibre goat

Industry profile

The Australian cashmere industry was established in the 1970s and expanded in the 1980s but has since declined. In 2012, there were about 10,000 cashmere goats in Australia, down from 13,000 (75 farms) in 2006. Total production of fibre was 3t (hair in) and 1t (dehaired) for a gross value of \$88,000. Since 2004, most of the clip has been purchased from growers by a processor in Bacchus Marsh, Victoria.

Australian mohair production was estimated to be 137t in 2011/12, with a gross value of \$1.45m. This is a substantial reduction from the peak of 1200t in 1989. In 2006, there was estimated to be 59,000 Angora goats in Australia on 500 holdings, with 50% of total production in the hands of 30 commercial producers. Most mohair is classed and sold through the industry-controlled broker the Australian Mohair Marketing Organisation based in Narrandera, NSW. Sale is through auction or private treaty.

The relevant peak bodies are the Australian Cashmere Growers Association (ACGA, www.acga.org.au) and Mohair Australia Ltd (www.mohair.org.au).

Donnelly and Teese (2011) found that:

- The industry associations are strong and have been involved in the R&D agenda.
- The industry operates largely at a sub-commercial scale. There is a large international commodity trade for the fibre, of which Australia is a small player, and a local cottage industry. The industry's global niche in the fine fibre market emphasises the opportunity to excel in quality through breeding and preparation.
- Both cashmere and mohair industries have been contracting in size.
- The primary challenge for cashmere is increasing the yield of fine fibre, for which genetic improvement offers a solution. Mohair could also be improved by breeding. A central breeding scheme has not been taken up.
- Increased scale is needed in the industry to drive genetic improvement and therefore economic efficiency.

Financial commitments

The statutory levy system provides for levy revenues from levied industries (buffalo, deer, fibre goat and kangaroo) to be matched by Federal funding, which comes to RIRDC through the Department of Agriculture levy collection service.

The industry had RIRDC reserves of \$47,000 at the start of this Plan.

Review of previous plan and industry consultation

A five-year R&D Plan for 2009-2014 has been in place for 'Rare and Natural Animal Fibres' (with alpaca principally, but also rabbit, camel, bison and llama). The plan has three goals:

1. Developing new opportunities
2. Stimulate industry partnerships and adoption
3. Increase competitiveness, capability and capacity

Fibre goat industry participants were surveyed and interviewed as part of the development of this Plan. Major impediments to growth identified by respondents were:

- Limited scale
- Limited profitability
- Availability of effective animal health products
- Long payment times for fibre

- Lack of regular fibre sales
- Lack of options to scour fibre
- Retaining industry participants

Sub-program RD&E objectives 2013-2018

The four objectives of the Animal Industries RD&E Plan are applicable.

In relation to *Objective 2: Enhance industry success through targeted industry-specific RD&E*, the industry will maintain an open view on potential RD&E projects over the period of the Plan, with each proposal evaluated on its merits. Broad areas of priority are:

- Genetic evaluation and improvement: building upon previous work, with a focus on increasing fibre yield and quality
- Goat-specific husbandry advancements, such as label extensions of animal health products, disease management more broadly and nutrition, in collaboration with the RIRDC dairy goat program and MLA meat goat program
- Market research into on-shore fibre processing (in collaboration with other rare natural fibre industries)
- Extension of outcomes from previous projects, especially through the consolidation of online resources

Appendix 6: RD&E plan for kangaroo

Industry profile

The kangaroo industry is highly regulated and operates under a quota system (usually 10 to 20% of the population of the four allowed species) administered by the state and federal governments. All 'harvesters' must be accredited and licensed by state agencies and must operate under strict hygiene and animal welfare Codes of Practice. About 60-70% of kangaroos taken are processed for pet meat, and the rest for human consumption. Approximately 70% of human consumption production is exported.

Due to the withdrawal of the Russian market a couple of years ago, the industry has been quite depressed, with the total commercial harvest of kangaroos being around 1.7 million in 2011–12, less than one-third of the quota (5.4m), with a gross value of around \$20 million. Total GVP for the industry is estimated to be approximately \$100m with total exports of kangaroo meat and skins in 2011/12 being valued at \$46m, skins being the major contributor.

There is a Kangaroo Industry Association of Australia (www.kangaroo-industry.asn.au).

Donnelly and Teese (2011) found that:

- The industry has a Strategic Plan, but many of the activities in the plan are focussed on market development and do not readily comply with definitions of rural research and development.
- RIRDC's support for training harvesters in meat hygiene was a useful recent contribution.
- Due (mainly) to the Russian situation, the industry has been in a depressed state, although there are indications that some opening of the Russian market is starting.
- There appears to be potential for growth.
- The biggest challenge appears to be protecting and defending its public image (a licence to operate). The industry also sees kangaroo meat as a 'new product' given its relatively short time in the market in Australia (only about 15 years), and even more recently overseas. Industry considers both these areas as eligible for RIRDC RD&E support.
- The authors see benchmarking across processing plants and the development of 'ready-to-eat' meals as possible R&D opportunities.
- Depending on definitions / policy, there is a large body of work that could be done in better defining market needs and product presentation / specification for different markets.
- There has been a build-up in levy reserves.
- Improved inter-relationship between farmers and harvesters would help the industry.

Financial commitments

The statutory levy system provides for levy revenues from levied industries (buffalo, deer, fibre goat and kangaroo) to be matched by Federal funding, which comes to RIRDC through the Department of Agriculture levy collection service.

The industry had RIRDC reserves of \$256,000 at the start of this Plan.

Review of previous plan and industry consultation

The kangaroo industry had a five-year Strategic Plan for 2005-2010. Given the length of time since the demise of this Plan, its outcomes have not been reviewed for this current Plan (but see comments above by Donnelly and Teese 2011).

Kangaroo industry participants were surveyed and interviewed as part of the development of this Plan. Major impediments to growth identified by respondents were:

- Marketing and market development
- Export market access

- Further development of the skin market
- Quality control
- Exchange rates
- Social licence to operate
- Increasing costs on all fronts

Sub-program RD&E objectives 2013-2018

The four objectives of the Animal Industries RD&E Plan are applicable.

In relation to *Objective 2: Enhance industry success through targeted industry-specific RD&E*, the industry will maintain an open view on potential RD&E projects over the period of the Plan, with each proposal evaluated on its merits. Broad areas of priority are:

- Research into potential for expanded existing or developing of new markets
- Understanding and meeting market specifications (lower cuts and prime cuts (e.g. for Western Europe))
- Capacity building of industry participants (training)
- Extension of project information on *Improving the welfare and humaneness of commercially harvested kangaroos*
- Reinforcing the licence to operate (there is an existing research project along these lines, including *Characterising the Australian public and communicating about kangaroo management*)
- Enhancing manufactured leather product development

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