Australian Dairy Industry Council

Submission to the Select Committee

Inquiry into

Australia's Food Processing Sector

Submission on behalf of the Australian Dairy Industry

The dairy industry welcomes the chance to present this submission to the Select Committee on Australia's Food Processing Sector. This wide reaching enquiry presents an opportunity to comprehensively and consistently examine the issues affecting the competitiveness and future viability of the food industry in Australia.

This submission is from the Australian Dairy Industry Council (ADIC), the national peak policy body for the Australian dairy industry. The ADIC represents all sectors of industry on issues of national and international importance along the whole of the dairy value chain. Our constituent organisations – the Australian Dairy Farmers Limited (ADF) and the Australian Dairy Products Federation (ADPF) – represent the interests of dairy farmers, manufacturers, processors and traders across Australia, respectively.

The dairy industry is one of Australia's major rural industries. Based on farm gate value of production, it is ranked third behind the beef and wheat industries. There are approximately 7,500 farmers producing over 9 billion litres of milk annually. Australia's dairy value chain is complex, yet vibrant, delivering $14.7 billion dollars in value add per annum. Australian dairy companies export one million tonnes of dairy products per annum earning $3.0 billion dollars in revenue. The Australian dairy industry directly employs 40,000 people (and a further 60,000 indirectly), of which half are employed in the post farm gate sector adding an industry value of >$100,000 per employee.

Milk is a perishable product that must be processed before it can be sold commercially. As a result, dairy production is closely integrated across the supply chain from pre-farm gate through to domestic consumer and export markets.

The Australian Dairy Industry has recently prepared and submitted a number of responses to issues and enquiries which cover the same areas as this particular enquiry. Of these, the response to the National Food Plan Issues Paper summarises the industry's position on a wide range of relevant issues, and the response to the Innovation Review addresses the future of food processing in more depth. These full responses are attached as part of this submission.

Responses provided in these earlier papers address aspects relevant to this enquiry from the perspective of the dairy processing sector and dairy industry as a whole. Key items are selected and included here to emphasize specific areas of these submissions that address key matters in this enquiry.

(a) The competitiveness and future viability of Australia's food processing sector in global markets

Australian dairy has long recognised that its long term growth and profitability is closely linked to its position as a world competitive producer that can develop and retain global markets. With around half the annual milk production being sold directly in export markets, no significant tariff barriers to commercial imports, and a sizable component of domestic consumption in some categories based on imports, Australian dairy company and farm gate returns in the southern states are directly determined by the prices prevailing in world markets.

The ability to remain globally competitive also relies on successful innovation which is commercially-led, responsive and adaptable. Innovation on a national scale requires strategic investment in knowledge/technology platforms and capability.

The dairy industry supports the development of a National Food Plan which should aim to achieve an integrated vision for food that is understood and supported across all government departments and levels of government. Such a plan will contribute to the competitiveness and future viability of the food processing sector by recognising the integrated nature of food supply, regional differences and Australia's role in the global food market, and the global context in which our industries operate.

(b) The Regulatory Environment

In regulation relating to food, the dairy industry supports regulation regimes that are characterised by:

- Minimum effective standards and regulations, based on science and risk assessment at critical points, and strategies to manage that risk to protect public health and safety.
- Consideration of the food chain in its entirety for food safety purposes, and recognition of shared responsibility for food safety among all parts of the chain.
- Integration of regulatory requirements with business systems such as codes of practice and quality assurance.
- Harmonisation at national and international levels, whenever possible.
- Dairy, like other Australian food industries, cannot carry undue regulatory costs or the negative impacts of ill-conceived regulation on business and technological innovation. Such impacts include higher costs, loss of market opportunities and/or deterrence of innovation and investment.

(i) Taxation

- The dairy industry fully supports the continuation of a tax rebate scheme, which is the most effective support mechanism for the promotion of innovation within the corporate sector. The tax concession should not be conditional on either the turnover of the organisation or on the level of R&D investment made each year. A tax incentive scheme should not identify and reward only big ticket areas of R&D investment as, any R&D undertaken within Australia will collectively add to Australia's innovation pool.
- Challenges relating to climate change and energy security (for example greenhouse gas emissions trading schemes, carbon tax or biofuel policies) could have a major impact on dairy processors. The interaction of these new policy initiatives with commercial markets and existing trade policies will be complex and multi-layered. Depending on their structure, these policies could significantly affect the international performance and competitiveness of Australian dairy processors.

(ii) Research and development

- Investment in research and development, extension and commercialisation are integral to the success of the Australian dairy industry. It has enabled the dairy industry to be at the forefront of change, to build sustainable competitive advantage and to deliver significant public good in areas such as sustainable natural resource use, environmental outcomes and improved food safety. The Australian dairy industry believes a partnership with government is critical to amplify the industry and public good outcomes of a strong innovation system.

(iii) Food labelling

- The dairy industry has actively engaged with the Blewett Review of Food Labelling Law and Policy. However, the industry is concerned that many of the recommendations made in the final report are inconsistent with the core principles the dairy industry advocates for all regulation. Issues of concern to the industry include:
    - Increased regulatory burden in areas such as new technologies
    - Failure to address duplication and confusion over roles between the Food Standards Code and the Competition and Consumer Act regarding 'truth in labelling'
    - Failure to consider the importance of international harmonisation
    - The proposed use of labelling provisions as a medium for public health campaigns without supporting evidence that these will be effective.

- These issues have the potential to damage the competitiveness of the dairy industry and/or inadvertently reduce dairy consumption. This in turn puts farmer and manufacturer viability at risk, while resulting in poorer population health outcomes.

(iv) Cross jurisdictional regulations
The industry supports harmonisation of regulation at national and international levels, whenever possible, including consistent enforcement. However, this does not mean regulation by national systems with blanket rules where these cannot account for, or accommodate local conditions.

(v) Biosecurity
Biosecurity plays a critical role in protecting the food supply, providing community as well as individual benefits. Any actions in this area need to consider all potential impacts, including human health impacts, socioeconomic costs from trade losses, and environmental damage. This includes achieving a biosecurity and quarantine system viewed by all as meeting the letter and spirit of World Trade Organisation agreements, and not as a trade barrier.

(vi) Export arrangements
The dairy industry has been actively involved in the Joint Industry — AQIS Dairy Export Ministerial Task Force to identify reforms to export dairy regulatory services and systems. This has included the development of a Dairy Export Industry Strategic Plan, with the following desired outcomes:

- Sustainable Market Assurance
- National and International Alignment of Export Dairy Requirements
- Robust Dairy Export Regulatory Intelligence, Evidence and Evaluation
- A Responsible Industry within a Risk – Based Regulatory System
- Genuine Stakeholder Partnerships
- Effective Dairy Export Regulatory Service Delivery
- Common Dairy Export Certification Vision

- The dairy industry is working within this framework, however resource challenges within AQIS are an issue that may have long term implications for the success of these efforts.

(c) The impact of Australia's competition regime and the food retail sector, on the food processing sector, including the effectiveness of the Competition and Consumer Act 2010
The recent retail milk price drop provides a timely illustration of the importance of careful consideration of all food industry impacts, including long-term impacts on industry viability through the entire supply chain.

Fresh drinking milk, which is characteristically perishable and thus with a limited shelflife, is unique as an everyday dietary staple of our society. Eight months ago a major supermarket chain took particular advantage of this, using fresh milk as a discount-marketing agent at near or below cost. This has led to the devaluing of fresh drinking milk across the nation, as other supermarkets dropped prices to protect market share and created a situation of market failure in the domestic fresh milk market.

A key issue facing dairy farmers, processors and consumers with the current unsustainable drinking milk price cuts is the power the major retailers wield in the market place. Over the last decade, the major supermarkets have more than doubled their market share of supermarket milk sales with their own store branded milk, as well as increasing their share of the 'route' trade[1]. The average price for supermarket branded milk has declined in real terms while prices for processor brands have tracked inflation. The difference in the two brand groups in value at retail is now in the hundreds of millions of dollars per year.

The market power of major retailers has the effect of driving out smaller competitors, for example corner stores and independent petrol stations, and increasing the market share of home brand milk, leading to lower margins across the supply chain.

[1] The 'route' trade comprises corner stores, convenience stores, food service outlets and those who distribute goods to them.

If left unchecked, the major retailers' actions will lead to a substantial lessening of competition in the market place, a substantial impact on the viability of branded dairy products and are likely to lead to less product variety on supermarket shelves, and a corresponding decline in investment in product innovation. Ultimately, this will lead to less choice for consumers, higher prices on other products and unsustainable pressure on farmers and others in the supply chain due to lower margins.

This unsustainable pressure severely affects the supply chain by causing higher prices several years after the discounting, due to farmers leaving the industry and a loss of production for supply.

Given the sheer size of the supermarket duopoly and the disproportionate power they wield in the Australian market place, the majority of Australian suppliers, particularly of fresh food produce and drinking milk, must have some sort of ongoing commercial relationship with them.

Therefore it is important there is full transparency along the supply chain and that suppliers and farmers have access to timely and cost effective dispute resolution processes in their dealings with major supermarkets.

It is therefore appropriate to develop a mandatory Supermarket Industry Code of Conduct under the Competition and Consumer Act dealing with

(i) the conduct of the major supermarket chains towards suppliers and farmers;
(ii) access to supermarket shelves at transparent and reasonable prices, terms and conditions; and
(iii) timely and cost effective dispute resolution processes.

The full suite of suggested recommendations to assist in ensuring there is fair and reasonable conduct across the supply chain are outlined briefly below.

Recommendation 1	That the relevant Federal Minister give direction to the ACCC to: use its price monitoring powers under section 95ZF of the Competition and Consumer Act 2010 to monitor prices, costs and profits relating to the supply of drinking milk.
Recommendations 2-4	That amendments to the Competition and Consumer Act 2010 (the Act) are made as follows: a definition of unconscionable conduct be inserted into the Act; an 'effects' test be reintroduced; and a statutory duty of good faith be enacted as part of the Act.
Recommendation 5-6	that the United Kingdom Groceries Supply Code of Practice be examined with a view to implementing a similar mandatory code of conduct in Australia that would suit Australia's more concentrated market and conditions; and that a Supermarket Commissioner or Ombudsman be established to enforce the new code of conduct.
Recommendation 7	That the Senate Economics References Committee examines farmgate prices in the key drinking milk markets annually for the next five years to gain a complete picture of Coles' unsustainable discounting and its impact on dairy farming families.

(f) The effect of international anti-free trade measures

The long term growth and profitability of the dairy industry in Australia is linked closely to its status as a world competitive producer that can develop and retain global market positions. Factors impacting on dairy's ability to compete globally, therefore also impact on the security of the industry

locally. Examples of barriers to overseas markets include tariffs, quotas and technical barriers such as labelling and food standards regulation.

The dairy industry strongly supports efforts to conclude a comprehensive multilateral agreement under the World Trade Organisation. This is important to remove agricultural trade distortions and create a more flexible commercial environment for exporters.

However, the dairy industry also supports the pursuit of strategic regional and bilateral trade agreements as a parallel pathway to improving Australia's access to, and potential returns from, important markets for dairy products. This is also important to counter loss of competitiveness as other major dairy producers conclude free trade agreements.

(g) The access to efficient and quality infrastructure, investment capital and skilled labour and skills training

- ***Infrastructure***

The maintenance of road, rail and port infrastructure is essential to food industries. For the dairy industry, collection of milk from farms, transport of value added product to market and export of product requires world standard infrastructure. With the industry's export focus, shipping, and port capacity and access are critical to bringing products to international markets quickly and efficiently.
The dairy processing industry also requires a reliable power supply to facilitate growth across the supply chain. There is growing concern that capacity will not meet demand, particularly in major dairy producing regions in south eastern Australia.

- ***Investment capital***

Government investment should aim to overcome barriers and fill gaps that stifle innovation. It should assist in reducing the commercial risks associated with bringing new technologies and ideas to market and should facilitate collaboration.

- ***People***

The dairy industry has a culture of valuing people as critical to sustained business success. The industry supports a collaborative approach to workforce development.
Sourcing the people and skills the industry needs to grow is a key issue. A coordinated effort by industry and government is required to address issues across competition for labour, the Vocational Education and Training sector, and universities.

Dairy Manufacturing Training and Research facilities, especially at pilot scale, are key enablers of building long term industry capability.

Australian Dairy Industry

represented by

Australian Dairy Industry Council Inc. and Dairy Australia

Submission to the

Issues Paper to inform development of a National Food Plan

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EXECUTIVE SUMMARY

The dairy industry welcomes the chance to present this submission in response to *the Issues paper to inform development of a National Food Plan* (the issues paper). The development of a National Food Plan offers the opportunity to comprehensively and consistently examine the issues affecting the future of the food industry in Australia.

This is a joint submission from the Australian Dairy Industry Council (ADIC) and Dairy Australia.

The ADIC is the national peak policy body for the Australian dairy industry and represents all sectors of the industry on issues of national and international importance. Its constituent organisations – the Australian Dairy Farmers Limited (ADF) and the Australian Dairy Products Federation (ADPF) – represent the interests of dairy farmers, manufacturers, processors and traders across Australia, respectively.
Dairy Australia is the dairy industry-owned service company, limited by guarantee, whose members are farmers and industry bodies, including the ADF and the ADPF.

- The dairy industry is a major rural industry and a major rural (and urban) employer.
- The industry's integrated farming and processing systems contribute to the economic and social wellbeing of rural Australia.
- Dairy is a highly nutritious food source critical to a healthy population.
- Increased productivity and continuing profitability will ensure Australians continue to have access to affordable, nutritious dairy products.

The dairy industry believes the National Food Plan must support competitive and sustainable food industries in continuing to provide a nutritious, secure food supply.

An integrated government framework will be required, focusing on factors government can influence, while remaining aware of how these actions can affect the viability of food industries.

Given the right environment, the dairy industry will continue to innovate to improve environmental and health outcomes, and support prosperous regional communities.

Key points

- Potential impacts on the food industry should be a priority consideration when setting policies in other areas.
- The National Food Plan needs to take into account the risks to Australia's dairy supply chain of multiple natural disasters or significant natural and other emergencies that threaten business continuity.
- Dairy's strong trade position supports its competitiveness and sustainability, which are needed for domestic and global food security.
- Dairy is a highly nutritious food source critical to a healthy population. The production, consumption and international trade of nutritious core foods such as dairy must be supported and promoted to ensure industry viability, and hence the availability and affordability of these foods.
- The recent retail milk price drop provides a timely illustration of the importance of careful consideration of all food industry impacts, including long-term impacts on industry viability through the entire supply chain.

- Substantial ongoing investment in agricultural and food innovation, including research, development and extension, will be required if productivity is to grow to meet the food and nutrition challenges posed by world population growth and climate change.

- Strategic investment in infrastructure is critical. The integrated nature of the dairy supply chain means investment in processing and farm infrastructure and investment in input infrastructure are related. Support for investment in public projects such as transport and water infrastructure is also required.

- The future of the industry relies on highly capable and well-trained people continuing to invest and work in dairy. A coordinated effort by industry and government is required to attract, retain and develop the people needed.

- The National Food Plan needs to consider people and skills development strategies at national, state and regional levels, and across the primary, secondary, vocational education and training, and university sectors.

- Dairy, like other Australian food industries, cannot carry undue regulatory imposts, which reduce the competitiveness of the industry. The goal of a mature industry like dairy is to work with government in developing regulations or, ideally, best-practice alternatives to regulation. The impacts of poorly designed regulations include higher costs, loss of market opportunities and/or deterrence of innovation and investment.

- Sustainable food industries require the right market signals and policy context to adapt to a changing environment and increasing competition for resources, while remaining profitable. This will require new technologies, new skills and new ways of doing business and will require government to give the right signals for innovation.

- Water policy must apply consistently and equitably across all major water users, so land use change does not undermine agricultural productivity.

- The affordability and availability of water is critical. Greater investment in the research, development and adoption of water-efficient farm and processing systems is required.

- Climate change policies should not discourage food production, but address the challenge of reducing greenhouse gas emissions from food-producing systems and boosting productivity to meet increasing world food demand. It is vital that social, economic and environmental factors are well balanced.

- Increasing the flexibility of export markets and improving Australia's access options and opportunities is critical to give farmers and companies confidence in their long-term viability and to drive future growth and investment.

- Biosecurity plays a critical role in protecting the food supply, providing community as well as individual benefits. Any actions in this area need to consider all potential impacts, including human health impacts, socioeconomic costs from trade losses, and environmental damage. This includes achieving a biosecurity and quarantine system viewed by all as meeting the letter and spirit of World Trade Organisation agreements, and not as a trade barrier.

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INTRODUCTION

The dairy industry is one of Australia's major rural industries. Based on farm gate value of production, it is ranked third behind the beef and wheat industries. There are approximately 7,500 farmers producing more than 9 billion litres of milk annually.

Several different regions make up the industry. Generally, Queensland, northern New South Wales and Western Australia predominately supply the domestic retail drinking milk market while regions in the southern states supply domestic and export product markets.

Milk is a perishable product, which must be processed before it can be sold commercially. As a result, dairy production is integrated across the supply chain from pre-farm gate through to consumer and export markets, and there is significant infrastructure involved in its collection, storage and retailing. In simple terms, Australian dairy farmers cannot operate without domestic processing capacity. Nor can processors survive without domestic farm milk supply.

Because of the nature of dairy as a fresh product, most processing occurs near the point of farm production in regional Australia. Dairy employs more than 40,000 people directly on farms, in factories and in associated transport roles across regional Australia. The industry adds value through the processing of milk to produce drinking milk, cheese, butter, milk powders, cream, yoghurts and a range of specialty products. The estimated value of farm production is $4 billion annually and total value added production (ex factory) is $12 billion.

Under this structure, changes affecting one point of the dairy supply chain have 'knock-on' effects right across the chain. For example, increasing fertiliser and fuel costs will affect farm profitability and production but also impact on factory processing costs and product mix. Equally, higher costs at the manufacturer level ultimately flow back down to the price of the major input (milk received off farm) and directly affect the profitability of farm systems and farmers' capacity to compete for resources.

Australian dairy has long recognised its long-term growth and profitability is closely linked to its position as a world competitive producer that can develop and retain global markets. With around half the annual milk production sold directly in export markets, no significant tariff barriers to commercial imports, and a sizable component of domestic consumption in some categories based on imports, the prices prevailing in world markets directly determine Australian dairy company and farm gate returns.

The National Food Plan provides an opportunity for the government to look holistically at the spectrum of issues faced every day by food industries like dairy. A National Food Plan that does so successfully will increase industry confidence and drive long-term growth and investment in rural Australia.

DEVELOPING A NATIONAL FOOD PLAN

1. *What is the most important thing you think a national food plan should try to achieve?*
2. *What do you think the vision and objectives for a national food plan should be?*

The scope of the issues paper is very wide, increasing the risk of the National Food Plan becoming meaningless or impossible to implement. As an underlying premise, the Plan should support sustainable food industries, to provide a nutritious, secure food supply for Australians and the world. To do so it should focus on factors government can influence, while remaining aware of how these actions can affect the ongoing viability of food industries.

The National Food Plan should:

- Aim to achieve an integrated vision for the food industry, which all government departments and levels of government understand and support.
- Set principles for government to consider in all policy development that affects the food industry – but the details of these policies can be developed separately to address specific issues, with appropriate consultation.
- Cover all aspects of government involvement in food, including policy, regulation, education and training, investment in research and development, and industry development. Currently this involvement is piecemeal, inconsistent, sometimes overlapping and often defined by capability and available policy tools rather than any shared understanding of roles and responsibilities or overarching strategy. All aspects of food policy need to be considered to avoid restructuring one part of the current regime (for example investment in innovation) without addressing others (for example regulation).
- Focus on the Australian food industry, but recognise the global context in which our industries operate.
- Recognise regional differences and be flexible enough to enable projects to be tailored to what regions and industries really need, rather than a 'one size fits all' approach.

Government should work with the food industry to achieve the Plan's goals (for example through co-investment or co-regulation). In addressing these goals, government should avoid shifting costs out of government and on to industry, especially where there are legitimate community benefits, including access to a safe, nutritious and secure food supply.

On this basis, the National Food Plan should focus on:

- Promoting and supporting the production of nutritious core foods such as dairy
- Strategic investment in innovation along the whole food supply chain
- Developing the people and skills the industry needs to grow through coordinated effort from industry and government
- Developing regional approaches to stimulate sustainable economic growth
- Harmonising policies and regulations across departments and governments, as well as across sectors (for example meat and milk), domestic, exported and imported food, and commercial requirements
- Providing positive signals for industry change rather than introducing onerous regulations
- Addressing cross sectoral challenges where there are tensions between objectives (for example the drive to reduce greenhouse gas emissions while trying to provide food security for an increasing world population)

- Developing mechanisms to look at unintended consequences beyond the target of specific policies, and prioritising minimising these impacts on food supply
- Ensuring sustainable access to critical inputs to food production, such as water.

FOOD SECURITY

3. What do you see as the major risks to Australia's food supply in the coming years and decades? How could they be avoided or managed more effectively?

4. What does food security mean to you? How would this be achieved? How would we know if/when we are food secure?

The future of Australia's food supply is tied to the ongoing viability of food industries along the supply chain. Food businesses must be both profitable and sustainable in the long term to ensure Australians continue to have access to a nutritious, secure food supply. This should be at the centre of the National Food Plan, and elements contributing to this outcome (ranging from fair and reasonable trading terms to managing the use of critical inputs such as water) are touched on throughout this submission.

The debates around broad-based challenges relating to food production, which will necessarily play a role in informing the development of the National Food Plan, extend beyond the traditional boundaries of agriculture into broader areas of social debate. These debates are putting pressure on food production and agriculture's continued right to Australian natural resources (and the cost of this access). For example, developing understanding of the trade-offs between providing greater food security and meeting other social expectations around water use, carbon or the ethics of food production is quite complex. It requires agricultural groups to identify and understand the way in which farm and food-manufacturing systems interact with a broad range of social, economic and policy drivers.

Challenges relating to climate change and energy security have resulted in policy initiatives like greenhouse gas emissions trading schemes and biofuel policies. The interaction of these new policy initiatives with commercial markets and existing trade policies will be complex and multi-layered. Depending on their structure, these policies could significantly affect the international performance and competitiveness of Australian food industries, a fact the National Food Plan should acknowledge.

Similarly, policy in relation to land use is a complex challenge. There is good reason to protect strategic agricultural land from damage to its productivity and sustainability. At the same time land use planning and subdivision arrangements are critical levers to address farm viability. Poorly thought out or inflexible requirements can be a barrier to farm aggregation for viability, with land that would traditionally have been available for farming being purchased by people seeking rural amenity rather than using the land for productive purposes.

Potential impacts on the food industry should be a priority consideration when setting policies in other areas.

Supply chain resilience

Recent natural disasters (bushfires, floods and Cyclone Yasi) have severely tested the dairy supply chain's ability n to withstand external shocks at the local and regional level.

The dairy industry is working across the supply chain to mitigate the effects of extreme weather events, improve planning and invest, where possible, to protect assets and build resilient systems. However, many of the lessons learned following recent events demonstrate the many interdependencies existing along the food supply chain. Transportation and particularly road access is essential to ensure milk can be moved from farm to factory and then for the final products to be supplied to retailers and on to the consumer.

The industry's resilience has been tested of late and its ability to invest to better prepare for future events is closely linked to profitability and the level of optimism across the sector.

The National Food Plan needs to take into account the risks to Australia's dairy supply chain of multiple natural disasters or significant natural and other emergencies that threaten business continuity.

Trade

The National Food Plan should recognise creating open, flexible market systems is a major means of securing long term global and national food security.

It will be important, however, to ensure the food security debate does not become a vehicle for hidden protectionism or a means of imposing arbitrary barriers on access to export markets.

As an exporter of nutritious dairy products to more than 100 countries, the Australian dairy industry has an important role to play in meeting food security and nutrition needs on a global basis. Australia sells around half its annual milk production directly into export markets as manufactured food products and ingredients. At the same time, Australia applies minimal barriers to commercial dairy imports, which account for a sizable portion of Australian cheese consumption.

The long-term growth and profitability of the dairy industry in Australia is therefore linked to its status as a world competitive producer that can develop and retain global market positions. Factors affecting dairy's ability to compete globally therefore also affect the security of the industry locally. Examples of barriers to overseas markets include tariffs, quotas and technical barriers such as labelling and food standards regulation.

Maintaining biosecurity is also fundamental for both international market access and continuing livestock industries in Australia, and hence food security. Government contributions to biosecurity and preparedness are critical to these safeguards.

Dairy's strong trade position supports its competitiveness and sustainability, which are needed for domestic and global food security.

NUTRITIOUS AND SAFE FOOD SUPPLY MEETING CONSUMER NEEDS

5. What are the most important benefits that Australian consumers get or should get from our food supply? Why?

6. What two or three actions:
- *by the government sector would most benefit food consumers?*
- *by the non-government sector would most benefit food consumers?*

The dairy industry provides consumers with a safe and highly nutritious food source, embedded in the Australian culture.

As stated in the Australian Dietary Guidelines, dairy foods are a major source of nutrients in the Australian diet. Milk is one of the most complete of all foods, containing nearly all the constituents of nutritional importance to humans. Dairy foods are the richest source of calcium in the Australian diet as well as being important contributors to protein, vitamin A, riboflavin, vitamin B and zinc.[2]

As with other areas of policy affecting food, the National Food Plan offers an opportunity to consider public health objectives in the wider context of all policies influencing food. Any new Nutrition Policy (such as that proposed under *Labelling Logic: Review of Food Labelling Law and Policy*) should integrate with the National Food Plan. This means considering issues like costs for producers, the specifics of the Australian diet, and the international context, as well as recognising food industry participation and responsiveness to consumer nutrition and health concerns. An integrated approach will avoid the piecemeal, duplicative and at times contradictory outcomes of attempting to address a wide range of issues through nutrition policy.

Health and nutrition policies should aim to promote the health and wellbeing of Australians. They should encourage consumption of nutrient rich core foods, such as dairy foods (which are under-consumed in the Australian diet), that are associated with positive health outcomes and reduced incidence of adverse health outcomes.

Achieving positive health outcomes (including reducing the incidence of non-communicable diseases) is more complex than simply the relationship between a narrow range of individual nutrients and disease markers. The current focus on targeting negatively perceived nutrients is counterproductive. The Plan should recognise that people eat foods, not nutrients, and consider the importance of how nutrients are consumed within the context of the food matrix, and the total diet.

Nutrition science demonstrates some nutrients can have different health impacts depending on their delivery. For example even though saturated fatty acids have been linked to increased risk of cardiovascular disease, there is no evidence to support the view that reduced consumption of whole milk or regular fat dairy foods is associated with a reduced risk of either cardiovascular disease or coronary heart disease. In fact, the comprehensive evidence available indicates that reducing dairy consumption will either have no effect or lead to a slightly increased risk of cardiovascular disease.[3][4][5][6]

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[2] National Health and Medical Research Council (2003) Dietary Guidelines for Australian Adults, www.nhmrc.gov.au/publications

[3] Soedamah-Muthu SS et al., (2011) Milk and dairy consumption and incidence of cardiovascular diseases and all-cause mortality: dose-response meta-analysis of prospective cohort studies. American Journal of Clinical Nutrition 93, 158-71.

[4] Gibson RA et al., (2009) The effects of dairy foods on CHD: a systematic review of prospective cohort studies. British Journal of Nutrition 102, 1267-1275.

[5] Elwood PC et al., (2010) The consumption of milk and dairy foods and the incidence of vascular disease and diabetes: an overview of the evidence. Lipids 45, 925-39

[6] Astrup A et al., (2011) (authors include Walter Willett along with Australia's Paul Nestel and Andy Sinclair) The role of reducing intakes of saturated fat in the prevention of cardiovascular disease: where does the evidence stand in 2010? American Journal of Clinical Nutrition (published online January 2011)

While they may not be the direct focus of the National Food Plan, current issues for the dairy industry in relation to health and nutrition policy the Plan should be cognisant of include:

- Nutritional guidelines should be about providing healthy nutritious foods, which meet the population's nutritional needs. Dietary guidance should not use other attributes (such as sustainability and other consumer credence values) that may cloud nutrition messages and lead consumers to neglect nutritious core foods in favour of less healthy alternatives.
- Strategies that utilise nutrient profiling systems currently penalise nutrient rich core foods such as dairy. Instead, they should focus on reducing consumption of nutrient-poor energy-dense foods that Australians currently over consume, complementing and supporting dietary guidelines.
- Under-consumption of all core nutrient rich foods should be addressed consistently, rather than the current focus only on fruit and vegetables, and to a lesser extent wholegrains. Nutrients of concern in the Australian diet include calcium, magnesium, iodine and iron – three of which are in dairy foods.
- Health and nutrition policies must be evidence based and policy decisions should not force unnecessary changes such as labelling or reformulation of foods where the evidence demonstrates these foods have a positive effect on health outcomes.
- Policies aimed at increasing affordability and access that promote driving down the price of foods and reducing margins for the producer and manufacturer are counterproductive. Such pressures threaten long-term viability, and hence the widespread availability of nutritious core foods such as dairy.
- To ensure evidence based policy making in the Australian context, regular population health and nutrition surveys are critical, along with a robust health and nutrition research program.
- Food industry innovation to produce convenient, healthy foods that meet the demands of changing consumer lifestyles should be encouraged.

Dairy is a highly nutritious food source critical to a healthy population. The production, consumption and international trade of nutritious core foods such as dairy must be supported and promoted to ensure industry viability, and hence the availability and affordability of these foods.

A COMPETITIVE, PRODUCTIVE AND EFFICIENT FOOD INDUSTRY

7. What do you see as the major opportunities for Australia's food industry in the coming years and decades? How could they be realised?

8. What two or three actions:
- *by the government sector would most benefit businesses that make, distribute and sell food?*
- *by non-government sectors would most benefit businesses that make, distribute and sell food?*

9. What specific food policy and regulatory functions within or between governments:
- *overlap? are at cross-purposes? have gaps?*

10. Which regulation or regulatory regime poses the greatest burden on the food industry along the food supply chain (production, processing/manufacturing, transport and logistics, wholesale, retail)? What could be done to reduce this burden?

Case study - Milk price wars

The recent retail milk price drop provides a timely illustration of the importance of careful consideration of all food industry impacts, including long-term impacts on industry viability through the entire supply chain.

Fresh drinking milk is unique as an everyday dietary staple of our society, which is also perishable. Recently a major supermarket chain took particular advantage of this, using fresh milk as a discount-marketing agent at near or below cost. This has led to the devaluing of fresh drinking milk across the nation, as other supermarkets have dropped prices to protect market share and created a situation of market failure in the domestic fresh milk market.

Dairy farmers cannot turn off supply or store their product as other suppliers can, and in many regions of Australia do not have alternative markets for milk.

A key issue facing dairy farmers, processors and consumers with the current unsustainable drinking milk price cuts is the power the major retailers wield in the market place. Over the last decade, the major supermarkets have more than doubled their market share of supermarket milk sales with their own supermarket store branded milk, as well as increasing their share of the 'route' trade[7]. The average price for supermarket branded milk has declined in real terms while prices for processor brands have tracked inflation. The difference in the two brand groups in value at retail is now more than $500 million per year.

The market power of major retailers has the effect of driving out smaller competitors, for example corner stores and independent petrol stations, and increasing the market share of home brand milk and luring more customers into major retailers' stores.

If left unchecked, the major retailer's actions will lead to a substantial lessening of competition in the market place, a substantial impact on the viability of branded dairy products and are likely to lead to less product variety on supermarket shelves, and a corresponding decline in investment in product innovation.

Ultimately, this will lead to less choice for consumers, higher prices on products that are not staples and unsustainable pressure on farmers and others in the supply chain.

This unsustainable pressure severely affects the supply chain by causing higher prices several years after the discounting, due to farmers leaving the industry and a loss of production for supply.

Policy settings across government should promote a sustainable domestic Australian food industry throughout the entire supply chain, including fair and reasonable trading terms.

Innovation

Investment in research, development, extension/technology transfer and commercialisation are integral to the success of the Australian dairy industry and should be at the heart of the National Food Plan. Investment in innovation has enabled the dairy industry to be at the forefront of change,

[7] The 'route' trade comprises corner stores, convenience stores, food service outlets and those who distribute to them.

to build sustainable competitive advantage and to deliver significant public good in areas such as natural resource use, environmental outcomes and improved food safety as well as responding to consumer demand for convenient, healthy products. The Australian dairy industry believes partnerships with both state and federal governments are critical to amplify the industry and public good outcomes of a strong innovation system.

The Australian dairy industry is a leader in the agri-food space, creating new and effective ways to innovate across the whole supply chain. These include:

- Dairy Innovation Australia Limited (DIAL) – a joint venture between Dairy Australia and major Australian dairy manufacturers. DIAL brings together a critical mass of skills and expertise in an innovation hub for dairy manufacturing research and development.

- The Dairy Futures Co-operative Research Centre – a large-scale industry-government partnership exploring higher-risk opportunities in animal and plant genetics with an emphasis on paths to market.

The importance of innovation to the Australian dairy industry was central to the industry's submission to the Review of the National Innovation System. The dairy industry's key points regarding innovation are that:

- Successful innovation is commercially led, responsive and adaptable.
- Innovation on a national scale requires strategic investment in knowledge/technology platforms and capability.
- Government investment should aim to overcome barriers and fill gaps that stifle innovation. It should assist in reducing the commercial risks associated with bringing new technologies and ideas to market and should facilitate collaboration.
- Commercial and industry organisations are strategically investing in innovation, often in a manner that attracts support from government. There are many common interests in these investment relationships, especially where combined investments in pre-competitive and industry-good activities have national economic, social and environmental benefits.
- Government should continue to have a critical role, primarily as an enabler of innovation. Investment decisions by governments provide clear signals for prioritisation of effort, capacity building, and infrastructure use to reduce risk at pivotal moments in the innovation process, and to encourage collaboration and networking.
- The National Food Industry Strategy provided a successful model for innovation investment structure. Food Innovation Grants (FIG) created $120 million worth of new food innovation investment (including seven dairy projects and $9 million FIG money matched with $15 million dairy company investment).

Innovation in food relies on research, development and extension all the way along the supply chain, including in agricultural and health and nutrition research. The rural Research and Development Corporation model plays an important role in innovation in the dairy industry, with the dairy industry's rural Research and Development Corporation, Dairy Australia, investing in innovation across the dairy supply chain. This includes conducting research and development focused on outcomes important to the industry, as well as extension activities to encourage adoption of these innovations.

Independent studies (for example Pardey and Alston 2010, Mullen 2007) have identified significant returns have accrued from past investments in rural research, development and extension in Australia. Some of the benefits have spilled over to the broader community including a safe and stable food supply, improved human health and nutrition, an enhanced national knowledge and skills

base and improved environmental conditions arising from sustainable on-farm management practices.

Substantial ongoing investment in agricultural and food innovation, including research, development and extension, will be required if productivity is to grow to meet the food and nutrition challenges posed by world population growth and climate change.

Infrastructure

As an industry, dairy has significant infrastructure involved in production, collection, storage and retailing. This ranges from sophisticated irrigation, feeding, milking and storage infrastructure on farms to state of the art manufacturing facilities and cold chain infrastructure.

The maintenance of road, rail and port infrastructure is essential to food industries and is important for the context of the National Food Plan. For the dairy industry, collection of milk from farms, transport of value added product to market and export of product requires world standard transport infrastructure. With the industry's export focus, shipping, and port capacity and access are critical to bringing products to international markets quickly and efficiently.

The industry also requires a reliable and growing power supply to facilitate growth across the supply chain. However, there is growing concern capacity will not meet demand, particularly in major dairy producing regions in southeastern Australia.

The interdependencies between dairy farming and other links in the dairy supply chain also drive local investment to locate supporting industries and infrastructure (for example dairy processing, input infrastructure such as feed mills, and investment in public infrastructure such as transport and water) close to dairy farming. This infrastructure is critical to viable and prosperous rural communities.

Infrastructure is also required to support research and development and training – which in turn are critical to the future of the industry. This provides yet another example of the integrated nature of issues facing food industries, and the important role a National Food Plan could play in addressing these crosscutting issues.

Strategic investment in infrastructure is critical. The integrated nature of the dairy supply chain means investment in processing and farm infrastructure and investment in input infrastructure are related. Support for investment in public projects such as transport and water infrastructure is also required.

People and skills

Building capability, at industry leadership, service and individual business or operator levels, is critical to increase productivity and profitability in the dairy industry.

Those with the most capacity can take advantage of volatile situations and make the best use of the opportunities new technologies present. Dairy farming has shifted from a predominately labour-based enterprise to a much more specialised knowledge based business, significantly raising the skills and knowledge required to operate effectively.

Many businesses are having difficulty finding and retaining suitable workers and attracting, retaining and developing people are high priorities for the industry. The consequences of not getting people issues right are highly visible in the form of premature exit of farms, people and investment from the industry.

In 2006, Dairy Australia began actively developing a People in Dairy strategy for the industry. It has developed a career structure, mapping employment classifications to the Australian Qualifications Framework and has sponsored research and piloted programs to identify what is needed maintain a

strong farming sector that offers attractive jobs and supports choices for people to move into and out of the industry. There is an opportunity for the National Food Plan to build on this existing work.

Growth (and maintenance) in the dairy industry can only happen if young people continue to invest and work in the industry. The underlying factors having the most impact on this are:

- Farm viability to generate sufficient return to compete with other opportunities in society
- Working conditions that match those of other jobs on offer, including training and career paths
- Vibrant communities that provide opportunities for partners and family members, access to amenities and strong service sectors.

Addressing these issues is not easy. However, there are great opportunities for industry and government to make a real difference to the attractiveness of the industry to the next generation.

The future of the dairy industry relies on highly capable and well-trained people continuing to invest and work in the industry. A coordinated effort by industry and government is required to attract, retain and develop the people needed.

Systemic education and training structures need to support individuals and businesses. Primary, secondary, vocational education and training and the university sector all play a role in increasing understanding and value of food production, and opportunities to work in related roles.

The dairy industry actively engages with the primary and secondary education sectors through programs such as Picasso Cows and Cows Create Careers as well as providing educational resources.[8] Consideration of the role of food and food production as part of the national curriculum would build on this work.

The industry has also taken a leadership role in vocational education and training. In 2005, Dairy Australia developed a partnership with Goulburn Ovens TAFE, together with TAFE colleges across all Australian dairy regions, which forms the National Centre for Dairy Education Australia (NCDEA).

The industry would welcome a more visible and proactive training strategy developed between the industry and government and integrated with the National Food Plan. Only government can address issues such as the National Training Package working for the industry, access to training funds, and differences between states in vocational education and training models.

In the university space, the industry is also finding challenges linked to the shortage of agricultural science graduates. Recent research commissioned by the Australian Council of Deans of Agriculture indicates the shortage of new graduates in agricultural science is two to three times higher than the figures quoted in the *Issues paper to inform development of a National Food Plan*. Evaluation of newspaper and internet jobs for the period April 2006 to March 2009 demonstrated the job market for graduates was 5000 per year yet expected graduation completions are around 800 per year[9].

Predicted vacancies due to retirement of agronomists, nutritionalists and other workers within the service sector will exacerbate the situation, as will the on- going closure of agricultural education institutions and agriculture faculties across Australia. Although the market demand for graduates is high, the market is not picking up these signals. This the situation will not improve without active intervention.

The education sector has responded to the broad community promotion of environmental issues with young people enrolling in environmental science programs. Environmental science is generally focussed on preserving functioning biological systems; it is not about producing saleable products in a

[8] www.dairy.edu.au/discoverdairy/

[9] Pratley, J.E (2010) A lecture for Agribusiness – the need for a highly trained workforce in the business of Agriculture; Agribusiness Australia 2010 pp 70-73 (Agribusiness Association of Australia)

sustainable manner. In contrast, agriculture requires the management of biological, economic and human resources to produce a profit; agriculture can only be sustainable as long as it is profitable. Rather than assuming environmental science graduates can be used to fill the gap perhaps a better approach would be to boost the 'public good' credentials of agricultural and food science degrees.

In the food technology area, there has also been a decline in the number of courses and enrolments. The industry has supported the development of specific programs such as a postgraduate certificate; however funding support is not available to participants from all states. A recent study by the Food Technology Association of Australia has also found that employers in the food industry believe graduates from food courses in universities are not adequately trained, and are not 'industry ready' for employment.

Fully market driven approaches to providing vocational and university sector funding may not offer the systemic support required in a highly regionally focussed and very thin market. While governments are committed to increasing the participation of regional populations in higher education, there is no evidence that existing strategies are leading to an increased offering or uptake of food and agriculture related programs. Targeted strategies such as extra funding for both regional and city based courses, introduction of cadetships, lowering of fees and introducing scholarships, should be considered in collaboration with the dairy industry.

The future of the industry relies on highly capable and well-trained people continuing to invest and work in dairy. A coordinated effort by industry and government is required to attract, retain and develop the people needed.

Regulation

The range of regulations and regulatory issues affecting the dairy industry is expanding each year. Regulatory issues that can hamper the commercial performance of Australian dairy businesses in both the local and export markets include:

- Regulation by national systems with blanket rules
- The trend to regulated programs requiring actions to 'save' energy, water, or waste, instead of using marketplace mechanisms
- Increasing costs of reporting to authorities for a range of national and state programs
- Lack of harmonisation across commodities (for example meat and dairy regulation) and lack of recognition that many businesses produce multiple commodities
- Regulatory creep pressuring businesses into over-compliance
- Overlap of regulations leading to a compliance burden due to duplicative requirements
- Poor or inconsistent enforcement of existing regulations resulting in patchy compliance and a playing field that is not level.

In submissions to the many inquiries and reviews of regulation relating to food, the industry has argued continually for regulation regimes characterised by:

- Minimum effective standards and regulations, based on science and risk assessment at critical points, and strategies to manage risk to protect public health and safety
- Consideration of the food chain in its entirety, and recognition of shared responsibility among all parts of the chain
- Integration of regulatory requirements with business systems such as codes of practice and quality assurance
- Harmonisation at national and international levels, whenever possible

The dairy industry has a history of working with federal and state regulatory agencies to ensure these principles are embedded in food regulation. As an example, the whole-of-chain food safety regulatory model under the Victorian Dairy Act 2000 provides a framework based on these principles, and allows dairy businesses across the supply chain to incorporate regulatory food safety requirements into business systems. In doing so, this streamlines the common objectives of both government and industry for safe dairy food production, without added regulatory burden. Furthermore, this outcome-based framework allows businesses to innovate and incorporate technology changes while continuing to identify and manage their food safety risks.

The dairy industry's practical, risk-based partnerships with state regulators provide a tested food safety model integrated along the supply chain. This approach could be utilised in other food industries. As a general principle, industries should be regulated according to their risks, record and circumstances; the dairy industry would be concerned if it were to be required to operate within a system designed to regulate the 'lowest common denominator'.

This model and principles should inform the National Food Plan and may be applicable in development of other areas of regulation impacting on the industry such as control of environment affecting practices, chemicals, biosecurity or trade.

Dairy, like other Australian food industries, cannot carry undue regulatory imposts, which reduce the competitiveness of the industry. The goal of a mature industry like dairy is to work with government in developing regulations or, ideally, best-practice alternatives to regulation. The impacts of poorly designed regulations include higher costs, loss of market opportunities and/or deterrence of innovation and investment.

SUSTAINABLE FOOD INDUSTRY

11. What two or three actions:

- *by the government sector would most benefit communities that are highly dependent on food production, processing, distribution or sale?*
- *by the non-government sector would most benefit communities that are highly dependent on food production, processing, distribution or sale?*

The dairy industry is committed to producing nutritious food for Australians and an increasing global population into the future; supporting this should be a fundamental aspiration for the National Food Plan.

The last decade has seen massive change and restructuring in many areas of agriculture. Farm systems have had to become more adaptable and resilient in order to continue. For example, dairy farming in the Lower Murray Darling Basin is considerably different in approach from a decade ago, with farms having to shift between different farm systems within seasons.

This efficiency and resilience has come at a cost – in terms of more complex farm systems and a greater demand on farm business management skills and capability.

Recent industry research into the factors that enabled dairy farmers to trade profitably through the drought identified purchasing more land without increasing herd size was an important contributor to increased business resilience. This finding highlights a potential tension between society's need for an increase in productivity per hectare and the requirement for an individual business to maintain resilience and profit. Focusing on resilience is about risk reduction whilst focusing on increasing productivity can significantly increase the exposure to risk of the business. Relying on market forces alone to increase productivity may not be a successful strategy.

Achieving the level of productivity required in the period available, whilst not increasing business risk or increasing environmental impacts will require a significant boost in funding for research, development and extension.

Also required is increased support for local networking and regional and national information exchange to enable skill sharing across regions. For example the dairy industry's natural resource management information network, Dairying for Tomorrow, is supported by a network of regional coordinators whose responsibilities include capturing innovation and facilitating farmer to farmer learning, information exchange, and dissemination of relevant technical information appropriate to regional conditions.

Sustainable food industries require the right market signals and policy context to adapt to a changing environment and increasing competition for resources, while remaining profitable. This will require new technologies, new skills and new ways of doing business and will require government to give the right signals for innovation.

Water

The issues paper rightly identifies water availability, security and efficient use as critical drivers for agricultural productivity and food security.

The dairy industry is a major user of water allocated to irrigation, and groundwater, across Australia. Key dairy producing regions such as the Murray Darling Basin, southern Victoria, south-east South Australia and northern Tasmania have a fundamental stake in ensuring sustainable water use, as secure access to water in the long term is integral to a viable and prosperous future.

However, policies to improve agricultural water management and efficiency are undermined by competing policies to recover water for the environment at the least cost per megalitre.

A case in point is the Federal Government's current open tender approach to buying back irrigation entitlements in the Murray Darling Basin for the environment under its $3.1 billion Restoring the Balance program.

The program is designed to buy the most water at the least cost per megalitre. It takes no account of how removing water randomly from properties scattered across irrigation districts can undermine the viability and affordability of the system for remaining irrigators.

Instead, the buyback program should integrate with the $5.8 billion Sustainable Rural Water Use and Infrastructure Program, so buybacks directly link to water-saving infrastructure projects or community-led decommissioning of channels or districts. Government should aim to replicate successful examples of investment in assisting agricultural systems to move to higher levels of efficiency.

An integrated approach will deliver water recovery targets for the environment while at the same time avoiding stranded irrigation district assets, consolidating agriculture on the most productive land, and increasing the water efficiency of agriculture.

Inconsistent regulation of water extraction, including the consideration of third party impacts, across different industries (for example mining or timber plantations in contrast to agriculture) is also an issue and devalues the significant efforts towards water efficiency made by agricultural industries.

Water policy must apply consistently and equitably across all major water users, so land use change does not undermine agricultural productivity.

The affordability and availability of water is critical. Greater investment in the research, development and adoption of water-efficient farm and processing systems is required.

Climate change

Climate change poses some important new challenges for Australian agriculture. The dairy industry broadly supports a comprehensive government and industry response to climate change. As an industry, we have made adapting to climate change a strategic priority.

However, the interaction of any new policy initiatives with commercial markets and existing trade policies will be complex and multi-layered, and investing in understanding industry value chains will be important to help avoid unintended consequences. Inadvertent imposts of government strategies on export exposed industries, which do not have the opportunity to recover costs, could significantly affect the international performance and competitiveness of Australian food industries.

Climate change policies should not discourage food production, but address the challenge of reducing greenhouse gas emissions from food-producing systems and boosting productivity to meet increasing world food demand. It is vital that social, economic and environmental factors are well-balanced.

MAXIMISING THE BENEFITS OF TRADE

While domestic sales are important to Australian dairy, the local market is relatively mature. Future growth is expected to be slow and closely linked to population increases and product innovation.

The dairy industry exports about half of Australia's milk production, to more than 100 countries; this makes Australia the fourth largest trader of dairy products on the world market, behind New Zealand, the European Union and the United States. The global context in which the National Food Plan will be developed and implemented is therefore critical for the dairy industry.

The dairy industry continues to support efforts to conclude an ambitious, comprehensive multilateral agreement under the World Trade Organisation. This is important to remove agricultural trade distortions and create a more flexible commercial environment for exporters.

However, the industry also supports the pursuit of strategic regional and bilateral trade agreements as a parallel pathway to improving Australia's access to, and potential returns from, important markets for dairy products. This is also important to counter loss of competitiveness as other major dairy producers conclude free trade agreements.

There is also a need to maintain structures that protect Australian exporters' ability to continue to use hard-won access gains commercially. Once secured, access rights must be defended against the arbitrary application of inappropriate technical and regulatory barriers by importing countries.

Appropriate regulatory frameworks are important to Australian dairy as a world food industry. But they can affect costs, relative competitiveness and the ability to innovate and prosper.

In this environment, increasing the flexibility of export markets and improving Australia's access options and opportunities is critical to give farmers and companies confidence in their long-term viability and to drive future growth and investment.

Biosecurity

Like other food industries in Australia, the Australian dairy industry needs protection from exotic diseases. An outbreak of an animal disease such as foot and mouth disease would be a serious disaster for the Australian dairy industry.

However, the second element of maintaining our livelihood is access to overseas markets. To maintain this access we need to ensure Australia does not leave itself open to criticism, complaint, challenge and ultimately trade sanctions because of an unnecessarily harsh quarantine regime. The dairy industry's position on quarantine and biosecurity reflects its unique position in national and international markets.

The issues paper also mentions current work negotiating the draft Intergovernmental Agreement on Biosecurity between the Australian, state and territory governments. A truly national biosecurity system with adequate resources to cater for risk mitigation and border control, and to manage existing incursions would be a great step forward. While the dairy industry supports the consistency, we are concerned about directions in these negotiations towards cost shifting to producers for strategies fundamental to maintaining livestock industries and rural economies.

Biosecurity plays a critical role in protecting the food supply, providing community as well as individual benefits. Any actions in this area need to consider all potential impacts, including human health impacts, socioeconomic costs from trade losses, and environmental damage. This includes achieving a biosecurity and quarantine system viewed by all as meeting the letter and spirit of World Trade Organisation agreements, and not as a trade barrier.

Review of the National Innovation System

A submission on behalf of innovators in the Australian Dairy Industry

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Introduction

The Australian dairy industry has a range of companies and industry organisations that are passionate about innovation. This submission represents a collaborative and considered view of the opportunities for increasing innovation and better utilising an open innovative culture.

Innovators who contributed to this submission include:

Australian Dairy Industry Council Inc.
Australian Dairy Products Federation Inc.
Australian Dairy Farmers Ltd
Dairy Australia Ltd
Dairy Innovation Australia Ltd
Geoffrey Gardiner Dairy Foundation Ltd
Murray Goulburn Co-operative Ltd
Parmalat Australia Ltd
Tatura Milk Industries Ltd
Warrnambool Cheese & Butter Company Holdings Ltd

1. Executive summary

Investments in research and development, extension and commercialisation are integral to the success of the Australian dairy industry. Investment has enabled the dairy industry to be at the forefront of change, to build sustainable competitive advantage and to deliver significant public good in areas such as sustainable natural resource use, environmental outcomes and improved food safety. The Australian dairy industry believes a partnership with government is critical to amplify the industry and public good outcomes of a strong innovation system.

The Australian dairy industry is a leader in the agri-food space, creating new and effective ways to successfully innovate across the whole value chain – farm, manufacturing, new products and market creation (domestic and international). Since the early 1990s, the industry has rapidly evolved its innovation processes and pathways and has built its understanding and capacity to manage innovation on farms, within companies, and in a range of collaborative ventures. At the present time the industry is a market leader in its application of open innovation systems that operate globally, are multi-disciplinary and, most importantly, are commercially led.

Central to the industry's view of success is its ability to leverage relatively small investments by world standards to deliver a steady stream of innovations across the supply chain. The collective nature of the dairy industry provides a mechanism not only to harness small business (farmer) levies through its Rural R&D Corporation (RCD), Dairy Australia, but also to build collaborative models of investment across the industry. This capacity to invest provides opportunities to address issues of market failure and to actively contribute to partnerships with government. Our submission details a series of success stories, particularly the creation of Dairy Innovation Australia Limited (DIAL), the cutting edge productivity research of the Co-operative Research Centre (CRC) for Innovative Dairy Products, and the management and outcomes of the Dairying for Tomorrow project.

A national review of innovation is timely and we strongly support the innovation framework adopted for conducting the review. Innovation is non-linear and consists of cyclic systems operating in their own right and interacting with other cyclic systems. With this understanding we highlight gaps and weaknesses in the current innovation systems in Australia and propose ideas for consideration. We suggest the Australian Government has a critical role in providing leadership through policy, processes and strategic investment. Collectively we also provide feedback on specific issues raised in the review and how these contribute to evolving the innovation capacity and effectiveness of companies, farmers and the Australian food and agri-food industries as a whole.

The major themes in our response to the review are that:

- Successful innovation is commercially led, responsive and adaptable.
- Innovation on a national scale requires strategic investment in knowledge/technology platforms and capability.
- Government investment should aim to overcome barriers and fill gaps that stifle innovation. It should assist in reducing the commercial risks associated with bringing new technologies and ideas to market and should facilitate collaboration.
- A government investment strategy should include consideration of a number of dimensions including risk profile, benefit to Australian industry and economy, and time horizons.
- Commercial and industry organisations are strategically investing in innovation, often in a manner that attracts support from government. There are many common interests in these investment relationships, especially where combined investments in pre-competitive and industry-good activities have national economic, social and environmental benefits.
- Government should continue to have a critical role, primarily as an enabler of innovation. Investment decisions by governments lead to clear signals of prioritisation of effort, capacity

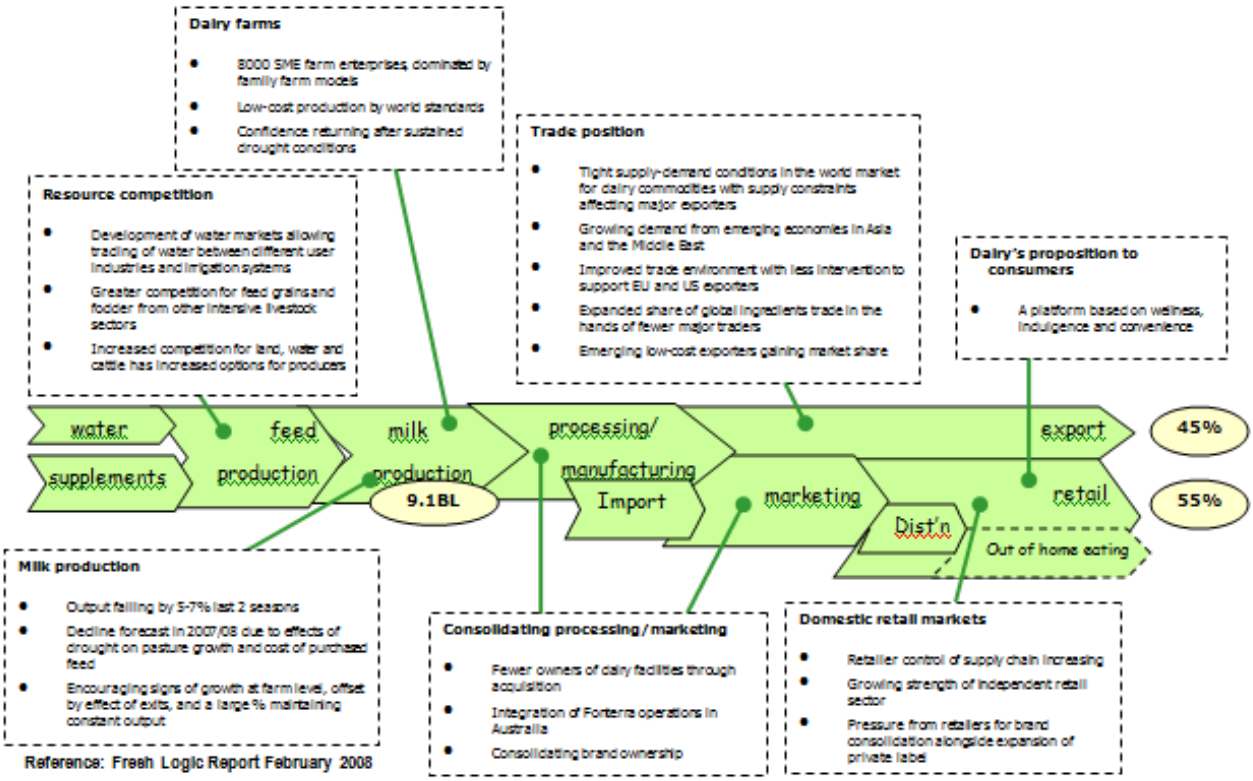
building and infrastructure use to reduce risk at pivotal moments in the innovation process, and to collaboration and networking.

The Australian dairy industry would welcome the opportunity to provide further interaction with the National Innovation Review, particularly the innovation-related outcomes from our Dairy Industry Review as they become available.

2. Dairy and its leadership role in the food industry

In February 2008 the Australian dairy industry's peak body, the Australian Dairy Industry Council, commissioned a study to describe the dairy value chain and define the areas for collective effort (see Figure 1). Australia's dairy value chain is a complex, yet vibrant, agri-food sector delivering $14.7 billion in value add per annum. Australian dairy companies export one million tonnes of dairy products per annum earning $3.0 billion in revenue. The Australian dairy industry directly employs 40,000 people (and a further 60,000 indirectly), of which half live in and actively support small rural communities of less than 10,000 people.

Figure 1. The dairy value chain that generates $14.7 billion per annum



The Australian dairy industry has a long and proud track record of innovation. It has maintained a world competitive position in relation to low cost, high quality milk production and has earned a reputation for reliable supply of high functional dairy ingredients on world markets.

Australia has a 12 per cent share of global dairy exports and is the third largest exporter behind the European Union and New Zealand. The dairy industry now faces new challenges as a major global exporter:

- Global demand for dairy ingredients outstrips Australia's ability to supply with prices for dairy ingredients doubling in the last two years. The challenge for Australia is to identify the

highest returning markets and create long term partnerships with customers based on reliability of supply, price, functionality, and new product offerings (involving incremental improvements through to new and novel products).

- On the domestic front, significant challenges to maintaining supply include climate change, stewardship of natural resources, urban sprawl and attracting, retaining and developing talented employees in a shrinking workforce.
- South America and Eastern Europe are emerging as low cost producers of milk and there is latent capacity in both Europe and the US to increase their own export sales of dairy products.

Innovation has a role in the long-term partnerships with international customers and requires a uniquely Australian innovation process. The dairy industry sees this process as a partnership between the industry, science providers, and state and federal governments. The key features of a uniquely Australian food innovation model are:

- A shared and widely articulated vision which describes where the industry is currently, a vision for five to ten years hence and the identification of the priority issues that must be addressed to make that transition.
- Recognition that Australia will never have the financial resources to match the US or European investments in innovation.
- Smarter investment to leverage the large global innovation cycles and focus on R&D programs that have a clear path to market and therefore are more likely to deliver an impact at farm, factory or consumer levels.
- Open innovation characterised by frequent communication across innovation cycles that creates pooled investment in pre-competitive projects. Successful innovation models reduce the cost to participants and free up limited resources for company specific projects. Global networks ensure that Australian innovators partner with international science providers rather than duplicate their research.

3. The innovation cycle

In framing a response to the review, our perceptions of innovation resonate with the diagram of the innovation cycle and we make the following observations:

- A cycle is an apt description of the process; innovation is not a linear process and success often comes from multiple revolutions through the cycle.
- Misalignment of inputs into the cycle from research providers, industry and government can stifle the innovation process or cause repetitive breakdowns in various stages of innovation.
- Innovation cycles often overlap and interact with other cycles at a company, industry, national and international scale (Figure 2).
- Innovation cycles are prone to fits and starts. This may be appropriate at a project level but it is critical that there are strategies to keep cycles rolling on a broader scale. Successful innovation requires a supportive environment that measures, monitors and optimises performance.

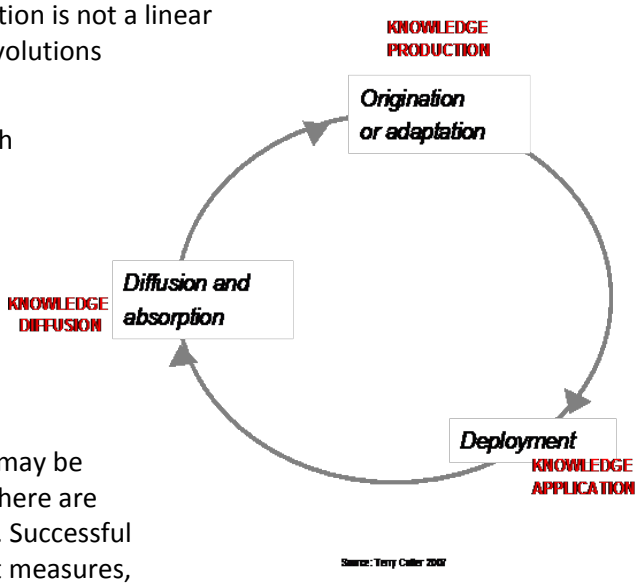
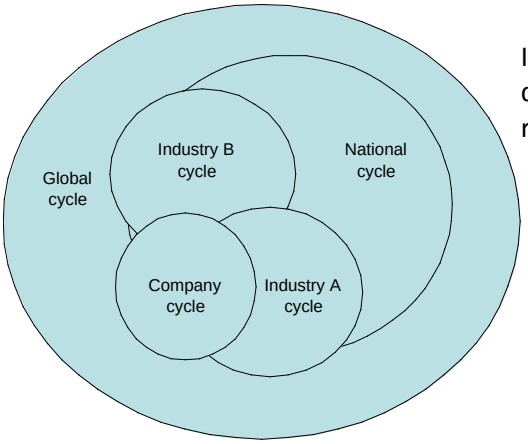


Figure 2. Overlapping cycles on a local, national, and global scale



In reality, innovation in the agri-food sector is constructed at different levels (as per diagram). The additional complexity requires that:

- Each cycle must be functional and those involved should have a working understanding of how it relates to other cycles. Knowledge, skills, processes and people often interact across multiple cycles.
- Each cycle must be efficient and effective with all participants at each stage sharing a common understanding of their relationship with all other stages. A weak link in any one stage has a major impact on the efficiency and effectiveness of the cycle leading to poor conversion of good ideas into commercial outcomes and over-investment in bad ideas.

Opportunities to improve the dairy and agri-food industries' innovation cycles

Stage of Cycle – Knowledge Production			
Current Barrier/Gap	**Impact on Innovation**	**Solution**	**Impact of Solution on Innovation**
Variable (but overall poor) alignment of knowledge production activities with strategies and priorities of companies, industries and governments	Knowledge and innovation capability (people and infrastructure) developed within Australia is inadequate to meet the current and future needs of companies, industries and governments	Introduce a National Innovation Strategy – a rolling national innovation strategic planning and priority setting process that involves representation from industry, government, research and higher education institutes	More relevant knowledge in priority areas produced faster and more efficiently
	Over-investment in bad ideas; under-investment in good ideas		Better capture of opportunities across a number or industries and/or companies
Non-existent approach to balancing the National Innovation Portfolio across a range of dimensions: - time horizons - type (blue-sky to applied research) - application - outcomes (economic, social, environment)	Innovation lacks strategy and risk management – essential features for successful management of innovation		Government investment appropriately and transparently balanced across short-, medium- and long-term needs
Lack of commercial and industry consultation and leadership when setting R&D priorities and timescales; research conducted in an environment where companies have limited capacity to provide appropriate input	Low probability of knowledge delivering successful application – hence low return on investment	National Innovation Strategic planning process	Increased exposure and networking between commercial and scientific innovators – aids knowledge diffusion and strategic ideation and increases probability of application
	Higher costs of commercialisation	Introduce funding programs supported by staff management and intellectual property practices in research institutes that actively encourage interchange of commercial and scientific personnel	
Limited and relatively inflexible models for	Higher costs of innovation	Create a pre-competitive environment and	Larger investment in innovation

Stage of Cycle – Knowledge Production			
Current Barrier/Gap	**Impact on Innovation**	**Solution**	**Impact of Solution on Innovation**
strategic co-investment between companies, industries and government – many involving long and arduous set-up and ongoing management and administration costs	Long innovation cycle times	flexible funding models that encourage joint investment in areas of common strategic need (see DIAL case study in Appendix 1)	
	Innovation options die early		Shorter innovation cycle times with higher probabilities of success
	Inflexibility to changing external environment (e.g. CRCs)		More companies actively engaged in innovation
Strong prevalence of the 'Not Invented Here Syndrome' in Australian research institutes – an inappropriate model for Australia operating in a global economy	Over-emphasis on the knowledge production end of the innovation cycle – leading to low probability of knowledge delivering successful application	Build core competency in Australian innovation system for rapid scanning and diffusion of global knowledge and technologies	Unique Australian model of innovation in a global context
	Lack of access to internationally developed knowledge (intellectual property and know-how)	Extend current bilateral agreements (currently focused on biotech, information technology, etc.) to rural industry capacity building and strategic knowledge sourcing	Increased exposure and networking between Australian and other global innovators – aids knowledge diffusion, increases probability of application and reduces innovation cycle time
Poor alignment of performance measures and funding systems (e.g. 3 year – 7 year grants) of research institutes with measures that reflect a National Innovation System, e.g. number of publications and patents rather than successful knowledge application and industry engagement	Specialists in research institutes not available in a timely and cost effective manner to support company or industry innovation needs	Define performance measures through the National Innovation Strategy – balance knowledge development, sourcing, transfer and application	Strategic alignment of all contributors to the National Innovation Strategy Enhanced application by industry partners
Duplication of food research and education infrastructure and limited number of international specialists locally	Long innovation cycle times	Invest strategically to develop global strategic innovation partners (commercial and research institutes) in line with the National Innovation Strategy by establishing an Agri-food Innovation Centre	Unique Australian model of innovation in a global context
	Higher costs of innovation		
Continuing changes in existing incentives such as the R&D Tax Concession	Interference with long term planning	Increase basic concession to 150% and abolish the current 175% incremental concession	Maintained and enhanced investment by industry in R&D

Stage of Cycle – Knowledge Production			
Current Barrier/Gap	**Impact on Innovation**	**Solution**	**Impact of Solution on Innovation**
	Recent changes have increased complexity for R&D investment by subsidiaries of foreign-owned companies Increased administrative burden	Provide incentive for collaboration with public sector R&D institutes by allowing 175% concession for this work Retain eligibility of near-to-market development for the concession Minimise administrative burden	Greater role played for foreign affiliate R&D provides avenue for wider diffusion through economy Greater certainty for longer term investments

Stage of Cycle – Knowledge Application and Diffusion			
Current Barrier/Gap	**Impact on Innovation**	**Solution**	**Impact of Solution on Innovation**
Lack of funding mechanisms to offset technical and commercial risk – particularly for blue-sky/step change technologies and/or applications requiring development of new markets that need investment to support all stages of the innovation cycle	Innovation options die early	Provide a suitable structure for joint investment from government, industry and research institutes to tackle large issues or exciting new blue-sky research (see CRC for Innovative Dairy Products case study in Appendix 2)	Inclusion of longer-term/step change investments in company innovation portfolios encouraged
	Stifled investment in higher risk innovations by the private sector		
	Inability to fund innovation projects that will have impact outside the industry sector (e.g. cross-agriculture)	Establish an Innovation Fund to fund investment priorities aligned with the National Innovation Strategy. Funds should be available for feasibility studies to integrate market, technical and commercial factors	Reduced need for government grants; Enhanced inter-industry collaboration and hence knowledge transfer
Limitations on rural industries' access to	Innovation discouraged – particularly in	Extend ARC grants to rural industries	Larger investment in innovation

Stage of Cycle – Knowledge Application and Diffusion			
Current Barrier/Gap	**Impact on Innovation**	**Solution**	**Impact of Solution on Innovation**
federal programs: • Not eligible for ARC linkage grants • Limited access to CRCs • Limited grants for rural-based manufacturing	higher risk ideas exploration and value adding to agricultural products Inability to translate research outcomes into industry benefits	Streamline assessment of CRCs post-funding Move CRCs to alternative funding models with ARC funding for strategic science	
Inconsistent, inappropriate, time-consuming and costly intellectual property management processes	Higher costs of innovation	Use the National Innovation Strategy planning process to review and define principles for evaluating, protecting and using locally generated intellectual property	Faster evaluation and application of knowledge generated
	Long innovation cycle times		
	Duplication of effort		
	Overseas commercialisation of Australian-generated knowledge		
Commercial/industry organisations often perceive double-dipping by research institutes in charging for protected ideas (patents and novel techniques)	Ideas sharing and open innovation discouraged		
Poor recognition and understanding that knowledge has multiple paths to application (IP outcomes are currently tied to specific sectors, companies or research institutes)	Longer time to market	Introduce funding programs for feasibility studies and activities that continually showcase, evaluate and demonstrate science and technologies in commercial environments	Higher return on investment from innovation investments combined with shorter innovation cycle times
	Missed applications		
	Inability to capture benefit beyond individual company		
	Over Over-investment in the bad ideas and under-investment in the good ideas	Research funding to include technology transfer and commercial feasibility phases	Increased probability of application and improve new ideas generation in future cycles

Stage of Cycle – Knowledge Application and Diffusion			
Current Barrier/Gap	**Impact on Innovation**	**Solution**	**Impact of Solution on Innovation**
Wide dispersion of rural industries limits capacity for collaboration and sector access to public sector R&D and industry level collaborative projects Involvement by governments at all levels causes duplication and conflicts	Difficulty attracting the right scale of investment	Maintain government funding through RDC framework (including extension and application services) to identify strategic areas of commonality via the National Innovation Strategy	Increased potential for agri-food sector to co-invest in common strategic areas
	Difficulty collaborating across rural industry sectors on issues of broad relevance e.g. climate change, energy in agriculture and farm health and safety		
	Duplication of effort	Clarify the role of government at all levels – in particular consider the appropriate scale for diffusion – which may be regional rather than federal or state (see Dairying for Tomorrow case study in Appendix 3)	Increased return on investment
Inadequate and high cost resources (infrastructure and people) to aid translation of knowledge into application	Longer time to market	Provide open access to government-funded infrastructure and capability	Increased probability of application
	Innovation options die early		
	Higher costs of innovation		

4. Specific issues

4.1 R&D tax concessions

We continue to fully support the continuation of the tax rebate scheme, which is the most effective support mechanism for the promotion of innovation within the corporate sector. We also see the opportunity through this review process to reform the design and operation of the tax concession program, which would:

- greatly simplify the administrative burden on industry; and
- set the basic concession at a level that would provide incentive of a sufficient size such as to provide real benefit to the innovation process within industry.

The following recommendations are proposed as a way of stimulating innovation within Australian industry:

- **Increase the basic rate of the concession to 150 per cent:** this represents after-tax savings of 15 cents in the dollar compared with the current 7.5 cents in the dollar at 125 per cent base rate.
- **Change or abolish the current 175 per cent incremental concession (domestic and international) components:** this has been found to be overly complex to administer and ineffective in stimulating increased R&D within the manufacturing sector.
- **Consider a higher rate of deduction** (possibly 175 per cent) for expenditure incurred via public sector collaboration with research establishments funded by the Australian Government, e.g. universities, CSIRO etc.
- **Retain current definitions of R&D:** the current system encompasses all innovation, not just invention. Most of the innovation in the dairy industry associated with bringing new products into the marketplace relies on systematic, investigative and experimental activities. Most of these activities involve some degree of technical risk and/or innovation. Narrowing this definition would see a significant reduction in the eligibility of near-to-market development within dairy rendering any incentives for increasing new product developing marginal at best.
- **Minimise the administrative burden in both adoption of and compliance with the program:** any financial benefits to industry offered by tax rebates can rapidly be eroded through unrealistic administrative costs.
- **Facilitate a review process that allows consultation with all stakeholders.**
- The tax concession should not be conditional on either the turnover of the organisation or on the level of R&D investment made each year.
- A tax incentive scheme should not identify and reward only big ticket areas of R&D investment as any R&D undertaken within Australia will collectively add to Australia's innovation pool.

4.2 Industry grants for the agri-food sector drive commercial outcomes and develop ongoing capability

Investment risk is a barrier to industry investing in the last steps of innovation and commercialisation. There has been a range of tools used by government to support industry over the years. One of the most successful was the National Food Industry Strategy-style structure. Food Innovation Grants (FIG) created $120 million worth of new food innovation investment (seven dairy projects and $9 million FIG money matched with $15 million dairy company investment). The major outcomes include:

- A new packaging for milk powder that increased loads per export shipping container that result in 3500 fewer trucks travelling to Melbourne wharves annually.
- A world-first automated haloumi cheese process that exports cheese to Greece.
- Enhanced links between science providers and food companies. The food centres of excellence have built capability in two key sciences - functional foods and food safety - and were instrumental in beginning the consolidation of science delivery in these areas.
- The lessons learned in innovation process are the major reason that the Food Innovation Grants and the investment in centres of excellence were considered a success.

There are two major initiatives that we believe would add significant value to innovation in the agri-food sector:

1. **An Agri-food Innovation Centre to address common issues and markets:** an opportunity exists for a uniquely Australian approach whereby different agricultural sectors come together with strong industry leadership to develop innovative solutions to benefit more than one sector (e.g. noodles for the Indonesian market may contain Australian flour fortified with Australian dairy proteins that collectively add more value and better interact with whole supply chain needs).

2. **Food innovation funds to encourage cost effective innovation:** the funds/grants would be used to support the last steps of innovation adoption and commercialisation. Two models have been discussed

    a. **Food Innovation-style grants** should be provided to food/dairy companies based on dollar for dollar investment that are of a sufficient scale to build capability and an enduring innovation culture with commercial partners. The grant would have direct benefit to the Australian economy over a short time horizon.
    b. **Small, short-term funds to support rapid innovation** would support the fast-moving consumer good sector. These may be set up as revolving funds and be managed as a loan to be paid back only if the innovation is commercially successful. Dairy processors involved in this submission proposed and supported this concept as a more efficient structure than a grants scheme for small projects.

4.3 Innovation is based on commercial outcomes rather than research quality or the registration of inventions with patents

Intellectual property is only of value where it can be utilised to produce a commercial outcome. In 2002, Howard Partners delivered a paper to the Federal Department of Agriculture Fisheries and Forestry based on a survey of agri-food chief executives' views of barriers to delivering food innovation. Three key barriers were identified:

1. Lack of R&D funding;
2. The need for improved links between food companies and science providers; and
3. Confused Australian Government policies in relation to intellectual property management.

Our assertion is that the Australian innovation community needs to address these barriers with a unique solution rather than replicate a US or EU-style innovation model. The Australian model needs to be well-defined so that evaluation of research quality is aligned and that policies on IP do not compromise outcomes.

Why are we different to the US and EU?

Australian dairy companies typically invest around 0.5 per cent of sales revenue in R&D. As a benchmark, international food companies invest around one per cent of sales revenue in R&D. Scale is, however, a much more significant factor — many US or European dairy companies are much larger companies and therefore the total funds allocated to R&D are many times that of a typical Australian dairy company.

In comparison to Australian publicly funded dairy R&D centres, US and European centres are inundated with project funding. The top ten agricultural universities such as UC Davis, Cornell and Penn State all invest more than US$500 million on innovation each year. In Europe, dairy research centres, such as Moorepark in Ireland, have access to Irish restructure monies and R&D funds from the EU. The Moorepark facility has been re-built and re-equipped in the past two years and been awarded €23 million for one two-year dairy project.

Many Australian science providers currently follow European or US models of innovation, which results in a fragmented sequence of activities. R&D is the first step which creates a new product, process, technology or service. The science providers are then encouraged by federal government policies to lock up this new innovation in a patent or confidentiality agreement. The technology is then commercialised through prolonged and expensive negotiations. The reality is, according to dairy company chief executives, that IP is a barrier to commercialisation. Examples of true, long-term and effective partnerships between science providers and the dairy industry are rare and in their infancy.

With current incentives, public sector providers are focused on capturing intellectual property and commercial value from it. This is largely unnecessary and dysfunctional. Research from the US shows that despite the focus on IP, universities do not capture much IP. The proportion of patents and the commercial value that US universities realise are a small proportion of national innovation. This is not surprising and is not evidence of failure on universities' core missions. They naturally operate in the pre-competitive area and are not close to market or commercial value.

The incentives for universities and public institutions around IP should be modified and softened to:

- Retain IP rights protection that will more freely encourage research initiatives; and
- Ensure that any value that may arise from research can be exploited by Australian concerns (people, companies, institutions) and can justify the public investment made.

Limitations of the current Research Quality Framework

Assessing the value of investment is always an important if difficult issue, especially when looking at the return on investment in innovation. However a focus on publications and such systems are not always effective. Most innovation, including publicly funded innovation, happens in collaboration with industry — not just in the R&D phases but also in the application or diffusion (extension in

agriculture) phases, especially in the SME sector. Current research quality assessment does not capture much of this and provides dysfunctional incentives towards papers and patents which are not a true measure of delivered innovation and value.

4.4 Co-operative Research Centres

The original statement of the purpose of the CRC program for *"the translation of research outputs into economic, social and environmental benefits" is* valid and fitting for the future needs of the agri-food industries. The dairy industry has been a participant in a number of CRCs over the past 18 years and recognises the important role played in developing capacity in science, particularly strategic science.

The statement of purpose is a useful reference point to describe current weaknesses in the system. Our experience is that much of the research outputs are difficult to translate into benefits, especially where there is a varied opinion about the commercial utility of a technology. Inventors in research institutions often have greater expectation for their innovation and CRC management feels compelled to protect the innovation with a patent. Introduction of a realistic commercial assessment of the outputs seems to be systematically lacking from a number of CRCs in which we have partnered. **The solution is to focus on benefits and insist that research is fully utilised by commercial and/or industry partners**.

Key features that will improve the CRC model include:

- **Redirecting ARC funding:** while the CRC system has a very useful place in the overall innovation system, the CRC system should not be seen as the panacea to the strategic needs of the agriculture and food industries. Most agri-food industries can only access one core CRC and the periphery of a few others. It is the redirection of core ARC funding towards rebuilding the whole academic system serving agriculture that is necessary for this.
- **Improving flexibility:** the CRC system has a measure of flexibility but it would benefit from some fine tuning so that it can be even more flexible.
- **Reducing administration:** the administrative processes for initial set up and achieving wind up have created whole service industries. A more pragmatic approach to IP management would also reduce the administration cost, especially where most of the activities are directed at public good outcomes.
- **Providing a more straightforward process of continuing CRC activities:** where CRCs seek to continue after seven years of investment and have been reviewed as achieving strong science and commercial outcomes, there should be a more streamlined process of assessment as well as the capacity to continue core science platforms in a downsized operation.
- **Moving existing CRCs to alternative funding models:** a combination of redirected ARC funding for strategic science and 'commercial ready' funding for close to market activities would be preferable as alternative funding mechanisms.

4.5 Rural Research & Development Corporations

Rural R&D Corporations (RDCs) were originally established to provide a mechanism for rural industries to contribute to R&D which benefited the industry. Over the years the RDCs have proved responsive to changing external conditions. While the overall structure of RDCs has remained the same, the governing framework has been modified. Internal governance systems have seen RDCs devise a range of approaches to developing R&D investment strategy, measuring return on investment, managing commercialisation and developing extension/application programs.

RDCs have a valuable role in identifying, funding and guiding the commercial application and extension of innovation. The dairy RDC, Dairy Australia Limited, was established only five years ago out of an industry-led initiative to respond to and manage the changing needs of dairy farming, and maximise the returns to farmers from levy-based investment. The Dairy Australia / RDC model provides a framework for Australia's 8,000 dairy farmers to directly invest in R&D and encourages farmers collectively to engage in the continuous pursuit of industry innovation and advancement.

The unique structure and mandate of Dairy Australia allows the pursuit of outcomes defined by the industry and government — with a focus on 'industry good' and 'public good'. This is achieved through the close linkages Dairy Australia has with federal and state government departments, and Australian Dairy Farmers (ADF) and Australian Dairy Products Federation (ADPF), the peak policy groups of the farmers and manufacturers respectively. ADF and ADPF are involved in strategic planning for Dairy Australia and as Group B Members of the organisation have a vested interest in evaluating the performance of Dairy Australia and in selecting the Board.

With respect to government, the operating model of Dairy Australia provides for accountability through annual reporting and legislated review. Despite the organisation's wide reporting responsibilities, it is focused on delivering benefits to levy payers (dairy farmers), and operates along the whole length of the value chain applying its resources to areas of highest leverage and value. The corporate structure of Dairy Australia and its networks allows it to be highly responsive and flexible in the delivery of its services which include communicating to its stakeholders and facilitating alignment of needs and investment of resources for the common good of the industry.

Dairy Australia's strategic leadership role goes beyond the legislated and traditional RDC mandate and R&D and extension. This was highlighted by a recent dairy innovation review, "Updating of Expenditure and Infrastructure Data for Dairy RD&E in Australia, 2007 by Harley Juffs and Hugh Oates", which documented the fact that the organisation, while accountable for only about $36 million of the industry's annual $155 million spend on R&D and extension, is uniquely present in almost every sector of R&D and extension, which supports its ability to be a key facilitator of industry information and issues.

Dairy Australia's leadership role helps the much needed, though always constrained, resources to focus on industry needs beyond immediate commercial interests, i.e. as a conduit for collaboration with other industries and institutions. This is actively occurring and a recent review (initiated through the CCRDC at the behest of the Parliamentary Secretary around collaboration between RDCs) found relatively low levels of contractual arrangements but surprisingly high levels of non-contractual collaboration, such as participation in federal government's trade advisory groups, which encourage collaboration on trade advice to government. A sincere cross-RDC effort to find further areas of collaboration found limited opportunities that had not been otherwise addressed. So collaboration can occur in many ways but can be very hard to measure.

Three key issues to be addressed would help improve the RDC model:

- **Alignment to industry focus:** the better RDCs are aligned to their industries the better they perform as lead facilitators for information to and from the industry. This provides the impetus for more strategic and longer-term views which often coalesce with societal needs and public good benefits. RDCs are able to dynamically allocate resources to optimise use, and therefore become an important element of industry flexibility with rapid response to extremes in the operating environment and in market conditions.

- **Alignment to industry funding:** the closer RDC funding is to industry funding, the closer the alignment of RDC operations to industry interests. However in dispersed industries, the need to overcome real world frictions of communication and short-term focus makes attracting the right level of investment problematic. Many of the benefits of Dairy Australia-led investment are realised beyond ten years. Preliminary findings from a recent study commissioned as part of the Dairy Innovation Review showed a real reduction of at least 20 per cent over eight years in investment in dairy R&D and extension, and a dispersion along triple bottom line objectives. At a time when the need for innovation and productivity has increased, there is clearly a market failure in attracting the required level of investment. Government-matching funds greatly assist by topping up flexible industry innovation and information funds and deliver value to farmers by further facilitating their investment through the levy mechanisms.

- **Alignment with government priorities:** industry-focused RDCs are a unique vehicle for facilitating industry insight, collaboration and flexibility and have demonstrated an ability to deliver to this mandate. This facilitation normally includes a response to changes in government policy. It is preferred that RDCs align with government priorities while maintaining an industry facilitation role in order to ensure that readily achievable benefits to the Australian community are realised as well as commercial interests from the same R&D investment.

  Well-founded research and development will be critical to enabling the agri-food industries to innovate and adapt in substantial and meaningful ways to current and emerging challenges such as climate change, water security, biosecurity and genetic modification. It will also help to address community challenges such as growing levels of obesity and nutritional deficiencies in diet.

6. Recommendations for the Review Panel

Knowledge production

- Introduce a National Innovation Strategy – a rolling national innovation strategic planning and priority setting process that involves representation from industry, government, research and higher education institutes;
- Introduce funding programs supported by staff management and intellectual property practices in research institutes that actively encourage interchange of commercial and scientific personnel;
- Create a pre-competitive environment and flexible funding models that encourage joint investment in areas of common strategic need (see DIAL case study in Appendix 1);
- Build core competency in Australian innovation system for rapid scanning and diffusion of global knowledge and technologies;
- Extend current bilateral agreements (currently focused on biotechnology, information technology, etc.) to rural industry capacity building and strategic knowledge sourcing;
- Define performance measures through the National Innovation Strategy – balance knowledge development, sourcing, transfer and application;
- Invest strategically to develop global strategic innovation partners (commercial and research institutes) in line with National Innovation Strategy.

Knowledge application and diffusion

- Provide a suitable structure for joint investment from government, industry and research institutes to tackle large issues or exciting new blue-sky research (see CRC for Innovative Dairy Products case study in Appendix 2);
- Establish an Innovation Fund to fund investment priorities aligned with the National Innovation Strategy. Funds should be available for feasibilities to integrate market, technical and commercial factors;
- Extend Australian Research Council grants to rural industries;
- Use the National Innovation Strategy planning process to review and define principles for evaluating, protecting and using generated intellectual property;
- Introduce funding programs for feasibility studies and activities that support continuous showcasing, evaluating and demonstrating of science and technologies in commercial environments;
- Research funding to include technology transfer and commercial feasibility phases;
- Maintain government funding through RDC framework (including extension and application services) to identify strategic areas of commonality via the National Innovation Strategy;
- Better clarify the role of government at all levels – in particular consider the appropriate scale for diffusion – which may be regional rather than federal or state (see Dairying for Tomorrow case study in Appendix 3); and
- Provide open access government-funded infrastructure and capability.

In terms of specific issues, we recommend:

- Maintenance of R&D tax concessions with some modifications to improve the reach and impact of the scheme;
- Establishment of an agri-food innovation centre to address common issues and markets;
- Introduction of a revolving innovation fund that is repaid only if innovation is commercially successful;
- Development of an IP model that aligns the interests of government, industry and science providers to improve research outcomes and time to market;
- Maintenance of the CRC model with changes to its funding and administrative processes; and
- Maintenance of the RDC model with closer alignment to industry focus and funding and government priorities.

Appendix 1: A case study: Dairy Innovation Australia Ltd

Dairy Innovation Australia is the innovation hub for dairy manufacturing research and development. The company is industry led, with members representing over 70 per cent of Australian milk production, and brings together a critical mass of skills and expertise.

The growth and sustainability of the dairy industry value chain as a major contributor to the Australian economy relies on the ability of the manufacturing sector to be market leaders in a globally competitive environment. Members of the dairy industry have invested more than $15 million over three years to form Dairy Innovation Australia Ltd (DIAL). Through membership and leadership, the company accesses, translates and delivers innovations using a unique pre-competitive and open innovation system.

The principal objectives of Dairy Innovation Australia are to provide the Australian dairy manufacturing industry with a strong integrated R&D capability that contributes to global competitiveness, innovation capacity and market responsiveness of its dairy company members and the dairy industry as a whole; to be the focal point for Australian dairy manufacturing science, technology, and innovation; and to lead in discovery and delivery of commercially valuable outcomes from targeted dairy manufacturing research.

The Board of Dairy Innovation Australia sets the strategic direction for the company and is comprised of leaders drawn both from the dairy industry and Australian industry as a whole. The executive management team has a balance of science and management leaders to direct and lead the strategic plan. Their goal is to foster research excellence, develop capability and create strategic pathways and opportunities for members to commercialise innovations. Small teams of highly qualified scientific staff skilled in process engineering and design, food technology and applications, health and nutrition, microbiology and ingredients and components sciences lead focused programs of discovery and delivery in collaboration with industry members and research providers.

Dairy Innovation Australia's membership represents companies that process over 72 per cent of the milk in Australia and 65 per cent of all manufactured dairy products, as well as companies committed to funding dairy research. They are Dairy Australia, Geoffrey Gardiner Foundation, Bega Cheese, Burra Foods Australia, Dairy Farmers, Murray Goulburn Co-operative Co. Ltd, National Foods, Parmalat Australia, Tatura Milk Industries, and Warrnambool Cheese and Butter Factory. Fonterra is a member of the Health and Nutrition Consortium.

Dairy Innovation Australia provides a responsive and cost effective catalyst for innovation. The company invests membership revenues and leverages external funding to deliver knowledge, know-how, intellectual property, specialist resources and research capability and infrastructure. Activities are conducted across portfolio interests and cover the whole production value chain. Innovation is discovered and developed through research investment, research practice and research management. It is delivered to members through knowledge management activities and a collaborative communication strategy and is accessed by members through contract research, training and education, commercial services and products, strategic alliances and IP management.

Projects range from short-term scoping studies to large scale, longer-term multi-disciplined projects, in line with future priorities of members and industry. A goal of the system and structure of Dairy Innovation is to invest in technology platforms that can deliver a range of different commercial opportunities. The identification of commercial opportunities is formally encouraged and can be identified at any stage of any project. Processes have been developed to allow companies to access services and capabilities either confidentially or collaboratively to develop such opportunities.

The scope of activities is continuously informed and revised in response to strategic direction developed with members and providers through collaborative foresighting and scenario planning, ideas generation and evaluation, and the development of innovation systems.

Appendix 2: CRC for Innovative Dairy Products

The CRC for Innovative Dairy Products has been the major R&D investment the dairy industry. It has successfully built up strategic capability and will have a lasting impact in the area of genomics.

The Dairy CRC has been funded from July 2001 to June 2008. Over this seven-year period it has provided the largest source of collaborative investment in dairy research with a total investment of $90 million.

Within its remit of biotechnology and the broad capabilities of scientists at University of Sydney, Monash University, Melbourne University, CSIRO and the Garvan Institute, the CRC has operated in the following areas:

- Genomics;
- Gene function and construction of a large database of known gene effects;
- Identification of micro-components in bovine milk;
- Identification of novel functions of lactation in model species (wallaby, seal, echidna, human) that may be of utility for dairy production;
- Cloning and transgenesis;
- Gene expression profiling, especially in the identification of normal, healthy embryos; and
- Stem cell cultivation and further utilisation as a research and commercial tool.

None of these strategic science capabilities would have received significant investment without a leveraged opportunity to collaborate. The CRC vehicle has been identified as the only available means to achieve scale of effort with a genuine commercial input and a focus on outcomes that benefit the Australian economy.

The fifth year review of the Dairy CRC provided the following positive assessment:

Performance against Objectives: The Panel concluded that the CRC for Innovative Dairy Products is on track to achieve the outcomes committed to in the 2001 Commonwealth Agreement of 1) enhancing the profitability of the Australian Dairy Industry through the development and application of new technologies; and 2) maximising the benefits of the investment to CRC members. However, The Panel also concluded that much of the IP generated and advantage gained by being ahead of the world in adding value to the dairy industry on the basis of understanding and exploiting bovine genetics could be lost unless a substantially different CRC or alternative collaborative arrangement is established to enable the CRC to evolve from a discovery organization to a global development and commercialization organization.

Contribution of Outcomes to Australia's Industrial, Commercial and Economic Growth The Panel conclude that an economic model created to predict the future benefits that may result from the CRC is well constructed and based on sound assumptions and conservative multipliers. The findings demonstrate that the Net Present Value of the contribution that the CRC is likely to make to the $9 billion dairy industry over the next 25 years is in excess of $1 billion with a benefit to cost ratio of 8 to 1. Again, as stated above, achievement of this gain will depend on the quality and nature of the organization that is established to convert the discoveries and IP generated in the CRC into valuable products.

Path to commercialization/adoption: Although research activities of the CRC are in the discovery phase, there are clear examples of a sound capability and desire throughout the organization that will support the achievement of good commercial outcomes as they move through the evaluation phase over the next two to three years. This has been evidenced by the review panel through;

- The cloning project (albeit later abandoned due to a failure of the technology) shows an organizational capability to commercialise quickly and effectively with large scale corporate partners.
- The introduction of the bioactives platforms to northern hemisphere food and ingredient companies has generated strong interest with one company indicating strong co-investment and partnering interest. To have developed relationships to this level in itself indicates a capability and commercial orientation that can be applied with a high level of credibility.
- The current high level of IP protection rigor and internal procedures (including a strong raft of patent applications) augers well for identifying and leveraging these new technology assets through future commercial partnerships.
- The CRC has clear product outcomes and broad paths to market identified for a range of Dairy Farm Productivity factors and novel Value Added Dairy Components.
- The CRC has yet to identify means and pathways to leverage its third 'product' group – the very powerful genetic data evaluation and analysis tools that have been created through the discovery process. However, the Board has recently approved additional staff appointments to focus on technology development and breeding application tools. A commercialization plan is also in preparation. This represents a very significant untapped opportunity for the CRC that will need to be considered progressively along with the other project outcomes so as to not miss the chance to leverage and commercialise the leadership position created.

The Research Program

- The research program is in well aligned and focused on the objectives of the CRC. The major research programs (gene discovery, bioactives pipeline and delivery technologies) represent a self sufficient research portfolio with the capacity to deliver new products and generate wealth for the Australian dairy community.
- The gene discovery program represents the best Australian research to date in the field of genomics and stands as a noteworthy achievement on the international stage. The work of Frank Nicholas and Andy Collins in synthesizing a detailed bovine map using a collection of maps based on disparate bovine and human data sets stands as a remarkable accomplishment. Similarly Herman Raadsma has significantly augmented the collection of genetic markers available to drive marker assisted breeding for commercially valuable traits. The work done in advance of the publication of the full bovine genome sequence in July 2006 has placed the CRC ahead of its competitors. It is therefore likely that the CRC will be ahead of its global competitors in making use of the full genome sequence.
- The bioactives pipeline has made extraordinary progress in identifying potentially valuable bioactives because of its innovative use of a comparative genomics, profiling the gene expression patterns of different lactating animals (cow, mouse, wallaby, seal, sheep and humans). The crucial inputs from the wallaby genome project are noted. A more focused approach on innate immunity in cattle by Ross Tellam has yielded a range of potential products with possible value in detecting and treating mastitis. The development of the mammosphere model has provided a manipulable model system for the evaluation of the bioactives identified.

- The delivery technologies program is meeting its mission to provide a viable, safe and affordable platform of reproductive technologies for the timely delivery of genetically optimal cattle in terms of production values. This program will need to continue in painstaking, fundamental research because of the current rudimentary understanding of mammalian development.

The Education Program The CRC has made a significant investment in education reaching out to dairy farmers, the broader community, students in primary and secondary schools and into postgraduate training.

- The postgraduate training program within the CRC represents current best practice. Beyond being involved in cutting edge research with supervisors who lead their respective fields, the CRC provides all sorts of value adding experiences for its students.
- Given the quality of the Program, it is somewhat surprising that the CRC does not have more PhD students. The issue of PhD student recruitment needs to be actively addressed.
- Student members of the CRC have been actively involved in some of the creative community educational activities such as *Genes in the Shed* and displays at Royal Easter Show. The CRC is to be commended for its variety of community outreach activities and for teaching its students about the importance of informing and enthusing the public with the power of its science.
- The web based education delivery platform GenEd web makes a significant contribution to the public understanding of genetics and reproductive technologies.

Effectiveness of Collaborations The Panel was impressed by the high quality of collaborations between members of the CRC and between CRC members and national and international scientists and industrial decision makers. Examples of effective and productive collaborations include:

- Evidence provided by the PhD students that the quality of their training was enhanced by effective collaborations with other CRC scientists throughout Australia.
- Sequence annotation/enhancement of the bovine genome involving - CSIRO, Melbourne University, VBC, Garvin Institute, Sydney University, University of Southampton, Sheep CRC
- Networks developed to evaluate bioactive components of milk involving:
    - Melbourne University and Dairy Australia
    - Geoffrey Gardiner Dairy Foundation and Massey University
    - Deakin University
    - Sydney University
    - CSIRO
- Collaboration with other CRCs in education (sheep and Inflammatory diseases)
- Collaborations with Molecular Plant Breeding CRC and other biotechnology CRCs in providing education programs in genetic science.

Effectiveness of Governance and Management Arrangements The Panel concluded that the CRC was exceptionally well managed.

- The quality of management is attested to be the fact that the CRC is on track to achieve its objectives in spite of significant challenges. Following the withdrawal of the Victorian Department of Primary Industry as a major Research Partner, the Board recruited the University of Sydney to fill the void. Similarly, when Bonlac Foods withdrew from being a commercial partner, it was replaced by Tatura Milk Industries Limited and Dairy Farmers Co-operative. Furthermore, when these milk processors were forced to reduce contributions due to adverse market conditions, the CRC attracted additional funds.
- The flexibility of the management team is also demonstrated by the observation that when the CRC decided to abandon further activities in cloning or in developing transgenic cows on the basis of stakeholder inputs, the scientific resources that had been focused on this area were efficiently and effectively directed at:
    - Achieving accelerated genetic gain through increased use of embryos;
    - Improved productivity and health contributions from stem cell contributions and cell specific delivery systems.
- The Panel also concluded that an Incorporated Company would be better placed to govern the CRC with its transition from a discovery to a development CRC. The Board of an incorporated company could ensure that it contained the appropriate skill sets and would be better equipped than the Board of an unincorporated body to oversee the commercialization of the valuable IP assets that are expected to result from the excellent scientific programs undertaken during the first five years. CRC II, if established, will be incorporated.

Appendix 3: Dairying for Tomorrow

Dairying for Tomorrow (DfT) is an innovative approach to diffusion and absorption of innovations in natural resource management. It is an example of industry leadership, significant government support and a strong force for alignment with research providers.

DfT was established in 2001 as a national strategy for sustainable resource management in the dairy industry. Since its establishment there has been a 25 per cent increase in the number of farmers adopting industry recommended best-practice management of natural resources. Just under 20 per cent of Australian dairy farmers have been directly involved in Dairying for Tomorrow on farm change programs since 2005. Participation has resulted in high levels of adoption, with 84 per cent of participating dairy farmers changing their management practices. The success of Dairying for Tomorrow can be attributed to several factors:

- Regional planning;
- Strong on-farm change programs;
- National tools and frameworks;
- Regional Dairying for Tomorrow co-ordinators;
- Participatory research and development programs; and
- Regional and national information sharing networks.

Planning

Each of the eight dairy regions has a Regional Action Plan to guide NRM investment. Plans are reviewed on a regular basis and all key stakeholders including NRM agencies are involved in the development and review process.

Strong on-farm natural resource management (NRM) programs

Regions have developed or customised NRM programs that reflect regional issues and strengths. Programs are based on the DfT learning framework and have the following features:

- Supported change;
- Farmer engagement/ownership;
- Collaborative delivery partnerships between researchers, farmers and NRM agencies;
- Regional information-sharing networks and workshops; and
- High levels of industry and NRM stakeholder support.

An important method of delivery in all dairy regions has been dairy farmer groups. Dairy farmers want to learn from dairy farmers. They will rarely see learning from farmers in other industries as relevant to them. Gaining the trust of dairy farmers has been important in achieving results. This has been achieved by providing a comfortable environment for the dairy farmer to learn about the environmental issues that are relevant to them.

An example of a successful program is the Young Farmer NRM Network established in the Darling Downs. This project was a co-operative project with QDO and Condamine Alliance. It worked with 71 young farmers (under 40 years of age) and 52 dairy businesses. A significant key to success was approaching the group with a broad agenda to encourage networking and sharing of ideas. The investors trusted that the formation of the group would lead to improved natural resource management.

National tools and frameworks

All industry NRM programs use the dairy environmental self-assessment tool, DairySAT, as their starting point. DairySAT has been the most successful tool of the DfT program, with respondents

routinely rating the region-specific information contained within DairySAT as being extremely useful. One farmer stated: “I’m an old farmer, and it [DairySAT] made me aware of modern practices”. Other successful DfT tools are Targets for Change and the DfT learning framework.

Regional Dairying for Tomorrow co-ordinators

The activities of the co-ordinators have been a critical part of the success of DfT. Prior to co-ordinators’ appointment in 2005, regions struggled to establish successful NRM programs. The regional co-ordinators are employed on a part-time basis in all dairying regions in Australia. Since their appointment over seven million dollars of NRM agency funding has been leveraged for industry NRM programs. The total amount leveraged for industry NRM programs includes an additional $7-10 million of in-kind support from farmers and industry service providers.

The DfT coordinators have carried out their work by developing regional NRM projects and have sought funding for these projects from a variety of sources. The value DfT co-ordinators have provided in projects has been:

- Projects are developed based on industry needs with input from dairy farmers and a range of stakeholders;
- DfT co-ordinators have developed partnerships for delivery of projects; and
- Projects have been run by the industry, which has contributed to a high level of participation.

Regional and national information sharing networks

One of the most valuable activities of the DfT program has been the development and maintenance of networks. DfT co-ordinators and Dairy Australia have worked hard to establish formal and informal relationships with NRM agencies, milk processors, state agencies and other relevant stakeholders. In many regions this has resulted in DfT co-ordinators being formally invited to attend and participate in reviews of regional NRM plans. The information-sharing workshops and networks have also helped identify key NRM program success factors and enabled sharing of tools and ideas across regions.