National Farmers' Federation

Submission to the Climate Change Authority

'Action on the land: reducing emissions, conserving natural capital and improving farm profitability – an issues paper'

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NFF Member Organisations

The National Farmers' Federation (NFF) is the voice of Australian farmers.

The NFF was established in 1979 as the national peak body representing farmers and more broadly, agriculture across Australia. The NFF's membership comprises all of Australia's major agricultural commodities across the breadth and the length of the supply chain.

Operating under a federated structure, individual farmers join their respective state farm organisation and/or national commodity council. These organisations form the NFF.

The NFF represents Australian agriculture on national and foreign policy issues including workplace relations, trade and natural resource management. Our members complement this work through the delivery of direct 'grass roots' member services as well as state-based policy and commodity-specific interests.

Statistics on Australian Agriculture

Australian agriculture makes an important contribution to Australia's social, economic and environmental fabric.

Social >

There are approximately 132,000 farm businesses in Australia, 99 per cent of which are Australian family owned and operated.

Each Australian farmer produces enough food to feed 600 people, 150 at home and 450 overseas. Australian farms produce around 93 per cent of the total volume of food consumed in Australia.

Economic >

The agricultural sector, at farm-gate, contributes 2.4 per cent to Australia's total Gross Domestic Product (GDP). The gross value of Australian farm production in 2016-17 is forecast at 58.5 billion – a 12 per cent increase from the previous financial year.

Together with vital value-adding processes for food and fibre after it leaves the farm, along with the value of farm input activities, agriculture's contribution to GDP averages out at around 12 per cent (over $155 billion).

Workplace >

The agriculture, forestry and fishing sector employs approximately 323,000 employees, including owner managers (174,800) and non-managerial employees (148,300).

Seasonal conditions affect the sector's capacity to employ. Permanent employment is the main form of employment in the sector, but more than 40 per cent of the employed workforce is casual.

Approximately 60 per cent of farm businesses are small businesses. More than 50 per cent of farm businesses have no employees at all.

Environmental >

Australian farmers are environmental stewards, owning, managing and caring for 52 per cent of Australia's land mass. Farmers are at the frontline of delivering environmental outcomes on behalf of the Australian community, with 94 per cent of Australian farmers actively undertaking natural resource management.

The NFF was a founding partner of the Landcare movement, which recently celebrated its 25th anniversary.

Contents

1. Introduction: The challenge and opportunity for Australian agriculture

Australia's farm sector is on track for best-ever results with agricultural production forecast to tally a record $63.8 billion in 2016–2017[1], and there are predictions that Australian agriculture will be a $100 billion sector by 2030. This growth is fuelled by increasing global demand for Australian grown produce.

This is not however without the existence of significant challenges to Australian food and fibre production. Australian agriculture must continue to increase production in response to both domestic and international demand, while simultaneously adapting to a changing physical climate and contributing to our emissions reduction goals. It is likely that the production challenge will need to be achieved on less land, in the face of increasing input costs and changing consumer expectations, and against the "headwinds" of a changing climate.

Commentators from far and wide continue to point to the "land sector" and farmers as key to achieving Australia's commitment at the Paris Climate Conference of a 26-28% reduction in our national emissions by 2030. Ensuring the policy settings are right to facilitate farmer participation and recognise the full range of contributions that farmers make to our emissions reductions goals is crucial.

The issues paper has captured many of the major issues facing the agricultural sector. This submission aims to highlight where the current policy framework is failing to provide the right settings to meet objectives and offer suggestions as to how government policies can recognise and foster non-climate benefits associated with emission reduction activities.

To ensure that the industry achieves the desired outcome of delivering productivity increases, emissions reduction, and NRM and agricultural policy objectives will require changes to the way in which agricultural production is valued at both a regulatory and consumer level. Farmers need a regulatory environment that fosters growth, productivity, innovation and ambition – not one that impedes. Getting the settings right means we can achieve a sustainable agricultural industry with increased productivity and profitability, improved natural capital and genuine emission reductions.

2. Emissions reduction policy

NFF has long argued that there are fundamental barriers to farmers participating in the carbon market. With the Emissions Reduction Fund now five auctions old, this is increasingly evident. Vegetation projects continue to be awarded the vast majority of contracts with 122 million tonnes of abatement contracted across 208 projects nationwide. Of the agriculture methods available only two methods have been used – methane utilisation in piggeries and soil carbon sequestrating in grazing systems, for a grand total of 21 projects and a total of 17.7 million tonnes of CO_2 abatement. Similarly, only 13.8 million tonnes of abatement have been achieved by savannah burning methods utilised by landholders in northern Australia.

[1] ABARES 2017, Agricultural commodities: March quarter 2017. CC BY 3.0.

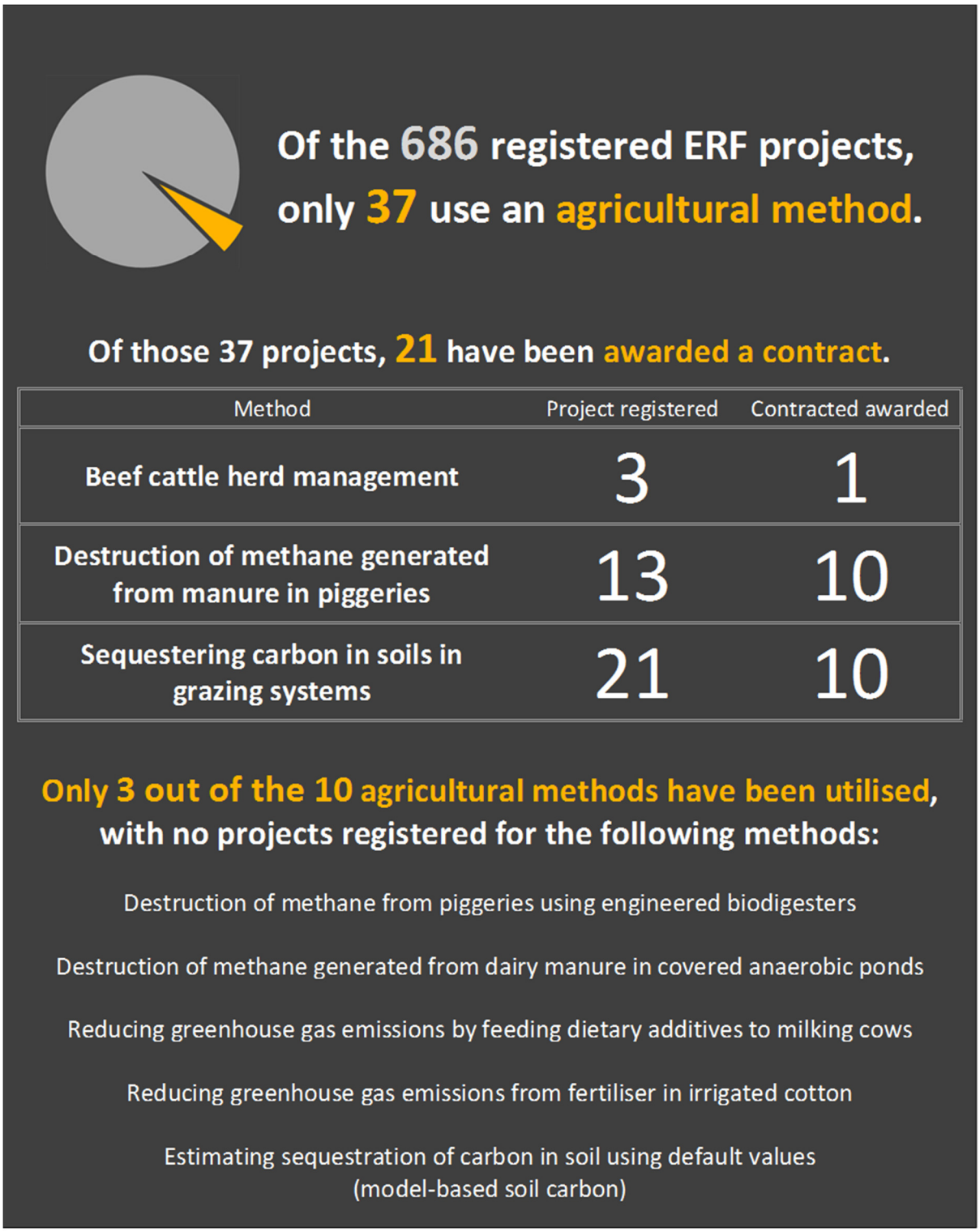

Figure 1 Breakdown of ERF projects utilising agricultural methods after the fifth ERF auction, April 2017.[2]

[2] NFF analysis using data sourced from the Emissions Reduction Fund project register http://www.cleanenergyregulator.gov.au/ERF/project-and-contracts-registers/project-register

As evidenced by the results of latest round of ERF auctions the question stands as to why farmers and other industries across the economy have not taken up the other methods that have been approved to enable them to participate. These include livestock and production management methods to reduce methane from dairies, those to reduce emissions from cattle by adding nitrates to feeds and those that reduce emissions of nitrous oxides from fertiliser use in cotton farming systems.

Taking the cotton method as an example, industry case studies have examined the costs and benefits of adopting the method, and using average ERF auction prices and including the costs associated with participating in an aggregated project, there is no financial return. This is due largely to the high administration and auditing costs associated with implementing the approved method.[3]

With the exception of very large industrial businesses, these approved methods are single activity methods. For a farmer to apply more than one method they would be required to implement multiple carbon projects, each with their own partners, monitoring and reporting rules. This represents an overly cumbersome and expensive process for what may be a relatively straight forward and "adoptable" on-farm management practice. A typical mixed farming enterprise may have opportunities to restore vegetation, increase soil carbon, avoid methane and N_2O emissions and increase energy efficiency but as yet there is no easy way to bundle up these small parcels and sell them in a way that is administratively efficient.

Often, the administrative costs and risks (such as reduced productivity or financial risks) of implementing a method far outweigh the financial benefits of the carbon price, and therefore we see a number of methods barely or not even utilised. With the average ERF Auction price down to $11.83 / tonne, the competitiveness of projects beyond vegetation management is starting to wane.

There are a number of practical barriers to greater participation by farmers in the ERF.

- **Understanding the legal and financial risks to participating in the carbon market is difficult.** Suspicion of third party aggregators and lack of clear standards around their contracting means that sourcing trusted and independent advice is hard for farmers to do. In the absence of third party advice to help farmers identify the ERF methodologies and opportunities that exist in their farming systems we are missing out on potential emission reduction benefits.

- **Negative conversations about deals and the real farm gate return and risk to farmers for participating in the ERF also impact project participation.** Emissions reduction projects are long-term commitments of at least 7 years, and in the case of sequestration projects 25 or 100 years. Concern of the actual value that will be returned to farmer, potential impacts on productivity, and the obligations and costs associated with different kinds of projects are all impediments to widespread participation.

[3] See more from industry body extension provider, CottonInfo http://www.cottoninfo.com.au/sites/default/files/documents/ERF%20fact%20sheet%20-%20nitrogen%20%28updated%20May%202016%29.pdf

- **There are a very limited number of methods available that are relevant to the majority of farmers.** A typical mixed farming enterprise may have opportunities to restore vegetation, increase soil carbon, avoid methane and N_2O emissions and increase energy efficiency. An irrigation district could have major opportunities to increase energy efficiency across bulk water pumping coupled with opportunities to reduce N_20 emissions. The current suite of methodologies does not cater for the diversified enterprises that make up our farming systems and the reality is that for most Australian farmers, cost-effect methods are not yet available for them to use.

The NFF believes that in order to unlock the carbon potential on the land sector we need a commitment to invest in the research and development that is required to bring new technologies and practices to market. Farmers can't – and won't - participate in markets if they don't have access to cost competitive emissions reduction methods that are optimal for their particular farming systems and locations. Further, if we are to achieve ambitious carbon emissions reduction goals, unlocking the sequestration of the entirety of the land sector is critical. Expanding the scope of the ERF to include viable commercial and agroforestry projects for example, is essential. Government needs to ensure that there is a diversified suite of project types in order to take advantage of *all* opportunities that exist within the land sector while spreading the risks associated with participation and allowing landholders to make the land use and production decisions that best suits their business.

Farmers also need to be provided a low risk, low cost path to the market. The barriers that currently exist within the marketplace need to be overcome or removed. To do this requires easy to access information, tools and resources available to make sound business decisions about participation in the ERF. Farmers also need to be supported by advisers and project partners who are knowledgeable in farm management, and are trusted in their approach and commitment to delivering on projects, especially those that are long term.

3. Realising multiple benefit potential

3.1 Carbon & Productivity

The success of the agriculture sector in reducing our emissions intensity over the past few decades highlights the potential for R&D to drive reductions in emissions intensity over time. Examples of this include:

- in the dairy industry, the on-farm application of research related to cow nutrition, rumen microbiology and genetics has led to substantial increases in milk production from individual cows and improved feed conversion. This has resulted in the average methane intensity from Australian dairy cows reducing from 9.8 t CO_2e per tonne of milk solids in 1980 to 6.0 t CO_2e per tonne of milk solids in 2010[4].

- between 1981 and 2010, the beef industry has decreased greenhouse gas intensity by 14%, from 15.3 to 13.1 kg CO_2-e per kilogram of live weight[5]. This has largely been driven by changes in herd management to improve productivity such as higher weaning rates, higher growth rates, heavier carcase weights, lower mortality rates and improved feed conversion.

Continued and sustained investment in research and development (R&D) by industry and government will build on the gains we have made to date, and drive further improvements and potential step changes in the carbon efficiency of our farming systems.

As the issues paper highlights, investment in R&D that focuses on mitigation options that concurrently reduce emissions and improve productivity and profitability will be more readily adopted by farmers as it makes business sense to do so. This will help drive the overall performance of both the land and agriculture sectors in the national greenhouse gas inventory.

Some of these R&D opportunities will have longer lead times, requiring sustained investment over time. The very nature of the challenge means that some research will be need to be "far-horizon", making it riskier and less attractive for industry and private investment. The statutory framework and funding agreements in place means that industry investment must be made in a way that delivers demonstrable value to levy payers, so may in fact limit the ability for industry to invest in far horizon or blue sky research.

By way of example, analysis conducted by Meat and Livestock Australia (MLA) has examined the likely cost, mitigation potential and productivity impacts of methane research priorities (Figure 2). This highlights that there are some research areas where mitigation potential is significant (for example >20%) but the productivity gain is limited (<5%), which means industry is unlikely to invest in these areas without incentives to do so.

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[4] Moate et al (2014) *Mitigation of enteric methane emissions from the Australian dairy industry*, Proceedings of the 5th Australasian Dairy Science Symposium 2014 http://www.adssymposium.com.au/inewsfiles/2014proceedings/19MoateADSS2014.pdf

[5] Wiedmann et al (2015) Resource use and greenhouse gas intensity of Australian beef production: 1981–2010 Agricultural Systems Volume 133, February 2015, Pages 109–118 http://www.sciencedirect.com/science/article/pii/S0308521X14001565

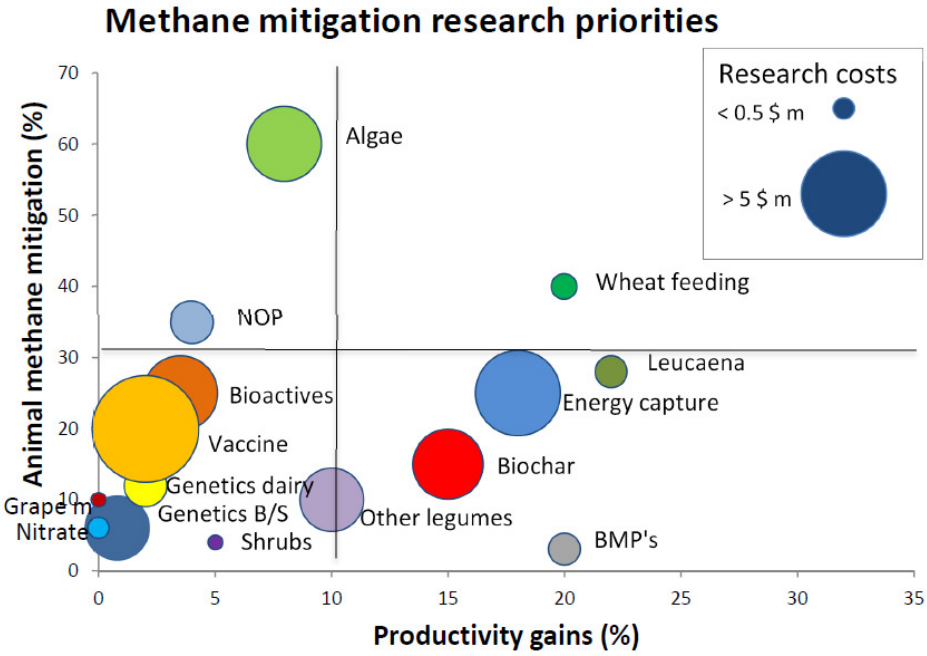

Figure A. Relationship between the methane mitigation potential in individual animals and estimated productivity gain for a range of methane mitigation strategies examined. The size of the bubble-dot represents a relative estimate of the likely cost and risk of further research required. The highest priority strategies would be in the upper right segment. The lines are the objectives MLA set for potential achievement. Genetics B/S is for beef and sheep.

Figure 2 Methane Research Priorities (source MLA[6])

Efficient fertiliser application has multiple benefits. The obvious benefit to the farmer is reduced input costs, and in some farming systems, there are also benefits associated with reduced nutrient runoff and potential downstream impacts. However, an optimal fertiliser application regimes is a complex interaction of soil moisture, soil carbon and crop performance, and more research is needed to better understand the ideal management regime to maximise yields and profitability while minimising emissions[7]. The importance of this issue is highlighted by the continuation of key research into efficient nitrogen application by industry in partnership with the Government through the Rural R&D for Profit Program.

Government policy settings should be designed in such a way that incentivises industry to pursue this type of research, and recognises that the public "captures" the carbon benefit of more emissions efficient practices. Examples of potential policy settings could include:

- Public co-investment in a co-benefit research agenda that recognises that carbon research is often too "risky" to fit inside the demonstrable value parameters of industry levy-funded research.

[6] See http://publications.mla.com.au/go/zrSrU8s8czsjsX4Y for the latest consolidated outcomes of research into lowering methane emissions and raising productivity in Australia's livestock industries and the best future opportunities.

[7] See for example http://www.n2o.net.au for information about nitrous oxide opportunities

- The capacity for industry as a whole to capture the value of the carbon benefit realised from its investment and adoption of carbon efficient practices, and for this benefit to be re-invested by the industry for the industry.

3.2 Carbon & other environmental services

Farmers are at the frontline of delivering environmental outcomes on behalf of the Australian community but under current environmental and vegetation management regulation farmers bear an uneven distribution of risk and cost associated with the provision and maintenance of natural capital assets. Emissions reduction policies will work best where they drive improved natural resource management for both increased productivity and abatement and then adequately reward the ecosystems services that farmers provide to the wider community through this land management.

In order to achieve this it is crucial to identify the specific environmental and non-climate co-benefit objectives of emissions reduction policy and then realise or recognise the value of this deliverable. As industry strives to continually capture the productivity benefits associated with emissions abatement, it should be the focus of Government to provide the mechanism by which to deliver the return on the environmental co-benefits.

To realise the multiple benefit potential of emissions reduction policy, it must be such that it can boost confidence and encourage growth in both agricultural enterprises and emissions reductions projects while continuing to offer incentives to invest, conserve and restore natural capital.

While the subject of much academic debate and trial, the delivery of a properly functioning environment service market (for example biodiversity or water quality) in Australia is still some-way off. Practices adopted to manage for biodiversity outcomes (managing and protecting vegetation, improving soil function etc.) also result in sequestration benefits.

At the national level, the Environmental Stewardship Program (ESP) has been the closest we have been to developing a market-based environment services market. ESP focused on maintaining and improving the condition of matters of national environmental significance – including threatened species and ecological communities. The program involved grants to support a range of agreed management activities to protect, rehabilitate and improve particular ecological communities. Land managers received funding for activities that are additional to their normal legislative responsibilities, for up to 15 years. The ESP was delivered using a competitive reverse auction mechanism, whereby land managers compete for Government funding to undertake conservation management actions on their land. The levelised (average annual) cost across the ESP for the Box Gum Grassy Woodland Project was $202 per hectare per year. The 2010 Review of the Program conducted by Marsden Jacob found that overall the program had "generally been a well-designed, well run, effective and efficient approach to enhancing conservation on private land."

The success of the ESP highlights opportunities for Government to explore opportunities to adopt market-based approaches to achieving NRM outcomes and other environmental stewardship activities. The ESP favoured landholders with remnant native vegetation, and there is an opportunity to recognise re-vegetation activities that can assist in protecting threatened species and creating vegetation corridors including creating climate change adaptation corridors.

Ensuring that ecosystem service markets and carbon markets can work together into the future should be at the forefront of considerations in the future design of the former. To reduce the cost barriers to participating in markets, farmers need to be able to "bundle up" all opportunities in an efficient way.

While market settings need to be such that there is no "double dipping" and that additionality is achieved, a dual income stream that recognises the delivery of multiple services should be explored in more detail.

3.3 Pitfalls to avoid

In establishing a market-based approach to recognising realise multiple benefit potential, the NFF firmly believes that such process ***should not*** result in the creation for yet another on-farm accreditation scheme. While we recognise that for market confidence verification of outcomes is important, our view is that integration with existing industry led initiatives is essential to avoiding cost and duplication on-farm.

Increasingly, agricultural industries are developing industry sustainability frameworks designed to promote continuous improvement in practice and demonstrate to markets and stakeholders that Australian producers are responsible and sustainable. A conceptual diagram of the industry framework approach is shown in Figure 3.

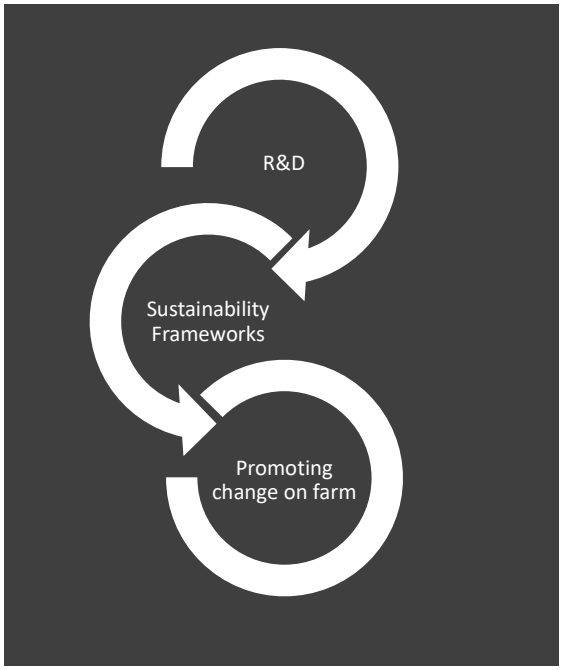

Figure 3 Schematic of industry-led sustainability approaches

While each industry framework takes a different form that reflects the particular priorities of each industry, they:

- Are holistic covering the environmental, welfare, wellbeing and economic dimensions of sustainability.
- Generally align with the Global Reporting Initiative (GRI) approach and some explicitly with the UN Sustainable Development Goals (SDGs).
- Are often recognised in global markets,
- Are integrated to industry extension and formal best management practice and accreditation programs
- Are explicitly connected to industry investment in R&D and innovation to enable research to inform practice and to support research prioritisation.

A list of references is provided in Appendix A with links to established industry frameworks and initiatives.

When designing approaches to recognise multiple benefits, it is crucial that opportunities to integrate with industry-led approaches are fully explored to ensure that duplication is avoided.

Appendix A – Industry Sustainability Frameworks and information

- Dairy
  http://www.dairyaustralia.com.au/Industry-information/Sustainability.aspx
  http://www.dairyingfortomorrow.com.au/

- Cane
  https://www.smartcane.com.au/home.aspx

- Cotton
  http://cottonaustralia.com.au/australian-cotton/environment/sustainability
  https://www.mybmp.com.au/home.aspx

- Beef
  http://www.sustainableaustralianbeef.com.au/

- Pork
  http://australianpork.com.au/industry-focus/environment/renewable-energy-biogas/