

NEW AND EMERGING INDUSTRIES

National Research, Development and Extension Strategy



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Extension Strategy

August 2010

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Abbreviations and Acronyms

DAFF	Department of Agriculture, Fisheries and Forestry
CSIRO	Australian Government Scientific and Industrial Research Organisation
DAFWA	Department of Agriculture and Food, Western Australia
DEEDI	Department of Employment, Economic Development & Innovation (Qld)
GVP	Gross value of production
NRIA	New Rural Industries Australia (NRIA)
NSWII	Industry and Investment NSW
NTDOR	Northern Territory Department of Resources
PIMC	Primary Industries Ministerial Council
PISC	Primary Industries Standing Committee
RIRDC	Rural Industries Research & Development Corporation
RD&E	Research, development & extension
RDCs	R&D corporations and industry-owned companies
SARDI	South Australian Research and Development Institute
TASDPI&W	Tasmanian Department of Primary Industries, Parks, Water and Environment
VICDPI	Department of Primary Industries, Victoria

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Executive Summary

Background and Context

The New and Emerging Industries National Research Development and Extension Strategy is a component of the National Primary Industries Research, Development and Extension Framework, endorsed by the Primary Industries Ministerial Council. The aim of the Framework is that primary industry RD&E will become more efficient and effective through better coordination and collaboration.

Industry Overview

New and emerging animal and plant industries make significant contributions to the regions in which they operate by bringing diversity and resilience to the rural sector. They also contribute to the increasingly important niche and specialty food markets.

Together the selected emerging industries have an estimated gross value of production of \$411 million. They earned estimated export revenue of \$240 million. These values are likely to grow in future years because — as the term ‘emerging’ suggests — many of the emerging industries appear to have strong growth prospects.

The emerging animal industries in Australia produce a range of products, including meat, milk, fibre, skins and fat. The estimated annual average value in Australia of the emerging livestock industries examined in this report was around \$202 million in 2006-07 (Foster 09).

The emerging plant industries in Australia are largely horticultural industries rather than broadacre cropping industries. The estimated value in Australia of emerging plant industries is \$210 million in 2006-07.

New and Emerging Industries Resource Analysis

RD&E for new and emerging industries is largely funded by RIRDC, 51.2% for animal RD&E, and 31% for plants. State departments contribute significant cash funding for new plant industry RD&E (33.2%), but very little to new animal RD&E (10.4%). While the university sector is heavily involved in new and emerging industry RD&E, cash contribution is low at 8.6% for plants, and 7.6% for animals. Other contributors, largely made up of industry contributions, and private investment made up a significant contribution of 25% for plants and 27.4% for animals. CSIRO has reduced cash input into new industry RD&E to a small contribution to plants only.

Animal industries receiving the highest overall funding (cash and in-kind) include game birds, crocodile and alpacas, while wildflowers and native plants, tea tree, native grasses and olives were the best supported of the plant industries.

Production RD&E made up 24% of all projects for both plants and animals. Reproduction and genetics followed with 23% for animals. New product RD&E was the second largest focus area for plants, at 19% (see graphs p12).

Improving the Coordination of New and Emerging Industry RD&E

The key coordination mechanism for new and emerging industry RD&E will be the Australian New Rural Industries RD&E Forum. This entity will reside within, and be coordinated by New Rural Industries Australia (NRIA). It will consist of representatives of relevant PISC agencies, including state departments with an interest in new and emerging industry RD&E, universities, CSIRO, appropriate RDC's, federal agencies and funding bodies, as well as three industry representatives.

The National RD&E Framework principle of national R, and regional D&E will guide the activities of the forum.

1. Background and Context

Research, Development and Extension (RD&E) in primary industries is a key factor for increasing productivity and ensuring sustainability. RD&E across Australia is a very complex web of research providers and investors who are independent operators with strong interconnections. The 16 rural R&D corporations and industry-owned companies (RDCs) are an integral component of this web, as well as the federal, state and territory governments, CSIRO, universities and private providers. If Australia's primary industries are to improve their productivity and sustainability they cannot afford a fragmented or duplicative RD&E system. Nationally, RD&E investment in primary industries, which exceeds \$1 billion annually, needs to be focussed, used efficiently, effectively and collaboratively.

In April 2005 the Primary Industries Ministerial Council (PIMC) endorsed the concept of 'National R with Regional D&E'. The concept recognises that basic and strategic research (R) can be provided from a distance, with regional adaptive development (D) and local extension (E) required to improve the uptake of innovation by industry.

Subsequently, in April 2006, PIMC agreed to a set of principles to facilitate further cooperation between agencies and industry for improving the efficiency and effectiveness of the national RD&E capability. These principles emphasise cooperation, information sharing, maintaining funding, access to capability and reporting.

The notion of collaborative RD&E between agencies is now well established and in April 2007 PIMC agreed to develop a National Research, Development and Extension Framework as a broad national plan to provide a more comprehensive, structured approach within an agreed timeframe.

On 6 November 2008, PIMC endorsed the National Primary Industries Research Development and Extension Framework (National RD&E Framework) including the development of an overarching statement of intent. PIMC also acknowledged the significant contribution and progress that has been made by agencies, RDCs and peak industry bodies in developing the fourteen sectoral and seven cross sectoral industry strategies.

When the Framework is fully implemented, it is expected that:

- research capability will become more collaborative, specialised, have larger critical mass and will be less fragmented across the nation. Efficiency and effectiveness of RD&E will be markedly improved overall, although some additional costs could be incurred providing national linkages and to support delivery of regional development and local extension.
- agencies will retain and build capability in fields strategically important to their jurisdictions and industries. At the same time, it is expected agencies will collaborate with others to provide for a more comprehensive national research capability.
- the national research capability will be an integral component of a wider innovation agenda, supporting development and extension. To encourage rapid uptake of new technologies, research developed in one location would be available nationally for the whole industry.

By ensuring the substantial resources invested by government and industry in research are managed cooperatively, a more efficient, effective and comprehensive capability will be possible.

The Framework comprises of 14 primary industry sector strategies, and 7 cross-industry sector strategies. This report, the New and Emerging Industries National RD&E Strategy, is an industry sector strategy.

2. Industry Overview

Introduction

An increasingly diverse range of plant and animal products are used in Australia. While the key characteristics of mainstream agricultural production in Australia are well documented, there is a vast array of agricultural commodities produced in Australia for which there is relatively little public information. The purpose of this overview is to help address this gap in the availability of public information on the less well-documented industries.

Emerging industries are often difficult to identify, particularly during their early development phase. Some are not necessarily producing new products. For example, goats have been farmed for milk for centuries, and have been in Australia since first settlement by Europeans. However, with recent initiatives to establish an organised industry, it could be classified as an emerging food industry. Other foods, such as wasabi and rambutan, are new to Australia, while others (such as kangaroo and native foods) are indigenous to Australia but unfamiliar to the food market.

Official statistics produced by the Australian Bureau of Statistics are an important source of information but do not cover all agricultural commodities produced in Australia. While there are other sources of information on emerging industries, these are often difficult to access and to establish comparable, robust statistics on the industries.

This overview profiles 35 emerging animal and plant industries, and provides a picture of their overall worth to the Australian economy.

Together the selected emerging industries have an estimated gross value of production of \$411 million. They earned estimated export revenue of \$240 million. These values are likely to grow in future years because — as the term ‘emerging’ suggests — many of the emerging industries appear to have strong growth prospects.

These figures represent only a subset of emerging industries (ie those listed in this overview) and are conservative estimates of value.

New and emerging animal and plant industries make significant contributions to the regions in which they operate by bringing diversity and resilience to the rural sector. They also contribute to the increasingly important niche and specialty food markets.

Of the emerging industries examined, those with a Gross Value of Production over \$30 million per annum include game birds, kangaroo, wildflowers and olives.

The organic food industry has been excluded from this overview because its differentiating features relate to the inputs and processes used rather than the outputs.

Emerging animal industries

GVP = \$201 821 000

The emerging animal industries in Australia produce a range of products, including meat, milk, fibre, skins and fat. The estimated annual average value in Australia of the emerging livestock industries examined in this report was around \$202 million in 2006-07 (Foster 09). To put this value into context, the average annual value of Australian livestock products in the three years to 2006-07 was \$18 billion. For all emerging animal industries, production would have been higher if it was not for severe drought in Australia in 2006-07.

The emerging aquaculture industries examined in this report were crocodiles and freshwater crustaceans. The total estimated average annual value of these two industries in Australia in the three years to 2006-07 was \$14 million. The total Australian aquaculture industry was \$725 million annually in the three years to 2006-07 (Foster 09).

Around 40 per cent of the total value of Australia's emerging animal industries is based on exploiting wild resources — kangaroos, wallabies, wild pigs, feral goats, camels and possums. The value of these industries to Australia is greater than the value of their products because the culling of wild populations helps to reduce adverse impacts on agricultural production systems and damage to the environment. Wild pigs are an important cause of damage to riverine environments, while feral goats and camels are damaging sensitive rangeland and desert environments.

Another 6 per cent is based on the farming of animals that are native to Australia — crocodiles, emus and freshwater crustaceans. Crocodile and emus cannot legally be commercially harvested from the wild because of conservation concerns (though crocodile eggs can be gathered from the wild under permit in the Northern Territory).

Wild harvesting or farming of Australia's native animals is subject to strict conservation management plans. These management plans are consistent with Australia's obligations under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) that aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival.

Farming of introduced animals — alpacas, buffaloes, deer, goats, ostriches and rabbits — make up around a half of the total value of Australia's emerging animal industries. The opportunity for rabbit farming has largely emerged since 1996 due to the collapse of the industry based on the harvesting of wild rabbits following the release of rabbit calicivirus in Australia.

Some farmers of emerging animals are diversifying their production away from more traditional agricultural products. There is also a lifestyle element to many of the emerging animal industries, with production carried out by part time farmers. Early entrants to emerging animal industries have often been able to benefit from supplying the lucrative market for breeding stock that characterises emerging animal industries in their early stages of development.

The growth of some emerging animal industries is a response to Australia's changing ethnic composition, to increasing awareness of healthy products and to changes in tastes and preferences that are related to growing incomes. The changing ethnic composition is influencing consumer preferences in the wider population, leading to increased demand for products like milk from goats and sheep.

Growing incomes mean increasing demand for more distinctive and healthier products. All of the emerging animal industries produce meat that easily meets the distinctive quality criteria. Virtually all the meats are claimed to be healthier than traditional meats on the grounds that they have lower fat contents.

Increasing domestic demand for dairy products from buffaloes, goats and sheep reflect the influence of Australia's changing climate, population and increased health consciousness.

Leather is an important product of most emerging animal industries. In particular, the distinctive characteristics of leather from crocodiles and kangaroos mean these leathers earn premium prices in world leather markets.

The oil from emus and the velvet from deer have niches in the health products market.

However, a factor that could adversely affect demand for emerging animal products is the growing attention to animal welfare issues throughout the world, especially in the wealthier countries. For example, animal welfare activists are drawing consumer attention to the nature of the harvesting of kangaroos.

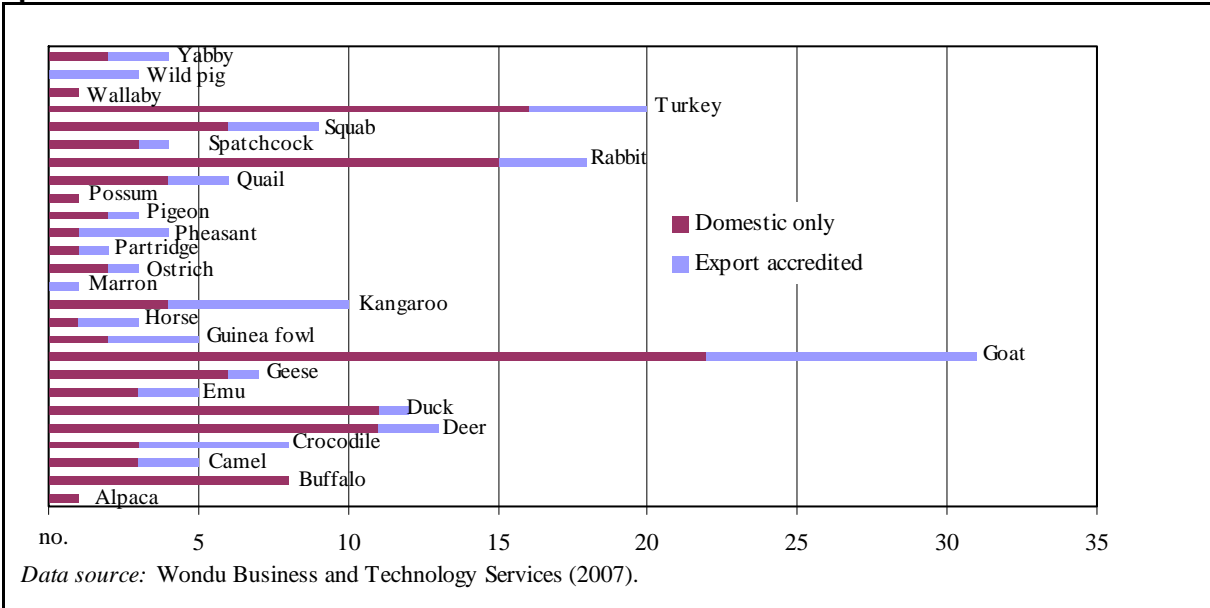
The emerging animal industries are generally highly export oriented, with more than half of all products exported. The degree of export orientation means that trade barriers are important issues for emerging animal industries.

An important factor facilitating exports of emerging industry meat is Australia’s relatively disease free status compared to many other countries in the world, maintained through Australia’s strict quarantine arrangements. In recent years, incidents of avian influenza in South Africa have severely disrupted South African exports of ostrich meat to its traditional markets in Europe, creating export opportunities for the Australian ostrich industry. However, the existence of rabbit calicivirus in Australia as a biological control for wild rabbit populations could hinder the development of export markets for Australian farmed rabbit meat.

Australia’s quarantine arrangements are also an important factor in limiting Australian imports of emerging animal products. The main Australian imports are deer meat from New Zealand. However, the quarantine barriers can be a hindrance to development of some livestock industries through imposing high costs on imports of live animals, eggs, embryos and semen for breeding purposes.

While live exports account for 7.5 per cent of the total value of Australia’s emerging animal industries, there is considerable value adding through processing. According to Wondur Business and Technology Services (2007), there are more than 180 abattoirs and processing plants (many handling a number of species) servicing Australia’s emerging animal industries (Figure 1), with costs related to processing of emerging animals of around \$40 million a year. Around 30 of the abattoirs identified are licensed to export (export accredited); 20 have halal certification; 2 have kosher certification and 12 have organic certification. There are currently no export abattoirs for alpaca, buffalo or possum. The recent closing of the last export abattoir for buffaloes in the Northern Territory is posing a problem for the buffalo industry.

Figure 1: Emerging animal industries: number of process plants in Australia, by species



Emerging plant industries

GVP = \$209 936 000

The emerging plant industries in Australia are largely horticultural industries rather than broad acre cropping industries. The estimated value in Australia of the selected emerging plant industries is \$210 million in 2006-07. To put this estimated value into context, the total value of horticultural industries in Australia in 2006-07 was \$9.2 billion (Foster 09). The value of many plant industries in Australia in 2006-07 was adversely affected by drought and cyclones.

Emerging plant industries in Australia are based on both the use of Australian native plants, and introduced species. These industries include foods, such as olives and bush tomatoes; native flowers, such as kangaroo paws and waxflowers; and essential oils, such as boronia and sandalwood. In 2006-07, these industries contributed 27 per cent of the total value of the plant based emerging industries reported in this overview.

Like the emerging animal industries discussed earlier, production of some new crops is based on farmers wanting to diversify their production away from more traditional agricultural products. In Queensland, for example, growth in production of emerging tropical fruits appears to be related to a shift away from production of tobacco and sugar cane. Similarly, there is also an important lifestyle element to some emerging plant industries.

Like the emerging animal industries discussed earlier, Australia's emerging plant industries are benefiting from income growth that is leading to demand for products that are more distinctive or healthier. This demand means, for example, that Australia's emerging coffee industry can produce for premium-paying niche markets, despite having higher production costs relative to other coffee producing countries. Growing demand for emerging industry products, such as natural pyrethrum and essential oils, reflects a shift in consumer preferences toward natural products. Demand for tree nuts and green tea is being boosted by perceptions of their healthiness as a food.

Innovation has been an important reason for the successful emergence of most plant industries. For example, a viable coffee industry in Australia was virtually enabled by the development of mechanical harvesting.

With many emerging plant products, Australia faces considerable production cost disadvantages compared with its competitors in other countries. For seasonal products, such as tropical fruits, green tea and truffles, Australia's niche appears to lie with being able to supply fresh product outside the production periods of the main world producers.

The emerging plant industries in Australia are highly export oriented. This means most industries would likely benefit from reforms to world trade that remove trade barriers and domestic subsidies. For example, the green tea industry would likely benefit from the removal of the very high production subsidies paid to growers of green tea in Japan.

Unlike emerging animal industries, many of the emerging plant industries face strong competition from imports in the Australian domestic market. For example, the emerging tropical fruit industry is facing increased imports from Thailand, due to a free trade agreement.

There are environmental benefits associated with many emerging plant industries. For example, the oil mallee and sandalwood industries have benefits in regard to controlling salinity, preserving biodiversity and reducing greenhouse emissions.

Summary table: Selected Australian emerging industries: Value of production and trade

	Year	Gross value of production \$'000	Value of trade	
			Exports \$'000	Imports \$'000
Animal industries				
Alpaca	2006-07	1 245	16	447
Buffalo	2006-07	4 972	4 774	0
Camel	2006-07	683	338	0
Crocodile	2006-07	8 950	8 845	0
Dairy sheep	2006-07	4 000	na	732
Deer	2006-07	3 003	3 429	na
Emu	2007	1 340	1 979	0
Game bird	2007	115 740	6 244	0
Goat				
– cashmere	2007	87	83	10
– mohair	2007	2 227	2 475 ^a	493 ^a
– dairy	2006-07	6 000	na	4 806
Kangaroo	2007	43 913	73 566	0
Ostrich	2007	1 739	2 068	0
Rabbit, farmed	2006-07	2 588	18 ^b	4
Freshwater crayfish	2006-07	5 334	na	na
Total, animal industries		201 821	103 835	6 492
Plant industries				
Native food	2007	6 828	na	0
Coffee	2006-07	7 780	42 330 ^c	280 750
Essential oil	2006, 2006-07	25 400	25 374	2 866
Herbs, culinary	2005-06	11 982	na	5 184
Jojoba	2006	1 148	0	247
Native grass seeds	2007-08	1565		
Olive	2006-07	66 911	16 056	252 151
Pulses — adzuki beans	2006-07	2 559	2 682	1 193
Sesame	2005-06	14	3	14 474
Spices, culinary	2005-06	26 854	20 288	36 983
Tea				
– black	2006-07	1 808	2 484	88 879
– green	2006-07	0	725	8 618
Tree nuts				
- cashews	2005-06	186	1 588	85 258
- pistachios	2006-07	10 357	2 674	10 474
Truffle	2007	1 640	204	435
Exotic tropical fruit	2006, 2006-07	4 836	68	3 759
Wasabi	2006	68		
Wildflower	2006-07	40 000	20 988	0
Total, plant industries		209 936	135 464	791 271
Total		411 757	239 299	797 763

a Also includes fine animal hair other than cashmere. **b** Also from wild rabbits. **c** Mainly coffee grown overseas that processed in Australia and then exported.

The complete document “National Research, Development and Extension Strategy for New and Emerging Industries- Industry Overview” provides a comprehensive description of many new rural industries, and can be downloaded from the Rural Industries Research and Development Corporation website. The link is:-

<https://rirdc.infoservices.com.au/items/09-138>

3. New and Emerging Industries Resource Analysis

Funding of New and Emerging Industries RD&E

RD&E for new and emerging industries is largely funded by RIRDC, 51.2% for animal RD&E, and 31% for plants. State departments contribute significant cash funding for new plant industry RD&E (33.2%), but very little to new animal RD&E (10.4%). While the university sector is heavily involved in new and emerging industry RD&E, cash contribution is low at 8.6% for plants, and 7.6% for animals. Other contributors, largely made up of industry contributions, and private investment made up a significant contribution of 25% for plants and 27.4% for animals. CSIRO has reduced cash input into new industry RD&E to a small contribution to plants only.

Animal industries receiving the highest overall funding (cash and in-kind) include game birds, crocodile and alpacas, while wildflowers and native plants, tea tree, native grasses and olives were the best supported of the plant industries.

Production RD& E made up 24% of all projects for both plants and animals. Reproduction and genetics followed with 23% for animals. New product RD&E was the second largest focus area for plants, at 19% (see graphs p12).

The following tables and graphs are a snapshot of research agency investment in RD&E for new and emerging industries. They were developed from data provided by the research organisations.

Snapshot R&D Funding - Emerging animal industries (3 year period*)

State	Full Time Equiv (FTE)	State agency contribution	University contribution	CSIRO contribution	RDC contribution	Other	Total
ACT	0.00	-	-	-	-	-	-
NSW	7.80	-	1,714,290	-	1,776,471	842,543	4,333,304
NT	7.90	874,597	-	-	731,320	1,566,973	3,172,890
QLD	3.60	-	10,000	-	452,082	1,404,564	1,866,646
SA	3.95	66,800	-	-	123,305	-	190,105
TAS	2.00	-	-	-	455,359	564,750	1,020,109
VIC	6.83	50,000	204,797	-	975,717	948,700	2,640,032
WA	9.30	248,258	1,189,110	-	1,331,759	1,727,533	4,496,660
	41.38	1,239,655	3,118,197	-	5,846,013	7,055,063	17,719,746

(Unknown - \$460,818)

Snapshot R&D Funding - Emerging plant industries (3 year period*)

State	Full Time Equiv (FTE)	State agency contribution	University contribution	CSIRO contribution	RDC contribution	Other	Total
ACT	0.00	-	810,845	-	179,400	108,000	1,098,245
Cwlth	0.00	-	-	-	45,605	-	45,605
NSW	0.35	2,282,993	541,524	170,000	2,285,462	3,462,799	8,742,778
NT	0.80	80,000	33,604	-	14,978	49,330	177,912
QLD	4.05	4,395,704	479,059	-	2,699,975	3,006,127	10,580,865
SA	0.50	314,701	265,717	-	441,830	573,230	1,595,478
TAS	0.00	-	61,289	-	404,849	415,111	881,249
VIC	4.50	651,647	370,481	-	508,878	769,796	2,754,623
WA	7.92	3,480,022	2,008,720	-	2,245,116	2,347,360	10,081,218
	18.12	10,866,938	4,571,239	170,000	8,805,744	10,731,753	35,957,973

(Unknown - \$453,821)

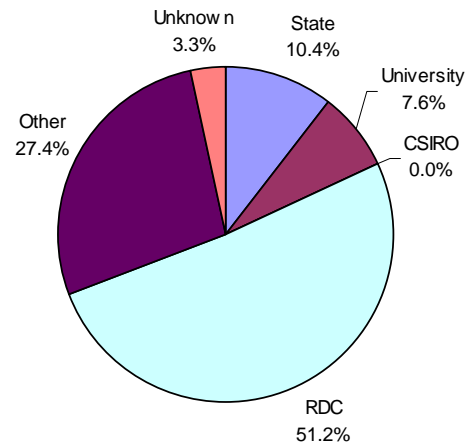
FTE figures – not all questionnaire responses included this information

Total contribution – may be more than sum of individual contributions due to breakdown not being provided

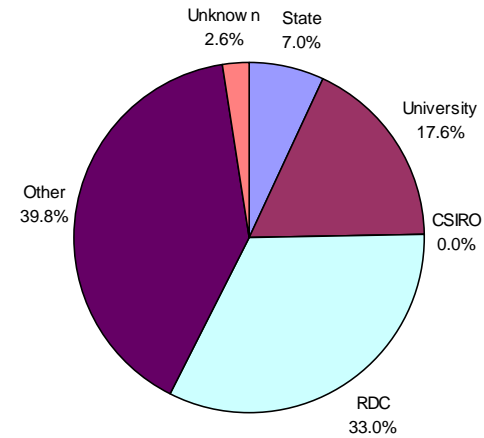
*Project length was an average of 3 years.

Sources of R&D funding for new animal industries*

Cash
(\$10,936,804)



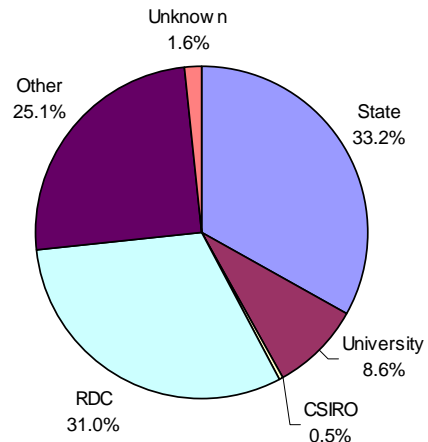
Cash and in kind
(\$17,245,746)



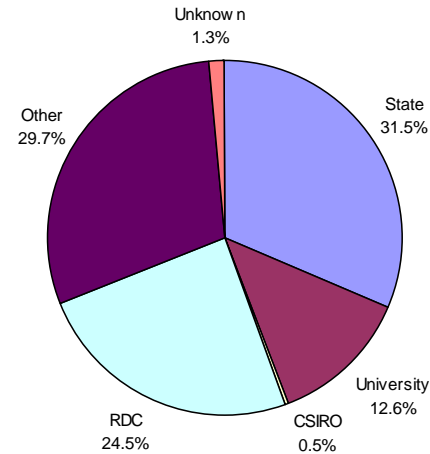
*Total funding for current projects over a 3 year period

Sources of R&D funding for new plant industries*

Cash
(\$27,852,418)



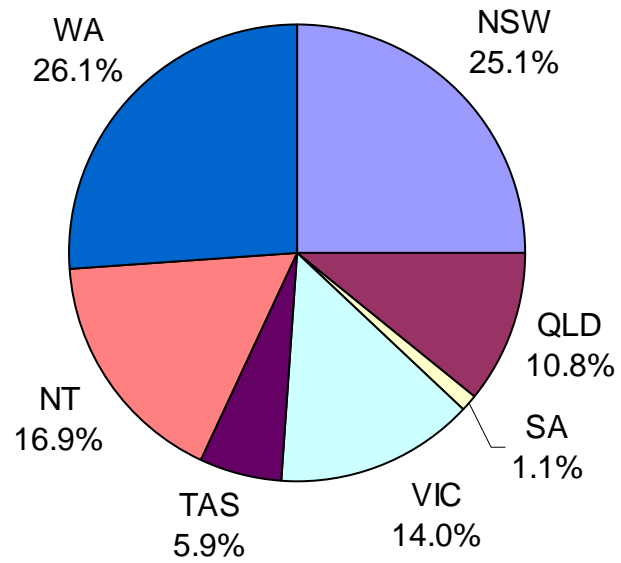
Cash and in kind
(\$35,179,359)



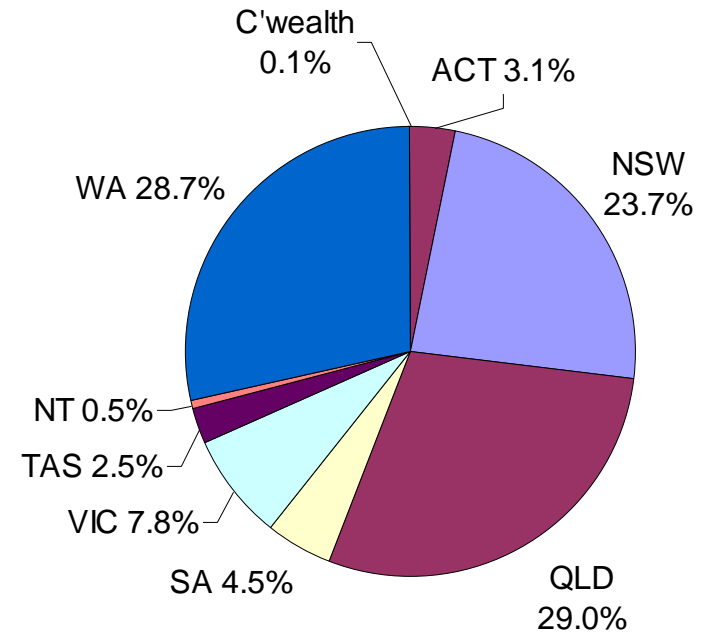
*Total funding for current projects over a 3 year period

Investment by State (includes state departments, universities and other research organisations)

New animals*

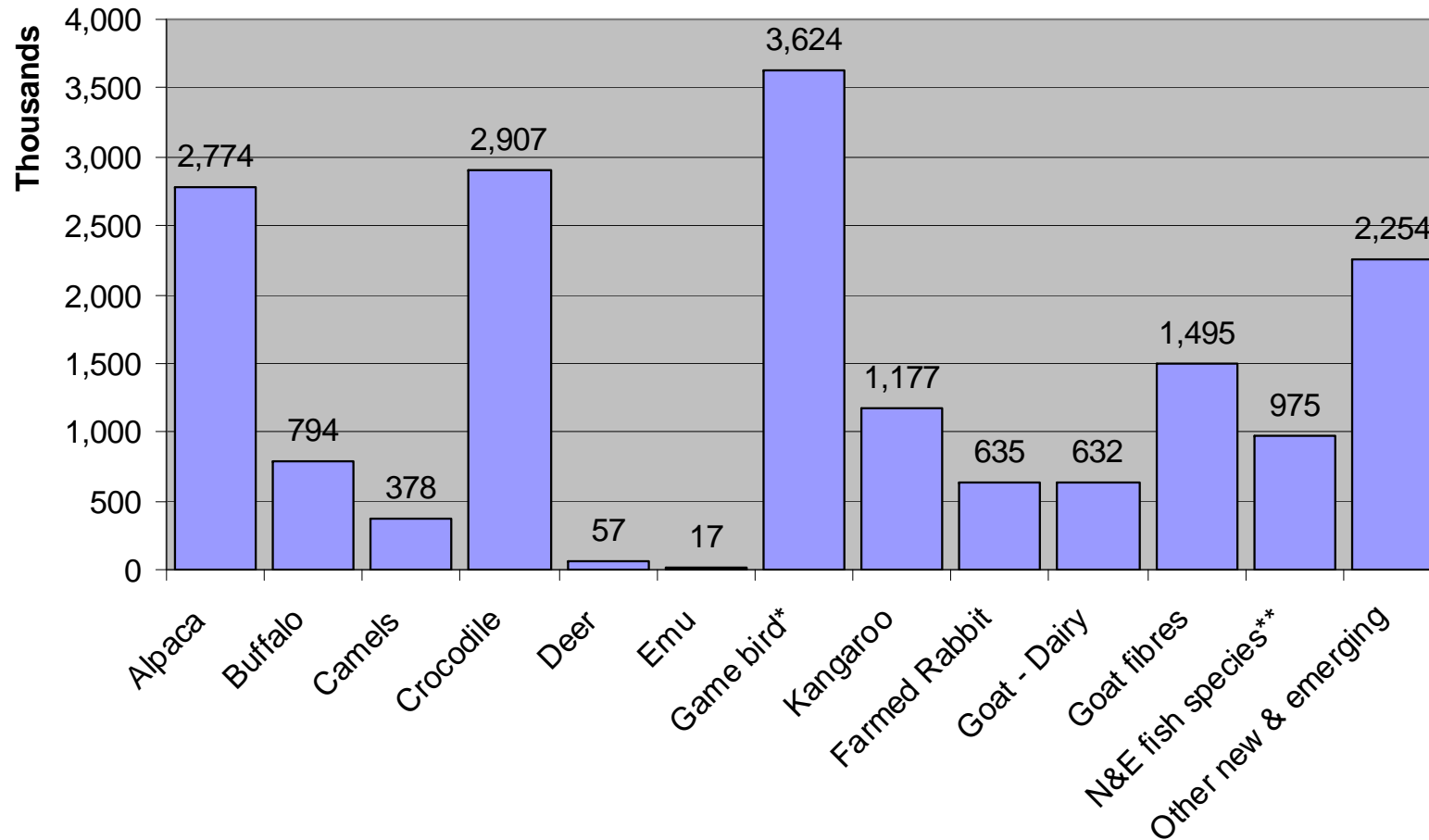


New plants*



* Over a 3 year period

New animal industries funding (cash and in-kind over 3 years)

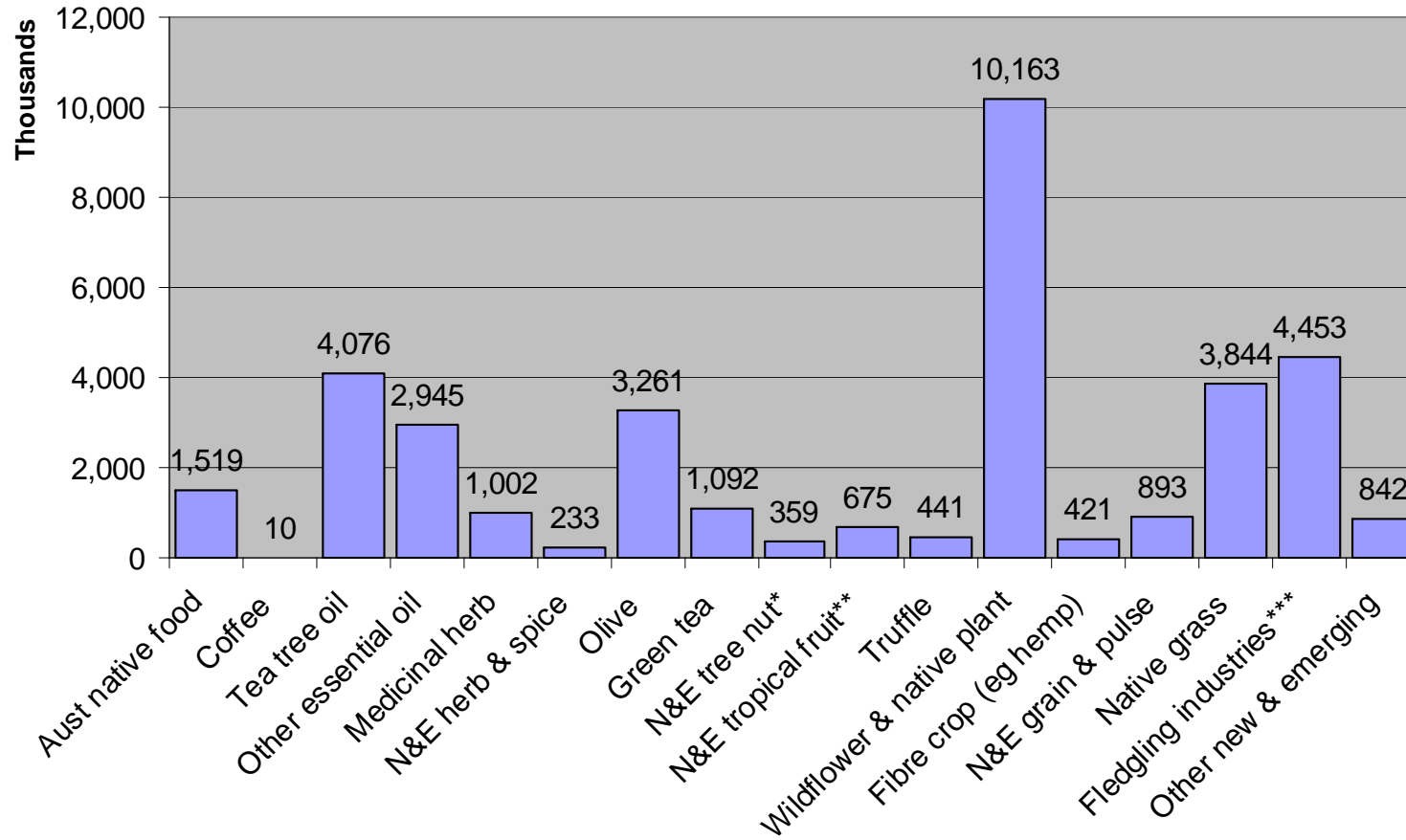


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* including turkey and duck

** yabbies, red claw, marron, micro/macro algae except beta-carotene, native aquarium sp.

New plant industries funding (cash and in-kind over 3 years)



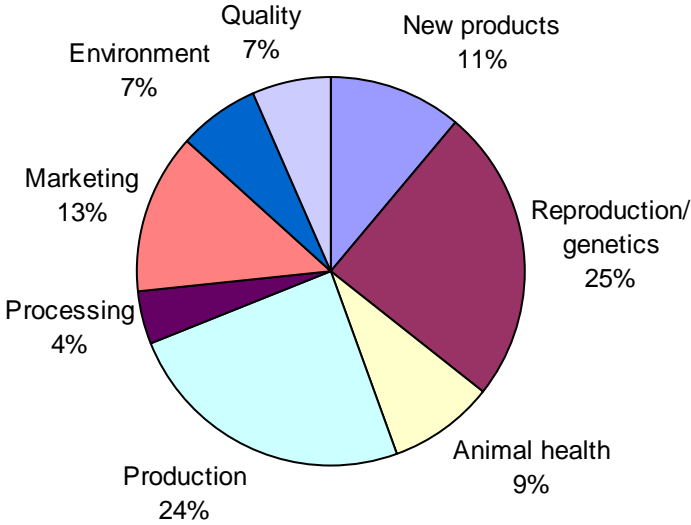
* excludes macadamias, almonds, hazelnuts, pecans, walnuts

** excludes lychee, longan

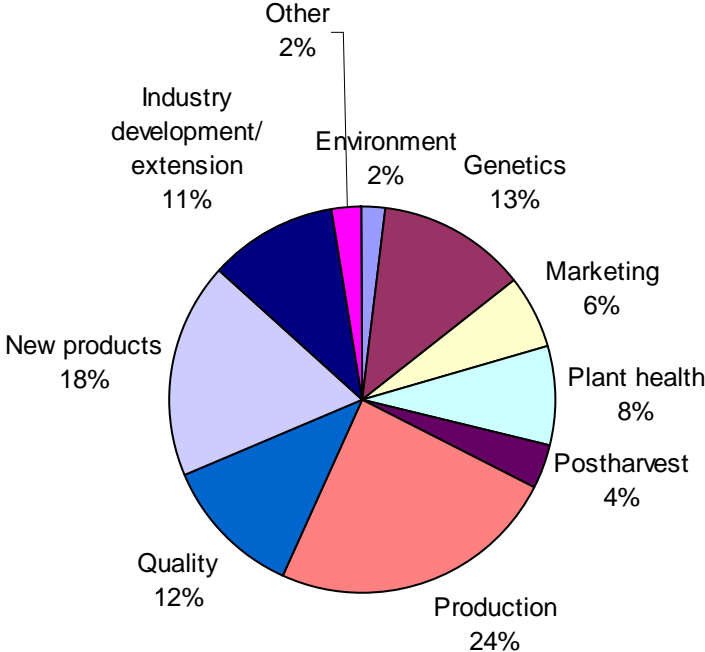
*** eg, tea, pomegranate, seaweed

Focus areas of RD&E

New animals



New plants



Current RD&E Priorities and Gaps

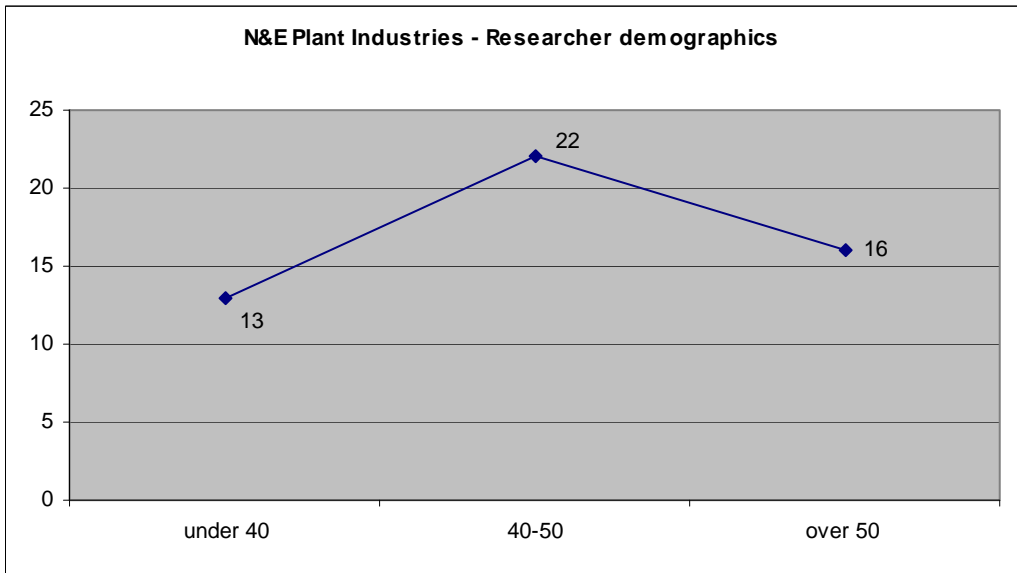
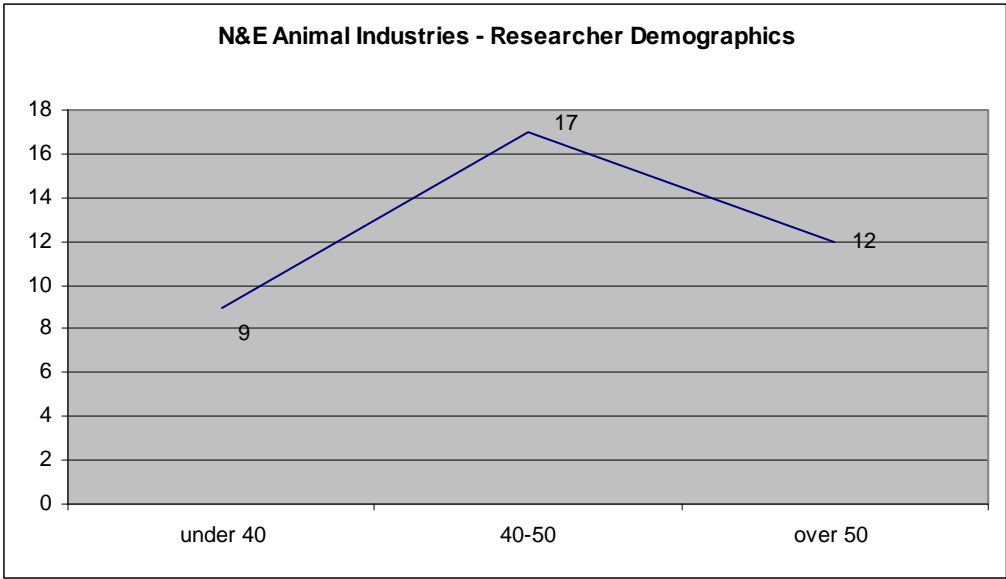
The following table includes the industry priorities agreed to at an industry workshop in March 2009. Current RD&E is summarised, and gaps identified. RD&E areas not identified as gaps may currently have adequate levels of activity, however, this may need to be maintained into the future for industry success. While there are many RD&E gaps, cheaper options that have a high short term dollar return to industry have been chosen. There is an ongoing need to continue to support all priority areas.

RD&E Priority	Current RD&E- animals %	Current RD&E- Plants %	RD&E Gaps
New Product Development <ul style="list-style-type: none"> - Identify and/or develop opportunities for the development of new industries that have the potential to grow and to make a substantial contribution to Australia's GDP and rural and regional development in the future. - Demonstrating proof of concept/efficacy for innovative new products. 	11%	19%	<ul style="list-style-type: none"> • New and emerging industries may provide opportunities for future climates, and these opportunities should be investigated. Industries with high potential include native plants, intensive animal production, and aquaculture. • Value adding. Eg. Skin product range from ostrich and kangaroo needs to be expanded. • Exciting, new and fashionable products, such as new wildflowers varieties.
Production & Supply Chain <ul style="list-style-type: none"> - Improve production efficiencies, sustainability and produce quality - Integrated Pest management - Environmental waste management - Support the development of sustainable, profitable supply chain systems 	Production 24% Environment 7% Processing 5% Animal health 9%	Production 24% Environment 2%	<ul style="list-style-type: none"> • Generally sufficiently covered. • Logistics (particularly transport)- Kangaroo, ducks, wildflowers, greentea, tropical fruits, coffee, camels. • Production efficiencies- olives, truffles, native foods.
Plant & Animal Breeding/Selection <ul style="list-style-type: none"> - Improved cultivars and lines - Breeding and selection to increase yield and quality - Improve existing products and develop new ones 	23%	12%	<ul style="list-style-type: none"> • A few industries have concentrated on breeding and genetic research. Many others require this. • The more advanced can afford molecular techniques. Selection is important for the newer industries. • Single fleece cashmere goat- may be too resource intensive.
Increase Competitiveness, Capability & Capacity <ul style="list-style-type: none"> - Increase competitiveness through an understanding of consumer needs, supply of product information, and targeted products for particular markets. - Increase capability and capacity by building industry relationships 	Marketing 14%	Industry development/ extension 11% Marketing 7%	<ul style="list-style-type: none"> • Affordable, focussed incursion risk analysis for new industries. • Market development is a high priority for all new industries. • Market access- eg. kangaroo • There are few benchmarking projects. This could be improved. • Extension- many new industries could benefit from having an industry development officer, however, most do not have the resources.

RD&E Priority	Current RD&E-animals %	Current RD&E-Plants %	RD&E Gaps
and improving communications of R&D opportunities and impact.			<ul style="list-style-type: none"> Regionally based training, delivering R&D findings. User friendly communications are needed for some of the smaller industries, in particular.
Improve Product Quality Development of grading systems and standards - Management and processing influences on product flavour and quality -Development of a Quality Assurance System (QAS) - Supply chain efficiency, quality management and value adding - Improve product quality through post harvest care and quality standards	7%	11%	<ul style="list-style-type: none"> Quality standards have been developed for some, but not all industries. Eg. Required for truffles. Logistics research in the production priority will increase quality.
Compliance - Registration of essential chemicals - Facilitate regulatory approvals for import/export products - Identifying regulatory regimes and market barriers, and enhancing the ability of industry to meet safety standards		Plant health 9%	<ul style="list-style-type: none"> Some industries still needing chemical registrations, or may only have temporary permits. Eg. coffee, herbs and spices, olives, tropical fruits. Further kangaroo surveys to expand commercial harvesting. Safety and effectiveness regulation is an ongoing limiting need for many new industries. Includes international regulatory regimes. Is often expensive. Eg. Essential oils, tea tree oil, seaweed, native foods.

Capability (Human and Infrastructure) Against the Plan

Priority	Capability	Availability	Comments
New Product Development <i>RD&E gap- products for future climates</i>	Good	Poor	<ul style="list-style-type: none"> • Capability is often from within the industry. • Too small for Industry Development Officers. • Current RD&E good in initiation phase, but could be improved for further development work. • Organic chemists particularly scarce-moving overseas.
Production	Good	Poor	<ul style="list-style-type: none"> • Often starting from low base. • Skills may or may not transfer from other products/ regions. Can sometimes utilise capability from major commodities. • Hard to keep expertise in regional areas where much of the production RD&E occurs. • Value adding has strong private support/ capability. • Need for succession planning in some industries.
Plant & Animal Breeding/Selection	Good	Poor due to cost	<ul style="list-style-type: none"> • Many small industries cannot afford molecular technology. • Universities mainly interested in molecular techniques. • Losing capability in traditional plant breeding.
Increase Competitiveness, Capability & Capacity <i>RD&E gaps- biosecurity, benchmarking</i>	Good	Good	<ul style="list-style-type: none"> • Market research capability available through private consultants. • Capability for incursion risk planning from other industries.
Improve Product Quality <i>RD&E gap- quality standards for some industries</i>	Good	Poor due to cost	<ul style="list-style-type: none"> • Cost too high for some small industries to develop quality standards, code of practice and trademark.
Compliance <i>RD&E gap- chemical registration for many N&E industries</i>	Good	Poor due to cost	<ul style="list-style-type: none"> • Good capability in minor use registration. • Chemists available, but the long term trials required are expensive. • Product safety testing required for international marketing- expensive.



Capability summary

Infrastructure resources

Infrastructure resources are not considered by this report to be a major limiting factor to new and emerging industry RD&E. New and emerging industry RD&E currently utilises standard research organisation lab and research station facilities established for the larger agricultural industries. These facilities are scattered fairly evenly throughout the state departments and university system, and are being rationalised in some cases, posing risks to new and emerging industry RD&E. For example, the green tea industries risk the loss of a major international player due to the planned closure of the Gosford Research Station. RD&E in this sector relies heavily on “on- farm” RD&E, utilising industry animals, crops, structures and labour. Processing plants are also keen to supply the use of facilities and the provision of samples in order to grow the industries they depend upon.

Researchers of new and emerging industries have become resourceful through necessity, often hiring equipment as a cheaper alternative to purchase (eg vehicles, camel tracking collars), or collaborating with other organisations to share equipment and facilities (eg a university using CSIRO aquaculture facilities for yabby research). Samples are regularly sent overseas for analysis unavailable in Australia.

Human resources

Our investigation found that there are some very experienced and capable researchers working with new and emerging industry RD&E, especially with the larger industries showing potential for regional benefit or innovation. However, often the best capability is utilised by the major commodities, as these are the priority for the majority of research organisation, and attract more funding. In turn, where appropriate, the skills, knowledge, and infrastructure from major commodity RD&E can be piggy backed on by new and emerging industries. The overwhelming trend is for research organisations to move towards a cross- sectoral discipline approach, rather than a commodity approach to RD&E, potentially increasing this advantage. Some of the more mature new and emerging industries have had to promote their industry potential to research organisations in order to target the capability they require. For example, the olive industry recruited expertise from canola oil chemistry to work on olive oil chemistry. Researchers in this sphere tend to be very versatile in comparison with those working only with one major commodity, and move from one new and emerging commodity to another as the need arises. For example, expertise from ostrich research has now moved into the game bird industry. The age demographic of researchers is reasonable, with researchers in the 40-50 year bracket the most prevalent. In comparison with McCauslands Beef Audit of 2006, the proportion of younger researchers is lower.

Researcher Demographics

	Beef	New Industries
Under 40	42%	24%
40-50	40%	43.5%
Over 50	18%	31.5%

Beef figures derived from McCausland 2006

Some of the more advanced new industries, such as crocodile, are encouraging younger researchers through PhD and scholarships to improve capability for the future.

There is an increasing trend towards research conducted by industry participants. This is particularly so where they have a science background, as well as practical industry experience. While the majority of this research has been cheap and successful, there is often a requirement for research funders to provide networking opportunities with experienced providers. Industry leaders are crucial to small industries. A good industry leader can make

or break a new industry. Often these industry leaders withdraw from industry development activities due to lack of support from industry and the public sector.

Unfortunately, research organisations have not reported Full Time Equivalents consistently enough to analyse FTE comparisons between states or types of research accurately, but estimates have been included within the tables of this report.

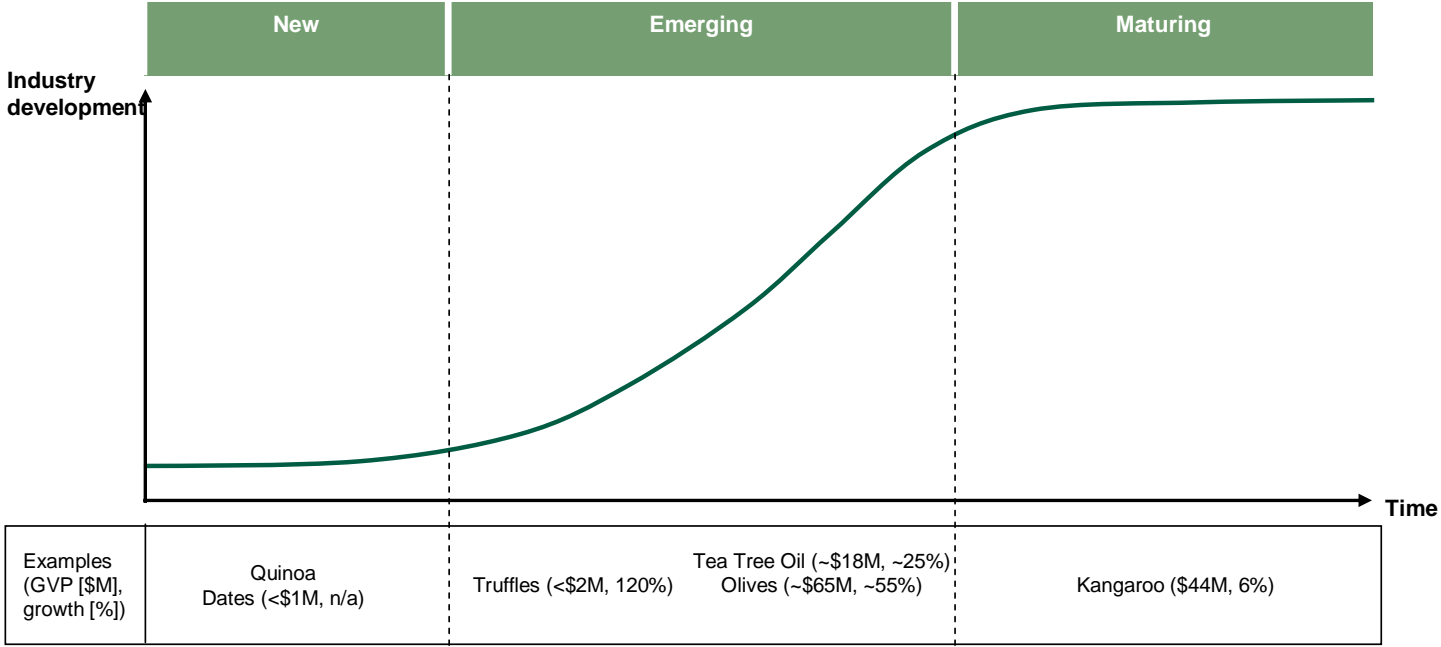
State government extension services are often stretched to cover high priority (major commodity) industries. RIRDC projects require extension of results from their research providers, including publication of results that are easily accessible by free download from their website. The recent review of RIRDC's New Industry Portfolio by LEK (2009) found that 15-20% of projects involved industry development, training, communication and technology transfer. New and emerging industry associations carry out much of the extension activity in this sphere, through capacity building activities and website information. A more coordinated approach to extension for new and emerging industries would ensure that maximum value is gained from funding dollars.

In summary, there is good capability for new and emerging RD&E, but this capability is often unavailable due to competition from the bigger industries, and major rural issues. RIRDC is involved with 95% of new industry RD&E, however, because of limited resources, only 10% of research proposals are able to be funded. This causes research organisations to seek funding dollars elsewhere, and capability is lost to new industries.

Understanding the Requirements of New and Emerging Industry RD&E

The following graphs are the result of a comprehensive review of new and emerging industry RD&E undertaken by RIRDC. They show how the RD&E requirements change as an industry moves from a fledgling stage, through to becoming a mature industry. New industry RD&E requirements are fundamentally different to the more established industries, and these differences need to be taken into account when developing RD&E strategies and investment models.

New and emerging industries span a broad range of “lifecycle stages”, in terms of industry development



Each stage of the lifecycle requires different types of RD&E and other support

		New	Emerging	Mature
Industry characteristics	Growth	Limited growth	Growth acceleration	Growth stabilisation
	Size	Typically small (<\$5mn)	Can be small or medium (\$2-\$10mn)	Typically >\$5mn
	Stakeholder profile	A few pioneers, very enthusiastic about a novel idea, starting their own research	Increasing # of farmers trying to develop the industry, mostly family business Very fragmented	Emergence of private investors Starting consolidation
	Industry organisation	No cohesion (no association / levies) Under developed infrastructure	Emerging industry association and levies Emerging value chain Increasing engagement with R&D	Stronger industry cohesion, with established association and levies More established value chain
Industry R&D needs	R&D type	Feasibility studies (review of possibilities, market potential)	Development & extension research focused on specific R&D issues. Greater understanding of production systems & demand	Development and extension research focused on more specific R&D issues, with well defined objectives Maintenance research for niche industries
	R&D size	Limited R&D cost per project, seeking to spend the least amount of money before going any further	Larger R&D projects, with larger investment	Larger R&D projects, with larger investment
	RIRDC role	Important, nurturing and advising role Managing R&D needs	Critical role supporting industry growth and development	Important for niche industries (sustainability) Decreasing need as industry infrastructure expands (e.g., shift to Established Industries)


Source: Evaluation of the Prospective “ New Industries program”, Evaluation of New Plant Products 2004, Critical Success Factors for New Rural Industries

New & emerging industries' profile and research needs differ quite significantly from those of the established industries

INDICATIVE

Criteria		New Rural Industries	Established Industries
Examples		Olives Kangaroo	Chicken Rice Fodder crops
Size		Small (<\$100M)	Large (>\$100M)
Growth		Diverse range of growth profiles, depending on stage of "technology adoption" (position on the S-curve)	Stable
Industry organisation	Levies	Usually none or voluntary levies Very few have statutory levies	Usually statutory levies
	Cohesion	Limited industry cohesion. Associations gaining in experience Emerging value chain	Stronger industry cohesion with well established association and well organised value chain Paid executives
Research needs		Unclear issues and pathway to solution	Well defined problems Clear pathway to problem solving
RIRDC overall involvement in R&D		Higher engagement in industry development, support and R&D	Lower engagement, more focused on R&D funding role

Source: L.E.K. Analysis

 Key differentiating factor

Key Findings - New and Emerging Industries Overall

- The university contribution is increasing. State contribution is decreasing. CSIRO has decreased contributions to a very low level.
- RIRDC is involved in the majority of projects in this area.
- RD&E coordination and prioritisation is mostly carried out by RIRDC.
- Drivers of a change towards diversification include:-
 - Water reform
 - Climate change
 - International competition
- Many institutions are more interested in disciplines, or cross-sectoral RD&E, rather than the commodity approach that RIRDC currently maintains. Capability is applied across species/production systems. This could be a model for future RD&E networks etc. However, this would need to be carefully planned so that outcomes for industry are achieved.
- While there is significant collaboration in this sphere, there is potential for further innovation through enhanced collaboration, especially cross commodity RD&E activities (climate change, water, biosecurity etc).
- New and emerging RD&E tends to increase, decrease or become static in parallel with industry size.
- There is a strong interest by universities to research the health benefits of new products.
- There is new interest in tropical and subtropical agricultural and health RD&E.
- Research organisations are not generally interested in small industries, unless there is potential for significant innovation, such as a health benefit, or regional development opportunity.
- Cohesive industries tend to become more successful, and more attractive to research organisations, especially if they can support RD&E through funding, communications etc.
- Extension is largely through RIRDC capacity building projects and publications, and industry association activities. The connection between science and industry is strong.
- The major limiting factor to new and emerging industry RD&E is research organisational priorities being placed with the major commodities. “Sexy”, political RD&E issues such as climate change, water and Indigenous, leave few resources for new and emerging RD&E.

4. Improving the Coordination of New and Emerging Industries RD&E

The Need for Greater RD&E Coordination

There is a need for greater coordination of new and emerging industry RD&E. Whilst instances of duplication of RD&E are not prevalent, increased coordination and collaboration should better utilise the available capability and resources for improved outcomes.

RIRDC coordinates the majority of RD&E for new and emerging industries, including working with the industries in the development of 5 year R&D plans for these industries. RIRDC has close links with industry participants and associations. The industry development role of RIRDC is significant in comparison with that of other RDC's. This highlights the difference between the RD&E requirements of new and emerging industries as compared to more established industries. New industries are often not cohesive and coordinated, thus requiring RIRDC to play this industry development role before the industries are able to collectively plan their research and development (as outlined in the Resource Analysis on page 30).

For many state departments and CSIRO, RD&E for new and emerging industries has become a lower priority than supporting the major commodities. However, diversification can be a significant factor in the development of resilient and sustainable agricultural systems, particularly with the risks posed by climate change, water shortages, and changing trade conditions. It is intended with the improved RD&E coordination and the proposed Australian New Rural Industries RD&E Forum (as outlined below) to enable and encourage broader state department and CSIRO involvement in research, especially where specific environmental changes require the development of new industry options to ensure regional agriculture is sustainable and profitable.

The Australian New Rural Industries RD&E Forum

The key coordination mechanism for new and emerging industry RD&E will be the Australian New Rural Industries RD&E Forum. This entity will reside within, and be coordinated by New Rural Industries Australia (NRIA). It will consist of representatives of relevant PISC agencies, including state departments with an interest in new and emerging industry RD&E, universities, CSIRO, appropriate RDC's, federal agencies and funding bodies, as well as at least three industry representatives. It is proposed that the members of the New and Emerging National RD&E Strategy Steering Committee may continue their representation on the new Forum. Membership will be voluntary, participatory, and offer opportunities to negotiate RD&E activities that will benefit both the individual research institution, as well as the industry as a whole. The National RD&E Framework principle of national R, and regional D&E will guide the activities of the forum. It is anticipated that after an initial planning and consolidation phase, that the Forum will meet once a year face-to-face, to work on potential collaborations. The NRIA secretariat will be required to plan and facilitate this meeting, with assistance from RIRDC. The funding bodies will provide the Forum with new research proposals under consideration, so that collaborative opportunities can be assessed.

New Rural Industries Australia (NRIA)

NRIA is an alliance of members with common interests, served by a management board and a secretariat. NRIA's mission is, through cooperation, coordination and education, to create an environment for the development and capacity-building of new, innovative, Australian rural industries and to maximise the economic benefits our nation gains from such industries.

The NRIA has been only recently formed. Initially RIRDC has assisted by funding the Secretariat's salary. It is intended that the association will become self sufficient, as membership income grows.

Australian New Rural Industries RD&E Forum Proposed Terms of Reference

This national forum will:

- Implement the New and Emerging Industries National RD&E Strategy. It will coordinate R D&E, encouraging collaboration and knowledge sharing, and targeting greater efficiency of resource use and increased capability. The end result will be better RD&E outcomes to support the development of new rural industries. Existing collaborations will be strengthened, and new collaborative arrangements developed. Options for improving retrieval and sharing of RD&E data will be investigated.
- Be an avenue through which industry, PISC agencies, universities, CSIRO, RDC's and the Federal Government can all have input into the decision making processes of strategy implementation.
- Update cross industry RD&E priorities, through industry consultation, every three years. Research providers will be encouraged to participate in RD&E that addresses cross industry priorities. Involvement of all relevant research agencies and funding bodies on the Forum will encourage support for projects that meet these priorities, resulting in efficiencies and better outcomes for all new rural industries.
- Encourage increased total funding and resources through leverage processes. This will include creating opportunities for increased public and private sector investment in new rural industries RD&E. RD&E benefits will be evaluated through methods such as cost benefit analysis in order to provide evidence of benefits, encouraging increased funding.
- Investigate ways of maximising the positive and reducing the negative impacts of IP protection on RD&E outcomes for industry. Work with the PISC R&D Subcommittee IP scoping investigations.
- Communicate RD&E outcomes to the industries, general public and policy makers. Methods include the New Rural Industries Australia website and national conference.
- Examine opportunities for international collaboration and innovation sharing that will benefit new Australian rural industries.

Extension

Extension has traditionally been built into all RIRDC projects, and is especially important for new industries with significant knowledge gaps. The Australian New Rural Industries RD&E Forum will ensure that extension remains a major component of all future new industry RD&E. Three avenues to improve extension for new and emerging industries will be used.

1. The NRIA will be utilised as an extension tool. The national conference, attended by new rural industry participants and stakeholders, will include presentations by new rural industry researchers, on recent project outcomes and innovations.
2. An extension network will be developed to ensure that research is easily accessed by industry. By working with the national extension networks, and PISC agencies, an email network group will be kept up to date with new rural industry research.
3. Existing extension tools will be continued, and promoted through the extension network. These tools include the RIRDC website, which allows free downloads of all

RIRDC research publications. Other extension activities include workshops and field days that are currently required to be built into many RIRDC new rural industry projects.

The Forum will continue to develop extension for new and emerging industries.

Collaboration and capacity building

Improved coordination and collaboration across new industries is a high priority for this strategy. Building capacity for new and emerging industry research is also a high priority. As such one option that is under investigation is to build the capacity of particular centres for RD&E in specific areas of expertise. All research organisations, were offered an opportunity to express their interest in becoming a centre for expertise for a particular aspect of new and emerging industry RD&E. Responses so far have resulted in the following RD&E organisations that have the capability to work on the priorities across the supply chain identified by the PISC planning process:-

RD&E focus area	Potential centre for expertise
New animal industries	University of Western Australia
New cold climate plant industries	Tasmanian Institute of Agricultural Research
New aquaculture industries	Australian Centre for Applied Aquaculture Research (ACAAR)- Challenger Institute of Technology (WA)
Rare and natural fibres	Deakin University

All of these institutions have the required capability and resources for their focus area, as well as a long association with new and emerging industries RD&E. Other institutions have identified themselves for a support role, most wanting to maintain or build upon their current research specialities and capability. The Forum will continue this coordination activity. Additional or more specialised focus areas will be explored. For example, many new industries rely upon the selection, domestication, breeding and development of native plants (such as wildflowers or native foods), essential oils, other plant extracts and grasses. There is a considerable need to build Australia's research capacity and knowledge of our native flora, its biology and its application to these industries. A new RD&E collaboration for native flora and its domestication or other more specific centres, such as a centre for new tropical rural industries, will be investigated by the Forum.

Given the considerable diversity of industries, geographic locations and RD&E priorities, the task of the Forum is onerous. However, it is timely given the current challenges to agriculture.

Implementation steps

The next steps in the implementation of the strategy are as follows:-

Delivery date	Action	Responsibility
Nov 2010	Strategy approved by PIMC	RIRDC
Dec 2010	Negotiate representation for the Forum	NRRIA/RIRDC
Feb 2011	First Forum meeting. Major activities include:- <ul style="list-style-type: none"> • Finalise terms of reference and governance arrangements • Assess the availability and currency of new industry RD&E priorities • Develop a reporting framework • Refine current coordination negotiations • Develop a schedule for further Forum activity 	NRRIA/ Forum

5. References

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Foster, M 2009, Emerging Animal and Plant Industries- their value to Australia, RIRDC publication09/004.

Gordon, J and Berkelmans, L, 2000, Evaluation of the Prospective New Industry Program – Stage 1, RIRDC publication no. 00/114

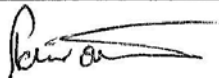
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6. Endorsements


Australian Government Department of Agriculture, Fisheries and Forestry

Endorsement Form	
National Primary Industries Research, Development & Extension Framework	
Agency	Aust Govt Dept of Agriculture, Fisheries and Forestry
Strategy	New and Emerging Industries
Does this Agency have an interest in the Strategy? (Please circle)	Yes
	No
Agency Position (please circle, and provide comments with options 2 and 3)	
1. Endorsed	
2. Endorsed with comments	
3. Not endorsed	
Signature block	
Name	Peter Ottesen
Position	General Manager Crops, Horticulture and Wine
Signature	

CSIRO

Endorsement Form	
<u>National Primary Industries Research, Development & Extension Framework</u>	
Agency	CSIRO
Strategy	New and Emerging
Does this Agency have an interest in the Strategy? (Please circle)	<input checked="" type="radio"/> Yes
	<input type="radio"/> No
Agency Position (please circle, and provide comments with options 2 and 3)	
<input checked="" type="radio"/> 1. Endorsed	
2. Endorsed with comments	
3. Not endorsed	
Signature block	
Name	Brian Keating
Position	Director, Sustainable Agriculture Flagship
Signature	

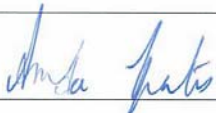
Deakin University

Endorsement Form	
<u>National Primary Industries Research, Development & Extension Framework</u>	
Agency	Deakin University
Strategy	NEW AND EMERGING INDUSTRIES NATIONAL RESEARCH, DEVELOPMENT AND EXTENSION STRATEGY
Does this Agency have an interest in the Strategy? (Please circle)	Yes
	No
Agency Position (please circle, and provide comments with options 2 and 3)	
1. Endorsed	
2. Endorsed with comments	
3. Not endorsed	
Signature block	
Name	Professor Lee Astheimer
Position	Deputy Vice-Chancellor (Research)
Signature	

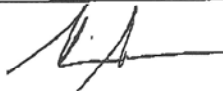
Department of Agriculture and Food, Western Australia

Endorsement Form	
<u>National Primary Industries Research, Development & Extension Framework</u>	
Agency	Department of Agriculture and Food, Western Australia
Strategy	New and Emerging Industries National Research, Development and Extension Strategy
Does this Agency have an interest in the Strategy? (Please circle)	Yes
	No
Agency Position (please circle, and provide comments with options 2 and 3)	
1. Endorsed	
2. Endorsed with comments	
3. Not endorsed	
Signature block	
Name	Mr Robert Delane
Position	Director General
Signature	 20/8/10


**Department of Employment, Economic Development and Innovation
Queensland**

Endorsement Form	
<u>National Primary Industries Research, Development & Extension Framework</u>	
Agency	Department of Employment, Economic Development and Innovation, Queensland
Strategy	New & Emerging Industries
Does this Agency have an interest in the Strategy? (Please circle)	<input checked="" type="radio"/> Yes
	<input type="radio"/> No
Agency Position (please circle, and provide comments with options 2 and 3)	
<input checked="" type="radio"/> 1. Endorsed	
2. Endorsed with comments	
3. Not endorsed	
Signature block	
Name	Amanda Yeates
Position	A/Executive Director, Agri-Science Queensland
Signature	


**Department of Primary Industries, Parks Water and Environment
(Tasmania)**

Endorsement Form	
<u>National Primary Industries Research, Development & Extension Framework</u>	
Agency	Department of Primary Industries, Parks, Water and Environment
Strategy	New and Emerging Industries National RD&E Strategy
Does this Agency have an interest in the Strategy? (Please circle)	<input checked="" type="checkbox"/> Yes
	<input type="checkbox"/> No
Agency Position (please circle, and provide comments with options 2 and 3)	
1. Endorsed – Yes DPIPWE endorses this strategy	
2. Endorsed with comments	
3. Not endorsed	
Signature block	
Name	Kim Evans
Position	Secretary
Signature	


Department of Primary Industries Victoria

Endorsement Form	
<u>National Primary Industries Research, Development & Extension Framework</u>	
Agency	Department of Primary Industries Victoria
Strategy	New & Emerging Industries R,D&E Strategy
Does this Agency have an interest in the Strategy? (Please circle)	<input checked="" type="radio"/> Yes
	<input type="radio"/> No
Agency Position (please circle, and provide comments with options 2 and 3)	
1. Endorsed	
<input checked="" type="radio"/> 2. Endorsed with comments	The Advisory Forum should preferably be independent of the NRIA, and not reside within it, if the Advisory Forum is to be a true collaboration between the agencies and industry. As it is proposed that NRIA will have a role in extension, there could be a conflict between its coordination role and extension delivery role.
3. Not endorsed	
Signature block	
Name	Dr Bruce Kefford
Position	Deputy Secretary Agriculture Research & Development
Signature	


Industry & Investment NSW – Primary Industries

Endorsement Form	
<u>National Primary Industries Research, Development & Extension Framework</u>	
Agency	Industry & Investment NSW – Primary Industries
Strategy	New and Emerging Industries National Research, Development and Extension Strategy
Does this Agency have an interest in the Strategy? (Please circle)	Yes
	No
Agency Position (please circle, and provide comments with options 2 and 3)	
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2. Endorsed with comments	
3. Not endorsed	
Signature block	 13 AUG 2010
Name	Ms Renata Brooks
Position	Executive Director Agriculture & Primary Industries, Science & Research
Signature	

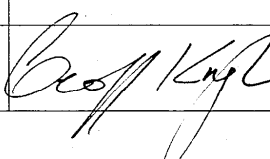
New Rural Industries Australia

Endorsement Form	
National Primary Industries Research, Development & Extension Framework	
Agency	New Rural Industries Australia
Strategy	New and Emerging Industries R,D & E Strategy
Does this Agency have an interest in the Strategy? (Please circle)	<input checked="" type="radio"/> Yes
	<input type="radio"/> No
Agency Position (please circle, and provide comments with options 2 and 3)	
<input checked="" type="radio"/> 1. Endorsed	
<input type="radio"/> 2. Endorsed with comments	
<input type="radio"/> 3. Not endorsed	
Signature block	
Name	Paul Miller
Position	Chairman
Signature	

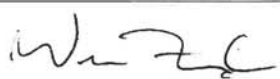
Northern Territory Department of Resources


Endorsement Form	
<u>National Primary Industries Research, Development & Extension Framework</u>	
Agency	Northern Territory Department of Resources
Strategy	New & Emerging Industries
Does this Agency have an interest in the Strategy? (Please circle)	Yes
	No
Agency Position (please circle, and provide comments with options 2 and 3)	
1. Endorsed	
2. Endorsed with comments	Would have liked to have seen more explanation for how the key findings were derived from within the document.
3. Not endorsed	
Signature block	
Name	Andrew Tomkins
Position	Acting Executive Director Primary Industries
Signature	 19/8/12

South Australian Research and Development Institute

Endorsement Form	
National Primary Industries Research, Development & Extension Framework	
Agency	South Australian Research and Development Institute
Strategy	New and Emerging Industries
Does this Agency have an interest in the Strategy? (Please circle)	Yes
	No
Agency Position (please circle, and provide comments with options 2 and 3)	
1. Endorsed	
2. Endorsed with comments	
3. Not endorsed	
Signature block	
Name	Geoff Knight
Position	Chief Executive, PIRSA
Signature	

Tasmanian Institute of Agricultural Research

Endorsement Form	
<u>National Primary Industries Research, Development & Extension Framework</u>	
Agency	Tasmanian Institute of Agricultural Research
Strategy	NEW AND EMERGING INDUSTRIES NATIONAL RESEARCH, DEVELOPMENT AND EXTENSION STRATEGY
Does this Agency have an interest in the Strategy? (Please circle)	Yes
	No
Agency Position (please circle, and provide comments with options 2 and 3)	
1. Endorsed	
2. Endorsed with comments	
3. Not endorsed	
Signature block	
Name	Wes Ford
Position	Acting Director
Signature	

Endorsement Form	
<u>National Primary Industries Research, Development & Extension Framework</u>	
Agency	University of Sydney
Strategy	New and Emerging Industries National RD&E Strategy
Does this Agency have an interest in the Strategy? (Please circle)	Yes
	No
Agency Position (please circle, and provide comments with options 2 and 3)	
1. Endorsed	
2. Endorsed with comments	
3. Not endorsed	
Signature block	
Name	Professor Jill Trehwella
Position	Deputy Vice-Chancellor (Research)
Signature	

5/8/2010.

NEW AND EMERGING INDUSTRIES

National Research, Development and Extension Strategy



The New and Emerging Industries National Research Development and Extension Strategy is a component of the National Primary Industries Research, Development and Extension Framework, endorsed by the Primary Industries Ministerial Council. The aim of the Framework is that primary industry RD&E will become more efficient and effective through better coordination and collaboration.

New and emerging animal and plant industries make significant contributions to the regions in which they operate by bringing diversity and resilience to the rural sector. They also contribute to the increasingly important niche and specialty food markets.

Together the selected emerging industries have an estimated gross value of production of \$411 million. They earned estimated export revenue of \$240 million. These values are likely to grow in future years because — as the term ‘emerging’ suggests — many of the emerging industries appear to have strong growth prospects.

The key coordination mechanism for new and emerging industry RD&E will be the Australian New Rural Industries RD&E Forum. This entity will reside within, and be coordinated by New Rural Industries Australia (NRIA). It will consist of representatives of relevant PISC agencies, including state departments with an interest in new and emerging industry RD&E, universities, CSIRO, appropriate RDCs, federal agencies and funding bodies, as well as three industry representatives.

The National RD&E Framework principle of national R, and regional D&E will guide the activities of the forum.