

Submission on Agriculture, Land and Emissions

Tony Gleeson¹

This is a contribution to the development of an agriculture and land sectoral plan to lower greenhouse gas emissions. It draws, inter alia, on over two decades of experience in the design and application of voluntary certified farm-based environment management systems.

The broad goal was well articulated by David Crombie in his November 2010 farewell address as President National Farmers' Federation:

'Our biggest task is to maintain the trust of the wider community. Trust in the quality of our food and fibre and trust in the ethics and the integrity of how we produce it. I see a future where our farmers will be valued for their production of food and respected for their environmental delivery'.

We still have a way to go to achieve that goal.

This paper addresses the need to accelerate climate change mitigation. For ecological, managerial and efficiency reasons reducing, and sequestering greenhouse gas emissions should be integrated with a broader suite of environmental considerations.

Action by land managers will depend on profitability, productivity, regulatory and altruistic drivers. These drivers are best harnessed by an integrated approach based firmly on the varying challenges and opportunities experienced by land managers.

The recommendations in this submission are particularly relevant, but not exclusively so, to the section in the Agriculture and Land Sectoral Plan Discussion Paper² on recognising and valuing improvements. The focus is on how to encourage, support and monitor reduced emissions in broadacre land use³, both agricultural and other.

Observations from corresponding members for this submission (see Annex 2) generally support the need to embed monitoring and reward systems to reduce emissions with more broadly based initiatives to deliver multiple environmental, productivity and profitability outcomes. They do however highlight past difficulties in achieving the quantum of participation necessary to achieve meaningful participation. This is an on-going challenge for which we now are better enabled given design experience, improved technology and, importantly, the evolution of market-based drivers.

¹ Tony Gleeson, [REDACTED] (see bio at Annex 1)

² <https://haveyoursay.agriculture.gov.au/agriculture-and-land-sectoral-plan> and <https://nff.org.au/programs/australian-agricultural-sustainability-framework/>

³ The broadacre segment is comprised of the land occupied by the broadacre agricultural industries, by other industries, by First Nations people and by National and State parks and by other forms of government ownership. There are 87,800 agricultural businesses occupying 55.5 percent of the Australian landmass (Commonwealth of Australia 2023, National Statement on Climate Change and Agriculture, Department of Agriculture, Fisheries and Forestry, Canberra. CC BY 4.0.). Except for pig, poultry, and most horticultural businesses nearly all these businesses can be described as broadacre businesses. They are commonly categorised according to their main agricultural operation, but most have two or more industries (see Annex 5). <https://haveyoursay.agriculture.gov.au/agriculture-and-land-sectoral-plan> and <https://nff.org.au/programs/australian-agricultural-sustainability-framework/>

The paper is structured around four interrelated recommendations:

- Maintain the inclusion of all land
- Establish a monitoring and improvement system
- Identify and adopt essential features of the monitoring and improvement system
- Establish an independent entity to ensure the monitoring and improvement system is credible, effective, and efficient and to report on outcomes

Maintain the inclusion of all land

It is important to include emissions and sequestration across the total land mass.

Broadscale agriculture occupies fifty-five percent of the land mass with the remaining forty-five percent represented by forestry, conservation, Indigenous Protected Areas and other public and privately held land.

There is great diversity across the Australian land mass. Eighteen percent of land is categorized as desert and fifty two percent as arid or semi-arid. More intensive broadacre agriculture is found generally only on the remaining thirty percent along with urban and other uses. Different emission and sequestration strategies are required for different land types. However, this does not negate either the need for or the practicality of broadly applicable approaches to encourage and monitor improved outcomes.

Emissions and sequestration associated with the management of land, including agricultural land, are accounted for under the land use, land use change, and forestry (LULUCF) sector of the National Greenhouse Account (NGA). Emissions and sequestration associated with activity in agriculture are accounted for under the agriculture sector of the NGA. This accounting process should not disconnect the critical functional links between agriculture and land use changes.

It is sobering to note that apart from reduced emissions to land use there have been no reductions in emissions in Australia over 2004-5 levels. Equally significant is that this reduction is due primarily to regulatory changes⁴. All of this sits in an Australian context characterized by high per capita domestic emissions and a dependency on exporting fossil fuels that contribute to emissions in importing countries.

These realities need to be reflected in government and industry understanding and rhetoric. Australia needs to not only advocate globally for balance and evidence-based discussions but to apply this approach domestically. How data are presented affect mindscapes, what people think and believe. In turn these mindscapes affect and are effected by actions.

To illustrate: It is at best disingenuous for government and industry to claim the Australian red meat industry has reduced emissions by 65 percent since 2005 and that this reduction is due to innovation in the grazing sector (see Annex 3). The reality is that it is due primarily to regulatory changes to land use. Additionally, while productivity gains are likely to lead to reduced emissions per unit of production, they are also likely to lead to greater production and hence greater emissions. It is the absolute level of emissions that drives climate change.

⁴ This submission does not address which industry or operators should be assigned credit from regulatory driven changes to land use. That is a policy and equity issue beyond the focus of this submission.

Establish a monitoring and improvement system

Existing programs⁵ for reducing emissions need to operate alongside a broadly based program designed from the holistic perspective of land managers. Existing programs are not necessarily linked to monitoring of environmental outcomes beyond reduction in emissions or to the building of human capital so crucial to the enabling of continuous improvement. The multiplicity, complexity, and limited applicability of existing programs can be daunting for many land managers. Invariably they incur high financial and other transaction costs.

The proposals in this submission are closely aligned to the IPPC Special Report on Climate Change and Land. That report provides insightful signposts for the design of climate change mitigation and adaptation policies and programs including that:

- *Land management decisions are made from farm level to national scales, and both climate and land policies often range across multiple sectors, departments, and agencies*
- *Policies and programs need to be adaptative as they are dealing with complex ecosystems, with great variability over space and time and with varying human and social capabilities*
- *Land-based options that deliver carbon sequestration in soil or vegetation, such as afforestation, reforestation, agroforestry, soil carbon management, or carbon storage in harvested wood products, do not continue to sequester carbon indefinitely. Accumulated carbon in vegetation and soils is at risk from future loss (or sink reversal) triggered by disturbances such as flood, drought, fire, or pest outbreaks, or future poor management*
- *Mutually supportive climate and land policies have the potential to save resources, amplify social resilience, support ecological restoration, and foster engagement and collaboration between multiple stakeholders*
- *Acknowledging co-benefits and trade-offs can overcome barriers to implementation.*

These observations are not just platitudinous generalisations. They are important authoritative guidelines for the development of agriculture and land strategies.

The Agriculture Land and Emissions discussion paper notes that ‘greater coordination, consistency and harmonisation of programs may assist producers to navigate confusion’. However, even if possible, such coordination will not create a widely applicable system to effect behavioral change through encouraging, monitoring, enabling, and rewarding reduced emissions at the whole-of-property level. The failure of an attempt in the mid-2000s to harmonise across narrowly based programs is instructive⁶.

Rather than trying to cobble together initiatives across states, industries, and independent providers it would be easier, cheaper, and more effective to establish a widely applicable property based voluntary monitoring and improvement system. Such a system would underpin and augment existing and emerging more narrowly focused initiatives.

Establishing a broader widely applicable program is in concert with one of two overall recommendations of the Queensland Native Vegetation Scientific Expert Panel (2023) viz. ‘Implement a suite of educational, financial, and motivational measures that will further advance the ecological objectives outlined by the Panel and be consistently applied over at least 15 years’.

⁵ ACCU scheme. Integrated Farm and Land Management method. Savanna Fire Management method. Natural Heritage Trust Climate-Smart Agriculture package. Agricultural Stewardship program

⁶ Project funded as part of the Environmental Management System programs and operated through the Australian Horticultural Corporation.

It is not rocket-science to design and establish a widely applicable property based voluntary monitoring and improvement system. Through previous environment management system programs Australia has built the necessary experience in design and application.

The case for a monitoring and improvement system rests on the need for credible data and on the near impossibility of continuous improvement in the absence of measurement. The oft used adage applies- you cannot improve it if you do not measure it.

We need to distinguish between industry wide monitoring and property level systems to encourage, monitor, enable and reward emission reductions. The former is most frequently used to justify existing performance, the latter to effect behavioral change and improved outcomes.

Monitoring alone will not effect behavioral change. It needs to be linked to the development and application of action plans at the property level and to the delivery of rewards. The Australian Land Management Group has demonstrated this to be feasible and attractive to landholders.

Productivity, profitability, and self-esteem rewards are much enhanced by linking reduced emissions with related improvements in environmental outcomes, for instance in biodiversity conservation, air and water quality, ground cover, protection of endangered species and feral animal and weed control. The relative importance of all these factors, and others, will vary between properties and over time. To effect change it is critical that policies, programs and processes accommodate this variability and the variability in the capacities of land managers.

The application of market forces to reduce emissions is embryonic and characterized by excessive fragmentation, high transaction costs and limited applicability. However, their effectiveness and efficiency would be improved should they be able to act in conjunction with a widely applicable broadly based voluntary property level monitoring and enhancement system.

There are multiple in-principle and practical reasons why government support is needed for a broadly based monitoring and enhancement system applicable across broadacre land uses. These include to:

- Enable and facilitate integration across fragmented reward systems designed for specific environmental outcomes, for instance for carbon sequestration, biodiversity conservation, protection of endangered species, landscape amenity, cultural values
- Help overcome entrenched sectoral interests advocating for business as usual, in effect even if not rhetorically⁷
- Limit transaction costs particularly at the land management level and within and across food, fibre and other product market chains
- Accommodate poor economies of scale, particularly in the early years
- Enable economies of association between various policy instruments, for instance to improve awareness of and adherence to regulatory requirements
- Overcome the inevitable fragmentation and excessive costs of systems of limited industry and geographical foci. These systems reflect that the agricultural statutory corporations are generally commodity based and that agricultural advocacy organisations are largely State based

⁷ Beef Central (09/11/23) Concerns cattle industry environmental message is falling on deaf ears

- Ensure credence⁸ outcomes are achieved, particularly those related to environmental and animal welfare management
- Account for full and partial public good outcomes⁹
- Stimulate incentives for action

Identify and adopt essential features of a monitoring and improvement system

The application of market forces to reduce emissions is embryonic and characterized by excessive fragmentation, high transaction costs and limited applicability. There is a need for reduction in emissions to be integrated with improved environmental outcomes more broadly and hence be more closely linked to improved productivity, profitability, and natural, human, and social capital¹⁰.

Integration¹¹ across economic, social, cultural, and environmental goals can be achieved through application of well-designed environment management systems¹². These systems enable integration:

- Within and between multiple market and non-market instruments
- Across the interdependent and interactive elements of ecosystems, hence maintaining ecological integrity¹³
- Across multiple policy instruments including, for instance, regulation, financial and research, development, education, and training
- Across the multiple operations on the same property. At least two thirds of property owners producing at least two thirds of agricultural production by value operate two or more industries (see Annex 4). Generally, however influential statutory corporations do not operate on a whole-of-property basis.
- Across various product market chains most of which deal with multiple products across multiple domestic and export markets.

Because of the multiple industry nature of most farms and the structure and operation of market chains monitoring of emissions and of related environmental outcomes needs to be across products and be whole-of-farm. Having a common basic monitoring system across activities will enable the

⁸ Credence features of a product or service are those which are not evident in the product or service or from the consumption, use or receipt of same but which are of perceived value-for instance, the production system within which the product is produced.

⁹ A public good or service is one which when produced provides benefits that are non-excludable, that is one cannot stop a person obtaining those benefits, and are non-rival, that is the benefit to one person need not distract from another's benefit.

¹⁰ The Australian Land Management Group (ALMG) has begun the development of a Natural Value Index linking national, agro-ecological zone and property environmental assets and priorities. It is a reasonably easy task to add a Human Capital Index, this being a critical factor determining the rate of improvement in outcomes.

¹¹ Integration refers to a process of bringing together separate components as a functional whole. The OECD defines the integration of natural resources and industry/agriculture as occurring when the objectives, processes and predicted impacts of each activity take account of the objectives, processes and predicted impacts of other activities. Non-integrated actions are characterised by the belated recognition of their unintended consequences (OECD (1988) *New Trends in Rural Policy Making*, OECD, Paris).

¹² An environmental management system (EMS) is a set of practices that enable an organization to reduce its environmental impacts and increase its operating efficiency. USA EPA. <http://www.epa.gov>ems>
See also: Gleeson Tony and Carruthers Genevieve (2006) What could EMSs Offer Land Management in Rural Australia. *Farm Policy Journal* Vol 3 Number 4.

¹³ Ecological integrity exists when the interactive and interdependent ecological processes that sustain the whole system are maintained.

triggers for continuous improvement to operate in a consistent and credible way whilst limiting operational and other transactional costs.

Environment management systems enable understanding, recognition, and reward. These are the essential ingredients for driving behavioral change. They need to be voluntary, credible, whole-of-farm and landscape-linked, have ecological integrity, identify and enable high priority actions for individual farms, be cost effective and be linked to productivity and profitability gains.

Those with corporate memory will recall developments late in the 1900s and early 2000s resulting in Australia's Guidelines for the Application of Environment Management Systems for Agriculture, their endorsement by the Ministerial Councils for Agriculture and for Natural Resources¹⁴ and subsequent funding over six years for the application of those guidelines.

Looking back there are several reasons why none of those environment management systems was widely adopted and none has survived.

The following observations arise from a close involvement in all phases of the environment management system programs and an assessment of current circumstances.

- Public and private drivers to reduce emissions and improve related environmental outcomes have grown considerably albeit being segmented, often of limited applicability and usually having high transactions costs
- Industry organizations, both statutory and advocacy, were at best reluctant to support the environment management programs
- The decision to fund a multiplicity of commodity-based projects many of which were not well-designed environment management systems lead to insufficient support (amount and duration) for nationally applicable whole-of-property programs
- Critically over the past two decades or so there has been exponential growth in the design skills, technology (particularly internet-based tools and capabilities), and data sets to improve the effectiveness and efficiency of environment management systems
- The dominant State and commodity focused organizational structures, both statutory and advocacy and private sector providers are appropriate for many outcomes. However, they alone are not well constituted to provide sustained monitoring and encouragement of continuous improvement in environmentally related outcomes. This is particularly so when those outcomes:
 - are required on a whole-of-farm, landscape-linked national basis
 - are relevant across several portfolios¹⁵ and multiple supply chains,
 - are a mix of public and private goods, and
 - need to be credibly verified

Embedding significant programs even within a single industry inevitably requires concerted effort as is illustrated by the adaptation and adoption of several programs in the livestock industries. Now is the time for that effort. The need has grown and the drivers for participation are stronger.

¹⁴ <http://almg.org.au/wp-content/uploads/2021/05/ems-national-framework.pdf>

¹⁵ The Agriculture and Land Sector Plan is being developed by the Minister for Agriculture, Fisheries and Forestry, Senator the Hon Murray Watt; with the Minister for the Environment and Water, the Hon Tanya Plibersek MP; and the Minister for Climate Change and Energy, the Hon Chris Bowen MP. The plan will focus on the emissions that come directly from activities in agriculture and on the land.

Establish an independent entity to ensure the monitoring and improvement system is both effective and efficient and to provide reports on outcomes

This activity has several components including for instance, choosing a suitable skill-based entity to be responsible for the establishment and performance of the monitoring and continuous improvement system, refining the essential and desirable features of the monitoring and improvement system¹⁶, recommending on resourcing in partnership with evolving market drivers and reporting to government, industries, and the community more broadly.

Previous public support in this context has been spread thinly over too many programs differentiated by industries and or by geography. Additionally, programs have been excessively influenced by sectoral interests at the expense of achieving credible and effective monitoring and continuous improvement.

¹⁶ Throughout this submission environment management system or system has been singular. However, it may be preferable to have a small number of systems (up to three) to maintain competition and to foster innovation in design and delivery.

Annex 1. Tony Gleeson

Prior to 1980 Tony worked in the NSW Department of Agriculture, CSIRO, and the NSW Overseas Trade Authority. Through the 1980s he was Adviser and then Chief of Staff for the Australian Minister for Primary Industries and Energy. In 1990 Tony established a contract research/advisory business completing over 120 major agricultural and natural resource projects, including the land assessment paper for the 2006 Australian State of the Environment Report. In the 2000s Tony played a key role in the development and management of the Certified Land Management (CLM) system. Tony has been Adjunct Associate Professor, Faculty of Agriculture and Law, University of New England, an inaugural Director of the Rural Industries Research and Development Corporation, a Board Member of the Queensland Abattoir Corporation, a member of the Advisory Board to the Centre for Rural and Regional Innovation, University of Queensland, and coordinator of the Northern Australia Beef Research Program. Tony has owned and managed grazing properties in Queensland (1976 to 1981) and in northern NSW (1981 to the present-now otherwise retired).

Annex 2—Responses from corresponding contributors

Professor Snow Barlow ATSE FAIAST

*School of Agriculture, Food and Ecosystem Sciences,
Faculty of Science,
University of Melbourne*

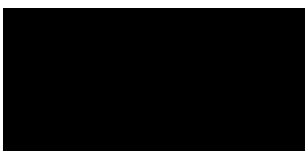
It is a pleasure to comment on the Gleeson submission as it is based on considerable experience in policy development and implementation and unparalleled knowledge of Australian agriculture and the landscape it operates in.

The significance of the Agriculture and Land Sector plan being the first to be developed should not be underestimated. This is emphasized by the current COP28 devoting a full day to this Sector for the first time. Its inclusion in Australia's emission commitment has enabled us to comfortably meet our Kyoto 1 & 2 pledges and is essential for our Paris Commitments.

Gleeson's proposal outlines a practical and proven methodology for engaging with landholders across all industries to deliver further decreases in emissions and improved environmental outcomes. Its core element, a monitoring and improvement system audited by an independent agency, provides a clear implementable pathway. This will ensure that our national emission accounts have credibility internationally.

Such a system allows individual farmers to use whatever technologies that suits their circumstances to achieve improvement. For example, in the case of ruminant methane several anti-methanogens will be available at a cost which may or may not suit individual farmers. Farmers may prefer to change management techniques and pasture composition to achieve improvement. A robust auditable Monitoring and Improvement system can accommodate all these alternatives.

I commend the Gleeson proposal as one important policy component of an effective Agriculture and Land Sectoral Plan



Professor Snow Barlow

Professor Snow Barlow has been intimately engaged in the climate change research for 40 years, as a researcher and adviser to governments. He served as a Chief Scientists within the then DPIE and was a member of the Australian Delegation to COP3 in Kyoto. As such he was responsible for the development of the 'Australia Clause' (article 3.4) in the Kyoto Protocol bringing the land sector into play. Subsequently he has served on the Prime Ministers Science and Innovation Council, and as President of Science and Technology Australia. He chaired the Expert Advisory Committee of the Carbon Farming Initiative and the subsequent Filling the Research Gap programs. Snow was awarded the Australian Medal In Agricultural Science in 2009 and has been elected as a fellow to the Australian Academy of Technological Sciences and Engineering where he chaired the Agricultural and Food Forum.

Professor Richard Bawden AM PhD

*Professor Emeritus (Systemic Development) Western Sydney University
Past Dean of Agriculture and Rural Development, Western Sydney University
Adjunct Professor, University of the Sunshine Coast University*

I strongly support the four specific recommendations submitted by Tony Gleeson to Land Agriculture and Emissions: 1. Maintain the inclusion of all land 2. To establish a monitoring and improvement system, 3. To identify and adopt essential features of a monitoring and improvement system, and 4. To establish an

independent entity to ensure the monitoring and improvement system is both effective and efficient and to report on outcomes.

The arguments that he presents in support of each of these recommendations, is as persuasive as it is coherent. It is important to recognise that each of the four is intimately inter-connected to each of the others with all four essentially representing inter-related elements of a systemic whole strategy.

It is imperative that all who are involved in any form of land management and development, take heed of the critical necessity to address the issue of climate change writ large and to the complex matter of emissions.

Michael Clarke

Principal

AgEconPlus Pty Ltd

Thank you for the opportunity to contribute to, and comment on, your submission to the Agriculture and Land Sectoral Plan. I support your submission which is a valuable contribution to agriculture and land emission policy development. Whole-farm monitoring and improvement systems have the potential to make an important contribution to broadacre emission reduction.

A couple of comments:

- Focusing environment management systems (EMS) on broadacre emissions reduction has the potential to internalize externalities, i.e., costs of production not borne by the primary producer. Other potential environmental benefits from an EMS may be concerned with generating public benefits (e.g., protection of cultural values). Consequently, a broadly focussed EMS should include private and public cost-sharing measures.
- I would like to see Monitoring and Improvement Systems “piggyback” on existing/emerging commercial systems which are strongly focussed on productivity and profit. This type of initiative offers the necessary incentive for landholder participation and does not “crowd out” valuable private sector initiative in this space.
- Ongoing investment in technology to lower the cost of monitoring, especially soil carbon, is essential. Cost effective remote monitoring systems that are acceptable to both national and international agencies are a critical priority for agriculture.

Dr John Drinan

Retired agricultural and environmental scientist, cattle farmer, researcher, educator, and administrator.

Tony Gleeson is correct in his standpoint that emissions reduction is one of several obligations that responsible land managers have in addition to the prime focus of their role. He argues that this can be done within an environmental management system that can be applied across all enterprises or projects in each land unit, and across Australia.

It will assist them to identify ways in which their production system emits carbon, identify means of reducing it, and redesign accordingly. If done within one management system, other goals such as ecological, hydrological, cultural and, of course, economic ones can be integrated to be mutually reinforcing.

I endorse this approach.

However, many attempts to gain land managers’ adoption of similar proposals have failed. One relative success can be seen in the drive for water efficiency in broadacre irrigation where regulatory sticks accompanied carrots of reduced costs. It is abundantly clear that most agricultural land managers are motivated by survival and profit, not altruism. If they and managers of lands for other purposes are to contribute to net-zero, carrots and sticks will be essential. A simple and practicable system in which elements are easily measured and monitored is equally so.

Associate Professor Ben Lyons

Director

Rural Economies Centre of Excellence

University of Southern Queensland

This letter supports a submission by Tony Gleeson, whom I have known and worked with in the context of “sustainability” within Australian Agriculture since 2006. Tony’s experience predates this by no small quantum and has the legacy of being scientist, policy expert, innovator, and farmer.

Gleeson and colleagues developed what is still in my assessment a framework of natural resource management that accepted the conflict of nature and commerce with maturity and pragmatism – the Certified Land Management (CLM) system-with ISO accreditation of the system (not of the individual participants). CLM was one of the environmental initiatives I put forward to the international market in 2006/7 for Australian Wool Innovation. It was the only one selected by overseas retailers and processors as both a valid concept and something they could commercially work with and support.

The submission provided by Mr Gleeson is one that has the benefit of international market exposure and domestic adoption challenges. Adoption is potentially the more immediate need for focus. I strongly recommend that your review process interrogates the history of the development of CLM - where it succeeded (and failed) and seek out its participants and stakeholders if your objective is to develop a considered and holistic approach.

For background I lead the Rural Economies Centre of Excellence - a four-way University-led research partnership that works with Australian rural and regional communities most recently on the topic of climate adaptation and drought, and the challenges these communities face. I am open to further discussing Mr Gleeson’s submission.

Dr Bruce Munday

Founder and former president of Landcare Association of South Australia

The Landcare movement was a bold initiative bringing farmers (NFF) and environmentalists (ACF) together to tackle environmental challenges at the landscape scale. It had many successes in awareness raising, skill development, and linking with research. But it lacked the economic incentives to drive widespread and systemic change.

Farming is a business and changes in land management will be at least partly driven by market forces, government regulation and social license. Each of these in turn will require credible evidence of continuous improvement in environmental outcomes – the basic principle of environmental management systems (EMS).

As a land manager I trialed an EMS on out cattle property from 2005 through to 2010. This was pioneering work with early-stage technology, but it was also rewarding and certainly lent itself to systematic reduction of greenhouse gas emissions. Lessons learned from this trial should be invaluable to inform further development, including promotion of outcomes to the market, one of the key drivers of positive change.

Annex 3 Australia's strong livestock sustainability story shared on the global stage

Beef Central, 29/09/2023

AUSTRALIA'S strong livestock sustainability story was shared during the first Global Conference on Sustainable Livestock, staged in Rome this week by the United Nations' Food and Agriculture Organisation.

The Federal Government's agriculture trade group deputy secretary Nicola Hinder told the conference the Australian red meat industry had reduced emissions by 65 percent since 2005, and our grain and grassfed beef farms were below the global median for emissions intensity.

Ms Hinder also noted the diversity in agricultural contexts regarding sustainability must be recognised.

"Australia would like to thank the FAO for the promotion of balanced science and evidence-based discussions, as we are having today on livestock sustainability," she said.

"Australia's absolutely promotes an outcomes-based, common-sense approach to agricultural sustainability. One that focusses on environmental, economic and social outcomes; and one that acknowledges that there is diversity of circumstances between countries – ie there is no 'one size fits all' approach – supporting policies and regulations that are underpinned by transparent science and risk-based decision-making, while avoiding market-distorting policies and promoting the role of the multi-lateral trading system including a transparent, predictable, open, and fair markets," Ms Hinder said.

In a practical and on-sense farm way, how does this translate, though? she asked.

"We look to adopt land management practices that manage water, soil, nutrients, waste and emissions; establish grazing systems that incorporate pastures that are resilient to hotter and much drier or more variable climates; and we also drive innovation via genetic improvement.

"And the FAO's four 'betters' (better production, better nutrition, better environment and better life) encapsulate Australia's multi-faceted approach to sustainability."

"On better production, Australia heavily invests in innovation R&D, because we recognise it as important to improve livestock production, so that we can continue to produce more, with less.

"Australia heavily invests in R&D because we know it's a powerful driver of production, and in Australia, for every \$1 invested in agricultural R&D, it delivers around \$7.80 in benefits for farmers, within ten years. This has enabled huge productivity gains.

Global need to re-purpose subsidies into R&D

"While we are also looking at increased R&D, we are also focused on how we support our agricultural sectors. We genuinely believe there is a global need to reconsider approaches and re-purpose environmentally harmful supports, such as subsidies, to greater investment in innovation and R&D.

Between 2019 and 2021, subsidy support towards the agricultural sector from 54 major economies reached US\$817 billion, and that figure was steadily increasing, Ms Hinder said.

"While the support may be well intended, we do believe it does not deliver the intended result, and instead, stifles innovation, harms efficient farmers, decreases prices and causes environmental damage – including through the over-use of herbicides, fertilisers and water."

"And if we serious about actually achieving the sustainable development goal of zero hunger by 2030, and increasing productivity by 28pc, we must act now – and that does include tackling subsidies."

Like in Australia, livestock food systems in other parts of the world enable the production of nutritious food, where conditions may not suit other food production, Ms Hinder said.

“We recognise that a third of global protein comes from livestock, and the consumption of animal-based foods can help reduce stunting and wasting of children of less than five years of age, low birth weights and anaemia in women of reproductive age.

“The FAO notes that eating more meat and eggs can substantially benefit poor people living in low income regions – especially pregnant women, children and the elderly. And livelihoods enabled by the livestock sector also mean greater access to food,” she said.

“Australia’s livestock sector does show what is possible to minimise environmental footprints. Our red meat industry has reduced its emissions by 65pc since 2005, and are below the global median for emissions intensity.

“Sixty one percent of broadacre grazing farms in Australia, and 86pc of dairy farms have adopted a form of conservation grazing, and we have 7.6 million hectares of cattle producing land set aside for conservation or protection purposes. In simple terms, that’s around 2.3 percent of Australia’s available land grazing space, and an area larger than Ireland.”

A video of Ms Hinder’s full presentation can be accessed [here](#). Readers will need to fast-forward to 1:10:24 to catch the start of her address.

NFF backs need for global dialogue around sustainability

The National Farmers Federation acknowledged the FAO for supporting global dialogue on the future of the livestock sector that was grounded in science and evidence-based discussion.

“This is the right forum for such a global discussion,” NFF chief executive Tony Mahar said in a statement.

“These discussions are critically important, and we need to continue to acknowledge there is no one-size fits all approach to agricultural sustainability.”

The Rome conference discussed the key themes of better production, nutrition, environment, and life, highlighting that the livestock sector plays a central role in providing important nutrients for a healthy diet and a third of global protein.

“The livestock sector accounts for 38pc of Australia’s agricultural production. It’s important to the livelihoods of thousands of Australian farmers and productively uses the significant amount of Australia’s land not suitable to cropping,” Mr Mahar said.

“Measuring enteric methane remained an important issue to resolve as GWP or similar looks to be more accurate and representative,” he said.

Mr Mahar endorsed the Government’s call for a reduction in harmful agricultural supports and market distorting policies, the ongoing commitment to the role of the multi-lateral trading system, and its aims of open and fair markets.

“These policies actually create poorer environmental outcomes. If we are serious about sustainability, these must also be on the table for discussion.”

He emphasised the importance of fast-tracking innovation that mitigates livestock-related GHG emission and reiterated the importance of Australia’s world class research and development system as a far more effective way to ensure sustainability outcomes are achieved.

“NFF is committed to building on this discussion on sustainable livestock and looks forward to the industry’s perspective on the important role livestock has in modern agriculture and food systems at the UNFCCC COP28 gathering in Dubai later this year.”

Background to first global conference on sustainable livestock transformation

The UN's Food and Agriculture Organisation this week hosted the first global conference on sustainable livestock transformation in Rome.

Participants from multiple sectors and around the world gathered for the event, which aimed to address the challenge of how to produce more with less environmental impact, less social impact and more economic return with greater equity.

"Livestock production is a vital part of our agrifood systems, providing essential nutrients for all and enhanced livelihoods and economic opportunities for billions of people around the world," FAO director-general QU Dongyu said.

FAO advocates that improving efficiency is essential to producing more with less. In the case of livestock, efficiency can be pursued by optimising feed conversion, reducing feed loss and waste and enhancing nutrient utilisation, all of which can reduce pressure on biodiversity and land and water resources, as well as decrease greenhouse gas emissions and mitigate environmental degradation, he said.

"We should appreciate all the people who provide and produce animal protein products, and then work together on how to improve all the challenges related to the sector," Mr Qu said. Many children in the world do not have access to milk, he emphasised.

Successful sustainable livestock transformation also required an integrated approach that mitigates the risk of zoonotic diseases and tackles the issue of anti-microbial resistance (AMR), he said.

The Director-General urged all participants to actively share their expertise, insights and experiences, emphasising that the conference has been designed to give voice to all stakeholders including small-scale farmers and pastoralists, indigenous communities and marginalised groups.

Keynote addresses were given by experts based in North Africa and East Africa, while the director of FAO's Animal Production and Health Division gave a presentation on FAO's initiatives in the area of livestock and the environment.

The proceedings consisted of several high-level panels focusing on policy and plenary sessions organised in alignment with the 'Four Betters': Better Production, Better Nutrition, a Better Environment and a Better Life.

Senior government officials from Australia, Brazil, New Zealand, Saudi Arabia, Switzerland, Indonesia, Uruguay and Laos participated in high-level panel sessions.

Topics discussed range from animal feed and genetics, animal health and welfare, human nutrition and technological innovations including cell-based foods, expanding to case studies in climate mitigation and adaptation practices, natural resource management and the state of knowledge regarding greenhouse gas emissions.

Comments

Tony Gleeson, 01/10/2023

Global efforts to mitigate climate change and the future of the agricultural sector are not well served by Government and industry representatives gilding the lily about reducing emissions.

Australia's livestock sustainability record, and in fact Australia's record on reducing carbon emissions, need to be tempered by an analysis of the sources of the estimated reductions.

In simple terms Australia's emissions have increased if one excludes claims from changes in land practices (reduced clearing). Additionally, these changed practices are responsible for the great majority of reduced emissions from the agricultural sector.

There are limits to future lowering of emissions from reducing land clearing. Secondly, these reductions arise from regulatory changes rather than from industry-initiated innovations. And thirdly the extent of reductions in land clearing is contested by highly respected scientists at Queensland University and at the Australian National University.

There are some prospective R&D initiatives.

However, at best Meat and Livestock Australia (MLA) and the National Farmer's Federation (NFF) have failed to support various initiatives to put in place soundly based systems to encourage and facilitate improved environmental outcomes; at worst they have actively opposed such initiatives.

We have the technology and knowledge to implement cost-effective voluntary systems to verify improving environmental outcomes. Such systems need to have ecological integrity and be whole-of-farm, landscape linked and be credibly audited. Critically they need to strengthen natural and human capital and help improve productivity. Australia needs to not only advocate for balance and evidence-based discussions but to apply this approach domestically.

Annex 4

Industry mix on Australian farms for the year ending 30 th June 2001 ⁱ						
Industry	Proportion (%) of producers in that group with only 1 industry (e.g. beef), with 2 industries or with more than 2 industries			Proportion (%) of estimated value of agricultural operations attributed to producers in that group with only 1 industry (e.g. beef), with 2 industries or with more than 2 industries		
	1 Industry	2 Industries	> 2 Industries	1 Industry	2 Industries	> 2 Industries
All Industries	39	34	27	29	30	41
Beef	26	41	33	11	37	52
Dairy	38	40	22	39	37	24
Sheep (wool and meat)	11	35	54	3	23	74
Poultry	43	33	24	55	25	20
Pigs	6	18	76	10	16	74
Other Livestock	6	48	46	2	36	62
Cereal Crops	5	29	66	3	21	76
Oilseed Crops (excluding cotton)	0	7	93	0	4	96
Other Crops (excluding cotton & sugar cane)	1	11	88	0	7	93
Cotton	10	29	61	10	26	64
Sugar	68	21	11	52	28	20
Vegetables	32	35	33	33	30	37
Fruit (including grapes, apples, pears & stone fruit)	59	25	16	52	25	23
Nurseries (including cut flowers and turf)	62	23	15	56	25	19

ⁱ Gleeson T, Grosser M and Lewis L (2005) Alliances to assist implementation of environmental management systems. Report to RIRDC, Canberra. Data compiled by Australian Bureau of Statistics on commission.