

Agriculture Land and Emissions Discussion Paper

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Introduction and Scope of this Submission

The Albanese Government is to be congratulated on taking global climate change seriously. It is seeking to address one of the major drivers of climate change in Australia – greenhouse gas emissions via a Net Zero 2050 Plan, supported by 6 sectoral decarbonisation plans: electricity and energy, industry, resources, the built environment, agriculture and land, and transport.

This submission focuses on the **Agriculture, Land and Emissions Discussion Paper** released jointly by the Ministers for Climate Change and Energy; Environment and Water; and Agriculture, Fisheries and Forestry on 7 November 2023, for consultation to guide the compilation of a Net Zero Plan for the Agriculture and Land sector.

Having drawn to your attention to the fact that for Australians like us, involved directly in agriculture and land management, November through to February are months of intense farm activity, we appreciate the opportunity to make a late contribution. Our submission moves towards providing answers, in sequence, to the questions set out in the Discussion Paper. However, we also provide references to demonstrate what we consider to be substantive deficiencies in it.

The Leadership imperative [towards responses to Questions 1 and 2]

The imperative to act, to take leadership across all facets of government policy and action is crystal clear. “Global greenhouse gas emissions have continued to increase, with unequal historical and ongoing contributions arising from unsustainable energy use, land use and land-use change, lifestyles and patterns of consumption and production across regions, between and within countries, and among individuals.”¹ In this statement, the IPCC in 2023 identifies three broad categories of drivers of climate change that must guide our policies and actions. Given that human and ecosystem vulnerability are interdependent² **“Best Practice” policies and actions must at least have the following characteristics: be measurable, monitored and reported for their contribution towards reducing greenhouse gas emissions and IPCC identified key drivers of climate change;**

¹ IPCC 2023 *Synthesis Report: Summary for Policy Makers* prepared for the Sixth Assessment Report during the Panel's 58th Session held in Switzerland 13 - 19 March 2023

² IPCC 2023 p5

do not generate negative unintended consequences; are practical and achievable; are financially, socially and ecologically responsible; and contribute positively to biodiversity and resilience of life on this planet.

We note that the Discussion Paper focuses very narrowly upon **emissions as a singular measure of agriculture's contribution towards climate change - emissions** that come directly from activities in agriculture and on the land (Scope 1 emissions) as well as emissions associated with energy, fuel and electricity use.³ However, Scope 1 and 2 emissions are not the only major aspects of agriculture, land management and food production systems that, if not considered and managed well, contribute significantly to climate change as well as generating other negative societal, economic and ecological impacts.

- i) Emissions are not the sole measure of **energy use**. Consider the broad spectrum of what defines sustainability including direct and indirect costs of infrastructure and pollutants.
- ii) Emissions are not the sole measure of the climate impacts of **land use and land-use change**. Consider also, economic value of lost food production and reduced rates of productivity, loss of biological diversity and amenity, cost of food and food security and social and animal welfare indicators, costs of living impacts and reduced resilience.
- iii) Furthermore, **lifestyles and patterns of consumption and production across regions, between and within countries, and among individuals** have a huge impact on agricultural practices, food and fibre demand, and production and distribution supply chains. Australian trends are not examined in any way in the Discussion Paper and climate change impacts from these factors are defined misleadingly as **Scope 3 emissions** and are ruled out of consideration in the Sector Plan.

Exemplifying the consequences of this erroneous thinking about Scope 3 matters: The Discussion Paper emphasizes export capacity as a goal for Australian food and fibre yet provides no detail of what and how much is currently exported, nor what and how much is IMPORTED. Principal factors driving imports include consumer choice and preference; and local capacity to produce goods at reasonable prices.

It is well known that transportation, including packaging and refrigeration contributes huge amounts of greenhouse gases and, presently, utilize mainly non-renewable energy sources. **The longer the transport distance ("food miles") between primary producer, processor, and consumer, the greater the energy consumption. Distance also reduces overall product quality and animal welfare and increases potential for biological and other hazards.** Logical policies that follow consideration of Scope 3 factors include:

³ Scope 1 and 2 as defined in the Discussion Paper's Glossary.

Logical policies that follow from consideration of Scope 3 matters: include:

- Import replacement by programs that protect and expand local production.
- Enforcement of laws to maintain the productive capacity of high value agricultural lands near urban settlements.
- Developing program to assist farmers and transporters of all sizes to conduct an energy audit and then move to a zero-emission rechargeable electric on and off-farm vehicles, implements and equipment including climate-friendly packaging and refrigeration equipment. Such a program could include access to low interest finance to enable rapid transition.⁴
- Australia also has the potential to support development of manufacturing climate friendly vehicles, equipment, and a broad range of essential farming inputs.

The Discussion Paper simply and wrongly rules out the analysis of important Scope 3 agriculture-related climate change drivers, and consequently neglects to address a whole host of potentially highly effective policy initiatives. Our concerns regarding the dysfunctional narrow approach to measuring and monitoring outlined above should be considered by experts in relation to National Greenhouse and Energy Reporting (Measurement) legislation.

Building on existing effort and knowledge [towards responses to Questions 3 and 4]

Since releasing the Agriculture and Land discussion paper, the Albanese Government has:

- i) released a National Soil Action Plan⁵; and
- ii) signed an international declaration on Sustainable Agriculture and Resilient Food Systems at the COP 28

Both documents currently have no connection with the direction or scope of the Discussion Paper. It is highly recommended these documents are integrated into the strategic direction of all agriculture and land management (and other sectoral) emissions plans and programs for climate-change action to ensure they are fit for purpose.

Over the last decade and more recently, a plethora of Local, State and Commonwealth acts, policies, plans and programs have been introduced, some policies and programs without the benefit of sectoral strategic plans.

⁴ Of course, this would need to be accompanied by a national strategy to roll out rapid EV charging stations. Much more can be said of the travesty that is the current state of rollout in some States – beyond the scope of this submission.

⁵ The *National Soil Action Plan 2023 to 2028* contains a fundamental flaw, defining soil as a non-renewable resource (p v). Soils can not only be destroyed and depleted but can also be built and regenerated (as proven by for example, Neils Olsen Soil Key System's pasture renovation methodology). Nevertheless, we consider the four priority actions in the NSAP are integral to a transition to greenhouse-gas reducing and climate change resilient agriculture, food production and land management.

- a) While section 3.5 lists Commonwealth initiatives, it does not appear to be a comprehensive list, nor are contact, participation and management arrangements for each program clear. For example:
- (i) The Commonwealth's Agriculture Biodiversity Stewardship Package is potentially a primary vehicle for transforming Australia's agriculture and land management into Best Practice. Management of the Stewardship Package has recently been transferred from the Department of Agriculture to the Department of Climate Change, Energy, the Environment and Water raising serious questions about the status of the Department and portfolios of Agriculture, Fisheries and Forestry and Emergency Management in sectoral climate change transition plans, skills and knowledge base development and accountability in policy development, plan and program implementation; with potential emergency preparedness and response implications.⁶
 - (ii) Little is also known about the Australian Agriculture Sustainability Framework under the Stewardship package. This potentially important program is apparently being led by the National Farmers Federation, the Australian Farm Institute and the AASF Community of Practice.⁷ No mention is made of engagement with Farmers for Climate Action, Landcare Australia, or individual farmers and land managers.
 - (iii) It is unclear how Nature Positive, Nature Repair and Biodiversity Plans, for example, will be included in the emissions-focused agriculture and land management plan proposed in the Discussion Paper. On farm-biodiversity and nature conservation are fundamental to climate-smart agriculture and land management. Biodiversity retention and restoration provides far more than carbon sequestration and the basis for carbon markets. It relates also to quality and diversity of life, and factors such as improving human, plant and animal capabilities to adapt to and remain resilient in the face of climate change. These 'less tangible' or qualitative factors are no less important than carbon storage and emissions reduction measures. Indeed, given that consumer awareness, both in Australia and internationally is increasingly focused on new products, produced in truly eco-friendly way, that enhance rather than detract from biodiversity, they must form part of our climate-action and monitoring/reporting regime. This reinforces our point that national climate-action plans must respond to the IPCC's third major set of climate drivers. The key findings of the IPCC's *Synthesis Report: Summary for Policy Makers* must be taken into account in preparing the Agriculture and Land Management Climate Action Plan.
- b) While section 2.3 and 2.4 of the Discussion Paper refer to local and regional initiatives and State and territory goals and programs, there is no obvious effort

⁶ <https://www.dcceew.gov.au/environment/environmental-markets/agriculture-stewardship>

⁷ <https://www.agriculture.gov.au/agriculture-land/farm-food-drought/natural-resources/landcare/sustaining-future-australian-farming>.

to demonstrate or achieve connectivity between State-based climate change agriculture and land management policies and the Discussion Paper. For example, Victoria was one of the first jurisdictions in the world to legislate a net zero emissions target with the Climate Change Act 2017 and set a strong foundation for climate resilience under Victoria's Climate Change Adaptation Plan 2017–20. The Primary Production Climate Change Adaptation Action Plan 2022-2026. The Discussion Paper does not address how the Commonwealth and State/Territory plans should and will work together.⁸

- c) The Discussion Paper currently does not recognize the influences the other 5 identified sectoral plans will have on agriculture and land management, or vice versa, nor acknowledge the importance of managing key interfaces between sectoral actions. In listing the 6 sectoral plans, the government noted that “Emissions from the waste sector will be included in the industry plan, and a focus on the circular economy will be a cross-cutting issue for all sectors.” It is unclear exactly how “waste” will be considered in sectoral plans. For the agriculture and land management sector, we submit that the conceptual approach to biomass, manures, vegetative and animal by-products is wrongly seen as “waste”. In climate friendly agricultural practices these are regarded and managed as important agriculture and land management INPUTS. **Further detail is required about how waste and circular economy analysis and policies will connect with every sectoral plan; and how other sectoral plans that strongly influence the agricultural and land management sector will be considered and interface managed.**
- d) Nowhere in the Discussion Paper is the importance of accurate weather forecasting and reporting for managing climate change and mitigating impacts mentioned. Better resourcing to enhance and develop skills and capabilities of the Bureau of Meteorology is a fundamentally important initiative for agriculture and land management both in terms of climate change emissions reduction and adaptation to the scale of irreversible climate change already impacting every facet of global life. If the reason for the absence of reference to BOM services is that the sectoral plans are solely focused on **emissions**, then there must be some federal action that provides a coherent national strategy for **adaptation, transition and resilience/coping** across Australia's agriculture and land sector and indeed all other sectors which establishes a strategic direction for BoM and other scientific and emergency services. In our view the two are inseparable.

For economy, efficiency of resources and effectiveness of effort, integrated action is required across all levels of the government and civil society. Fragmentation of policies, programs and administration must be avoided both at the Commonwealth level and between the Commonwealth, State and Territory and local governments. Joined up government is not a new idea; but the concept must be reinvented to meet current

⁸ Many State and Territory and local government plans apply slightly, and at times vastly different sector definitions, the task of alignment of policies and action for maximum benefit is made more complex, but all the more imperative.

imperatives, given high priority, and made transparent. A whole of government climate change governance structure must be transparently instituted to achieve real action on climate change and its consequences. This is imperative from Cabinet, through to Parliamentary sub-committees, to Ministerial Councils, to COAG like intergovernmental arrangements.

Opportunities to reduce emissions [towards a response to questions 5 and 6]

At the recent COP28 meeting in Dubai, just a few weeks after release of the Agriculture, Land and Emissions Discussion Paper, the Federal Government signed up to, along with over 150 other countries, its support for a “Declaration on Sustainable Agriculture”.

The Federal Governments’ 2 December 2023 media release “*Australia endorses Emirates Declaration on Sustainable Agriculture, Resilient Food Systems and Climate Action*” states:

“Endorsing the statement aligns with commitments made by the agriculture ministers in the National Statement on Climate Change and Agriculture to lead the world in climate-smart practices by: sustainably increasing agricultural productivity and driving future profitability improving adaptation and resilience to a changing climate, and implementing pathways that will support low-emissions agriculture COP28 is a critical event to highlight and discuss the impacts of climate change and the impacts on agriculture and food systems. Australia’s participation demonstrates a commitment to climate action and conveys to an international audience the value of evidence-based policy, research and innovation.”

By signing up to this Declaration the Australian government implicitly accepts and acknowledges the UN/FAO data that underpins the Declaration, namely that around one third of all GHG come directly from our food system.

On 18 December 2023 **Wendy Bauk** reported on the *Declaration on Sustainable Agriculture, Resilient Food Systems and Climate Action*:

“Food systems – what we eat; how we grow, ship and cook it; and how we dispose of (and sometimes waste) it – are responsible for roughly [a third](#) of global greenhouse gas emissions. But for the better part of three decades, the final agreements that emerge from the UN’s yearly climate summits have left out the impact food systems have on our climate. That changed this year in Dubai. The conference opened with a [declaration](#) on sustainable agriculture signed by more than 130 countries. For the first time ever, it featured a whole [day](#) devoted to food and agriculture and saw a [food systems road map](#) laid out by the UN’s Food and Agriculture Organization (FAO). Perhaps most strikingly, the

final [agreement](#) document that was revealed at the end of the conference acknowledged sustainable agriculture as a part of responding appropriately to climate change.”⁹

So how do all these commitments and declarations to “Lead the World” on “climate smart” actions and policy for Agriculture and Land Management translate into specific policies and initiatives?

Australian World Leadership: Our State and Federal governments and the Australian community have implemented several Agriculture and Land Management policies and programs that, taken together, can be considered “world-leading”. The most well-known and extensive of these is the national LandCare program. It also includes the National Soils Strategy, Carbon Farming Credits program and the recently commenced Biodiversity Credits program. These programs and initiatives are all helping to regenerate our land and soils, enhance and restore biodiversity and sequester GHG.

But many “Conventional” farms (many of which openly apply Degenerative farming practices) and land management practices continue to deplete our soils, pollute our air, water, food and environment and of course contribute to worsening the Climate and Biodiversity Crisis.

The Discussion Paper and the earlier National Statement on Climate Change and Agriculture frequently refer to our State and Federal Governments’ commitments to supporting “climate smart” practices and policies. So, regarding agricultural and land management practices, what does “climate smart” mean?

Defining what is climate smart: There are in essence two competing systems of agriculture and land management, namely Regenerative and Degenerative. For a full explanation of these terms, we direct you to the organisation: “Regeneration International”¹⁰:

“By definition: Regenerative systems improve the environment, soil, plants, animal welfare, health, and communities. The opposite of Regenerative is Degenerative. This is an essential distinction in determining practices that are not regenerative.

⁹ ‘Food is finally on the table’: Cop28 addressed agriculture in a real way” by Wendy Bauk, The Guardian 18 December 2023

¹⁰ Regeneration International Media Release 12th December 2023 URL=

<https://regenerationinternational.org/2023/12/22/the-definition-of-regenerative-agriculture/>

Agricultural systems that use Degenerative Practices and inputs that damage the environment, soil, health, genes, and communities and involve animal cruelty are not regenerative.

The use of synthetic toxic pesticides, synthetic water-soluble fertilizers, genetically modified organisms, confined animal feeding operations, exploitive marketing and wage systems, destructive tillage systems, and the clearing of high-value ecosystems are examples of degenerative practices.

Such systems must be called degenerative agriculture to stop greenwashing and hijacking. Regeneration International asserts that to heal our planet, all agricultural systems should be regenerative, organic, and based on the science of agroecology.”

To develop policies to improve the climate impacts of Agriculture and Land Management requires that we first understand the climate, ecological, economic, and cultural impacts of these two fundamentally different Agricultural and Land management systems.

We submit that “climate smart” practices are Regenerative practices based on Agroecological principles. These are the practices that enhance, restore, and build on-farm biodiversity and soil carbon. The term Degenerative is an appropriate descriptor for all those “climate dumb” agricultural and land management practices that diminish soil carbon, reduce biodiversity and generate greenhouse gasses.

Organic, Biodynamic and Indigenous farming systems are all climate smart Regenerative practices and that **farming systems and practices that depend on application of fossil-fuel based synthetic fertilizers and pesticides, industrial scale monoculture and factory farming are Degenerative**, that is “climate dumb” practices.

Organic: Australia has more than half the planet’s Certified Organic land area, although a large portion of this is marginal cattle country in semi-desert zones. Even though our Certified Organic land area really is globally significant, to date our Federal and State governments have been “missing in action” with almost NO policies, programs, funding or other actions to encourage uptake and support of Certified Organic practices.

Biodynamic: Although Australia has around 20% of the planet’s Certified Biodynamic land area, and even though our Certified Biodynamic land area is globally significant, to date our Federal and State governments have been “missing in action” with almost NO policies, programs, funding or other actions to encourage uptake and support of Certified Biodynamic practices.

Regenerative: Although Australia has thousands of graziers that have participated in “Grazing For Profit” and other similar Regenerative farming training workshops and many of these participants have adopted Regenerative climate smart practices that work with nature to restore soil life and on-farm biodiversity and eschew use of synthetic fertilizers and pesticides, and even though our Regeneratively managed land area is globally significant, to date most of our Federal and State governments have been “missing in action” with almost NO policies, programs, funding or other actions to encourage uptake and support Regenerative farming practices, with minor exceptions in modest Queensland and WA programs.

Adding together all the farmers and land managers in Australia that follow Agroecological practices that eschew use of any synthetic fertilizer and toxic pesticides, we estimate amounts to at least 15% and possibly as much to 20% of all farmland In Australia.

Given the objectives and intent of both the Discussion Paper along with other national and State/Territory and international agriculture and land management policy statements and commitments, it surely follows that our governments start by identifying and supporting all our existing climate smart farmers and land managers. Although identifying most of these existing climate smart farmers and land managers is quite straightforward, to date there is little evidence that any of our governments have tried to identify these farmers or to provide any meaningful support for any of these people and businesses for their systems and practices.

We are climate smart Organic farmers. Millions of farmers and land managers like us, in Australia and around the world, are every day applying agro-ecological knowledge and practices to produce an abundance of healthy food and fibre crops without needing to apply any toxic synthetic fertilizer or pesticide products. There are publicly available listings of Australia’s Certified Organic and Biodynamic farmers. A bit more research will identify Australia’s other existing climate smart farmers and land managers who are not Certified but follow Agroecological principles of Organic and/or Biodynamic and/or Regenerative and/or Indigenous systems. Most of the approximately 5,000 Australian farmers who have signed up as members of Farmers for Climate Action are likely also adopting and practicing climate smart practices.

To date our State and Federal Agriculture bureaucracies and their Ministers, along with all the Agricultural research organisations and farm lobby groups seem almost unaware of the scale and extent of the numerous farmers and land managers already following climate smart practices. Our State and Federal Governments have yet to provide any real support for our many existing farmers and land managers who are genuinely “clean and green”!

Business as usual is not an option: The survival of the planets' ecosystems, humanity and other life forms necessitates that we make a rapid transformation of Agriculture and Land Management from Degenerative to Regenerative, from climate dumb to climate smart.

Gilles Billen encapsulates this message most clearly in *How industrial agriculture is disturbing the nitrogen cycle and undermining conditions for life on Earth*¹¹. The science underpinning this article is provided by academic expert: Katherine Richardson *et al* 'Earth beyond six of nine planetary boundaries.'¹²

Clearly, the higher ambition required here is far greater than just focussing on policies for reducing the direct GHG emissions of agriculture and land management.

The term Emissions Pathways is jargonistic and unclear.

There are two fundamental problems with the dominant paradigm that underpins the Discussion Paper that restrict its ability to clearly identify practical climate action for the agriculture and land sector. The first is the incorrect assumption that direct greenhouse gas emissions from Agriculture and Land are the primary source of the negative impacts this sector is having on the planet's ecosystems and overall resilience to climate change. The second is the concept that our Agriculture and Land management practices operate in isolation from the rest of our society, economy, and culture.

In fact, **it is impossible to address the climate and biodiversity impacts of agriculture and land management practices without acknowledging the food and fibre produced, and our land management practices are complex and integrated systems.** To understand and develop policies to improve the climate impacts of these systems requires whole-of-system analysis. The Discussion Paper does not acknowledge the different climate impacts of different systems of food and fibre production and land management systems.

Analysing more accurately Agriculture and Land Inputs and Processing: From the Discussion Paper (page 2): *"Agriculture, as a sector in the National Greenhouse Account (NGA), made up 16.8% of national greenhouse gas emissions in 2020–21 ("Figure 1). This share is relatively significant and is also expected to increase as other parts of the economy, such as the electricity sector, take up more readily available and lower cost abatement options."* The Discussion Paper fundamentally misrepresents and

¹¹ Phys.Org published on January 4, 2024

¹² *Sci. Adv.* 9, eadh2458(2023). DOI: [10.1126/sciadv.adh2458](https://doi.org/10.1126/sciadv.adh2458)

underreports the climate, health *and* biodiversity impacts of our food and fibre and land management systems, by failing to include more clearly both the agriculturally-specific defined Scope 2 and Scope 3 climate impacts of all fossil-fuel based inputs to agricultural production and the climate impacts of all pest control, transport, refrigeration, processing and packaging of food and fibre on farm and beyond the farm gate to consumer. According to the UN and FAO, the climate impact of our food and fibre systems is in fact around one third of all global GHG. To quote from the FAO document *Achieving SDG 2 without breaching the 1.5 °C threshold: A global roadmap by Food and Agriculture Organization of the United Nations Rome, 2023*:

“The planet faces crises, exceeding safe limits in six of nine planetary boundaries, majorly tied to agrifood systems. These systems contribute 30 percent of anthropogenic greenhouse gas (GHG) emissions, impeding climate goals” (*our emphasis*)

Determining the Real Emissions from Land Use Land Use Change and Forestry: Land use, land management and Forestry is wrongly presented in the Discussion Paper as being GHG negative. Although recent decisions by some State governments to end old growth logging is a net positive for the climate and for biodiversity, by failing to include the climate and biodiversity impacts of real world events such as the 2019-2020 mega fires, all the forest fires since then, and the 2022 and 2023 mega floods and the consequent massive soil erosion, the Discussion Paper misrepresents and grossly underestimates the actual GHG emissions since 2019 from Land Use, Land Use Changes and Forestry (LULUCF). The information presented in the Discussion Paper as “Figure 1: Australia's national greenhouse gas emissions from 2004-05 to 2020-21 (CO₂-e)” is based on theoretical and wrong data. Actual Australian GHG emissions have been measured in real time and quantified by collating data from satellites, measurements and aerial imaging. For example, we refer to from the academic paper “*Highly anomalous fire emissions from the 2019–2020 Australian bushfires*” by Fangjun Li¹, Xiaoyang Zhang¹, and Shobha Kondragunta², Environ. Res. Commun. 3 (2021) 105005

“While it is widely recognized that extreme fires have been increasing under warming and drying climate, knowledge regarding the magnitude and intensity of extreme fires is very limited. Moreover, fire emissions reported by existing emissions inventories show large discrepancies due to different approaches and parameters. In this study, we analyzed the fire intensity and emissions magnitude of the 2019–2020 Australian bushfires using fire observations from multiple satellites. The results show that the bushfires were extreme in both their number and intensity, which were higher by a factor of 25 and 19, respectively, compared to the past two-decade seasonal mean. The 2019–2020 bushfires burned a total of 112.3 Tg biomass and

released 178.6 ± 13.6 Tg CO₂ (carbon dioxide), 1.71 ± 1.28 Tg PM_{2.5} The CO₂ emissions are 35% of Australia's greenhouse emissions from all sectors combined in 2020. Furthermore, the extreme fires in the most severe day and hour released 10% and 1.4% of the entire seasonal emissions, respectively. Our findings provide quantitative information for investigating the impacts of smoke emissions on air quality, ecosystem, and climate" (*Our emphasis*)¹³

By failing to conduct systemic analyses and failing to source real world data, the Discussion Paper misrepresents and under-reports the climate and biodiversity impacts of our agrifood and land management systems.

Given the fact that agriculture and forestry practices are responsible for more than half of all global biodiversity losses as well as around a third of all direct GHG emissions, there is indeed a need for a higher level of ambition in mitigating emissions from Australia's Agriculture and Land sector.

The "National Greenhouse Account" appears to be flawed and scientifically unsound. We recommend a review of the data sources underpinning the estimates of emissions from Australian agriculture and land management practices, comparing examples of farming practices that apply Regenerative practices with conventional Degenerative practices. We also recommend re-assessment of the rate at which agricultural land is actually being 'consumed' or otherwise taken out of production by land use changes including urbanization and mining and by contamination from toxic pesticides, fracking, and other chemical pollution.

Supporting and Enabling Change [towards a response to Questions 8, 9, 10 and 11]

The scope of the Discussion Paper needs to extend beyond the direct GHG emissions generated by farms and livestock and the fuel to operate the farm and farm machinery. Beyond these direct emissions are a mass of climate-damaging consequences of Degenerative practices. These include, for example, effluent runoff, spray drift, polluted water, dead biota, contaminated food, human, animal and ecological ill-health. Only dead soils depend on fossil-fuel derived fertilizers and toxic inputs to continue monoculture crop production.

Our governments and our community must come to terms with the reality that no amount of industry spin or fear mongering can obscure the biological fact that the application of products and practices that poison soil life, reduce biodiversity and cause diminution of soil carbon are in any way climate friendly.

¹³ <https://iopscience.iop.org/article/10.1088/2515-7620/ac2e6f>

Recognising Synthetic Fertilizers are Degenerative and “Climate Dumb”: The United Nations Environment Program’s (UNEP’s) *2018-2019 Frontiers Report* called nitrogen pollution one of the most important pollution issues facing humanity.

There is no doubting the massive scale of the damage to our climate, soil carbon, soil life and insect life, biodiversity, water, animals, and people that results from broadscale application of synthetic nitrate and superphosphate fertilizers. We draw your attention to two highly relevant articles:

- *How industrial agriculture is disturbing the nitrogen cycle and undermining conditions for life on Earth* January 4, 2024 by Gilles Billen, PhysOrg: A story based on the findings of this study appeared recently in *The Conversation*.¹⁴ and:
- *Fertilizer Brief* by IATP, Greenpeace International and GRAIN¹⁵ which provides new research which shows 50-year binge on chemical fertilisers must end to address the climate crisis.

Recognising Toxic Pesticides are Degenerative and “Climate Dumb”: There is no doubting the massive scale of the damage to soil carbon, soil life and insect life, biodiversity, water, animals and people that results from broadscale application of toxic synthetic pesticides. We also draw your attention to several other key reports: for example:

- Gunstone T, Cornelisse T, Klein K, Dubey A and Donley N (2021) *Pesticides and Soil Invertebrates: A Hazard Assessment*. *Front. Environ. Sci.* 9:643847. doi: 10.3389/fenvs.2021.643847. A summary of the key findings of this research was published in *Scientific American* on June 1, 2021: “*Pesticides Are Killing the Organisms That Keep Our Soils Healthy*”; and
- *The Ecologist: Rolling back tide of pesticide poison corruption and looming mass extinction*¹⁶

Australia has committed our nation to support the December 2023 “*Emirates Declaration on Sustainable Agriculture, Resilient Food Systems and Climate Action*” and this Declaration includes the commitment to:

¹⁴ <https://theconversation.com/how-industrial-agriculture-is-disturbing-the-nitrogen-cycle-and-undermining-conditions-for-life-on-earth-220478#:~:text=Farming%20and%20fertilisation&text=Each%20time%20plants%20are%20harvested,in%20one%20way%20or%20another.>

¹⁵ URL = [FERTILIZER BRIEF \(iatp.org\)](https://iatp.org/fertilizer-brief)

¹⁶ URL = <https://theecologist.org/2017/nov/24/rolling-back-tide-pesticide-poison-corruption-and-looming-mass-extinction>

“Maximize the climate and environmental benefits - while containing and reducing harmful impacts - associated with agriculture and food systems by conserving, protecting and restoring land and natural ecosystems, enhancing soil health, and biodiversity, and shifting from higher greenhouse gas-emitting practices to more sustainable production and consumption approaches, including by reducing food loss and waste and promoting sustainable aquatic blue foods;”

No amount of wishing away the climate and biodiversity damage being wrought by Degenerative products and practices will change the reality that in order to actually reduce harmful environmental impacts of Agriculture and Land management and begin to restore and build biodiversity, soil life and soil carbon, the manufacture and application of synthetic fertilizers and toxic pesticides must be reduced significantly and rapidly. **This is the “elephant in the room” regarding climate smart policy and practices.**

The vested interests who profit from making, selling, and using all the Degenerative “climate dumb” products will continue to spend money on lobbying and actively promoting the myth that to maintain agricultural productivity so as to feed and clothe the world requires their toxic products’ continue to be used. Their advocates may claim that farming conditions in Australia is so different from other continents that Australian farmers must depend on continued use of their toxic inputs to maintain Australian farming’ productivity and efficiency. But Australian insects are just as susceptible to pesticides as insects on other continents and Australian soil organisms and soil carbon are just as badly diminished and damaged by pesticides and synthetic fertilizers as soil life and soil carbon on other continents. The fact that as at least 15% of all existing Australian farmland is already being farmed successfully without application of any toxic pesticide or fertilizer inputs make these claims that we must continue to follow climate dumb practices as “farming in Australia is different from the rest of the world” quite laughable.

After decades of political argy-bargy our Governments’ appear to now acknowledge the fact that fixing the Climate and Biodiversity Crisis means facing down the wealthy vested interests of Big Oil, Big Coal and Big Gas. But what about “Big Ag.”? These are the multi-billion-dollar multinational companies that make the toxic pesticides and synthetic fertilizers and the seed merchants for the crops and the proprietary GM seeds depend on. They also constitute a wealthy vested interest with a track record of well-funded lobbying and active influence peddling. These are the corporations who are making massive profits from promoting continued use of their Degenerative, climate dumb products and practices.

Our Australian governments need to both understand of the scale of the problem and acknowledge there are vested interests that they must confront to develop and enact

policies that properly address and reduce the climate impact of Agriculture and Land Management. Proposing, let alone enacting, of good policies that lead to a measurable broadscale shift from Degenerative to Regenerative agriculture and land management will necessitate facing down these climate destructive vested interests.

A Really Big Opportunity: Some policies and actions to drive a reduction in use of climate damaging products and systems are difficult, costly and will take many years to take effect. The transition of our transport and power generation systems from fossil-fuel to renewable energy sources are a case in point. When it comes to Agriculture and land management, where at least one third of all GHG are generated, there is an opportunity for our governments to enact policies that will make a big measurable difference in a relatively short time.

Global Nitrate Fertilizer Manufacture and Use: 2.6% of all global GHG

All Global Air Travel, Freight and Aviation: 2.4% of all global GHG¹⁷

The last twenty years or so here has seen increasing public discourse as well as research, product development and of course PR spin from the Aviation industry around their efforts aimed at reducing GHG emissions from Aviation. We all acknowledge the world cannot and would not want to cease all air travel. But few of those concerned about the climate and biodiversity crisis are aware that synthetic Nitrate fertilizer is a bigger GHG source than all of global aviation.

Obviously, Aeroplanes will not fly without some sort of aviation fuel. But farmers can productively farm without applying any synthetic Nitrate fertilizers. As we are Organic farmers it is obvious to us, but we understand this still needs to be stated: the biological reality is that plants **do not need any synthetic Nitrate fertilizer** to grow and to thrive!

As we are Organic farmers it is obvious to us, but we understand this still needs to be stated: it will not be difficult for governments to enact policies that will drive a rapid transition of agriculture to cease broadscale use of synthetic Nitrate fertilizer within a decade or even less.

From Crisis comes Opportunity: Russia's invasion of Ukraine in 2021 triggered a sudden massive rise in the price of synthetic fertilizers and along with other factors led to supply shortages. Today the price of nitrate fertilizers is around 300% of their price prior to Russia's invasion. Consequently, the opportunity for adoption of more affordable and less

¹⁷ Sources: FAO/UN/IPCC

toxic natural alternative ways to provide nitrogen for crops is being seriously considered by many farmers. Whilst there has been a rapid rise in large scale plantings of nitrogen-fixing “green manure” crops, there has been no organised, cohesive or serious support forthcoming from our state or federal governments to facilitate a shift to non-synthetic fertilizer products and practices. The messaging coming from our State and Federal Agriculture departments has been focussed on advising farmers how they should try and be timelier and more frugal in their application of synthetic fertilizers. Yet, this recent massive increase in the cost of synthetic fertilizers still offers an opportunity for governments to initiate programs to support a widespread transition away from use of, and dependence on, nitrate and other synthetic fertilizers.

We know how to do this. Some examples of the proven, viable, affordable and scalable alternatives to use of synthetic Nitrate fertilizers in Agriculture include: the planting of “green manure” and legume crops; adoption of crop rotations, pasture cropping and of course application of natural composted manures and plant residues as well as the many other available composted, fermented and biologically processed fertilizer products.

Changing the way we consider and manage “waste” and by-products:

“You can judge the wealth of the farmer by the size of their compost heap”

This was a once-familiar saying and it is based on farmers’ age-old practice of harvesting the manure from livestock and combining this with crop residues and weeds to produce rich fertilizer for their crops, in the form of compost, on-farm. For many of today’s farmers, their understanding of the value of the utilization of their own on-farm manures has been displaced by an addiction to synthetic fossil-fuel derived fertilizers. For these farmers, harvesting manures from their livestock has devolved into an “effluent management” problem! This, sadly, is now something our environmental regulators need to police.

In our own area of West Gippsland is a glaring recent example of how committed (some may say deluded) many of our so-called “Conventional” (ie Degenerative) farmers are to the belief that fertilizer is something that comes from a factory, rather than something they can produce on-farm:

“Gippsland dairy farms not managing effluent” 30 August 2023

(URL= <https://www.epa.vic.gov.au/for-business/find-a-topic/effluent-dairy-farm>)

EPA Victoria inspections of Gippsland dairy farms has found high levels of non-compliance in how they manage dairy effluent.

EPA officers visited 19 farms in the Poowong North, Hallora, Nyora, Ripplebrook and Athlone areas. Despite ongoing communications with the industry, 85 per cent were non-compliant.

“EPA has consistently communicated with dairy farmers about the requirements regarding on farm management of dairy effluent. To find that just 15 per cent of the farms visited were compliant is surprising and disappointing,” Jessica Bandiera EPA Gippsland Regional Manager said.

“There are many actions that farmers can take to prevent harm to the environment. Maintaining a dairy effluent management system is vital. Cleaning out the dairy effluent ponds regularly and ensuring appropriate irrigation systems are in place will capture valuable resources and save thousands in fertilizer costs”.

“We gave compliance advice and issued nine notices requiring non-compliant farms to install controls, or complete works to better manage their risks. We have also issued seven fines totaling more than \$20,000 with more likely to come.

“Everyone has to act to protect the environment. Dairy effluent cannot be allowed to be discharged to waterways. It is high in substances that may be toxic and pose a risk to the environment and human health.

“The majority of non-compliance issues concerned dairy effluent ponds that were full or overflowing into paddocks and down into waterways, broken or ineffective equipment like pumps and irrigation systems and not having an effluent management plan in place. Some farms even had pipes directly discharging into waterways.”

Ms Bandiera said nearly half the inspected farms were expected to receive some kind of sanction, and more than two thirds would receive a notice to make specific improvements.

“There are assistance schemes, guidance and advice links available through EPA’s website, and other agencies EPA works closely with such as Agriculture Victoria. This can assist farmers so they can make the necessary improvements, retain valuable nutrients on their farms, and importantly for businesses, save them money while protecting the environment. We’ll continue with our inspection program and take strong regulatory action if we find non-compliance,” Ms Bandiera said.

*For information about managing dairy effluent go to <https://www.epa.vic.gov.au/for-business/find-a-topic/effluent-dairy-farm>. Reviewed 30 August 2023 (**our emphasis**)*

This so-called “effluent problem” is a symptom of the Degenerative paradigm being followed and practiced by all these so-called “Conventional” dairy farmers, let alone the EPA. Let’s be very clear here. You will not find any Organic, Biodynamic or Regenerative dairy farmers who regard their animals’ manure and urine as “effluent”! The very concept of manure as an “effluent” is anachronistic to the values and understanding of all Regenerative Agriculture practitioners. The stuff is a **priceless on-farm resource!** All Regenerative farmers value, respect and productively utilize these animal products as key ingredients for making their own soil enriching, contamination free, farm-made fertilizer.

We noted previously the existing government initiatives and innovative programs that are part of the solution, namely the new Biodiversity Credits scheme and the existing Carbon Credits schemes, the National Soil Strategy and of course LandCare.

There are two glaring and massive gaps in these existing government initiatives and innovative programs intended to reduce the GHG and biodiversity impacts of Agriculture and Land management in Australia.

Addressing the impacts of synthetic fertilizers and pesticides and committing to a significant reduction in usage of nitrate fertilizers and of synthetic pesticides: The first opportunity to deliver emissions reductions in parallel with wider goals is an acceptance and acknowledgement by all levels of government of the necessity to cease making and using synthetic fertilizers and pesticides for food and fibre production and land management. The current absence of legislative support for our existing climate smart farmers and land managers provides another terrific opportunity for new policies and programs to achieve a lot in a relatively short time. Australian governments' must make a commitment to specific achievable targets that will lead to a rapid reduction in GHG from Agriculture and Land Management. Central to this must be a commitment to a significant reduction in usage of nitrate fertilizers and of synthetic pesticides. We submit a commitment to achieving a 50% reduction in usage of nitrate fertilizers and of synthetic pesticides by 2030 is realistic and achievable by 2030.

Systematically and transparently making a shift to Climate Smart Agro-ecological practices: The second opportunity to deliver emissions reductions in parallel with wider goals is an acceptance by all levels of government of the necessity for all levels of government to provide active support for a shift to widespread adoption of Agroecological farming and land management practices.

Ensuring Truth in Labelling: The other obvious initiative to drive innovation, build capacity, and ensure the agriculture and land management sector progresses towards emission reductions is for Federal and State governments to legislate for "Truth in Labelling" laws around labelling of Organic foods and Agroecology-based products. Australia is now the only OECD country which still allows deceptive and misleading labelling of products as "Organic" to continue unabated. This is one area Australia is absolutely NOT world leaders in. In almost every country in the world except Australia all products labelled "Organic" are required to be transparently and independently Certified Organic. This legislative gap is not just bad for consumers, it is threatening the credibility and hurting the viability of many genuine Certified Organic producers and processors. It is also damaging the credibility of our Organic exports, and, despite our government's failure to make mention of it, likely one of the key factors in the recent failure of our free

trade negotiations with the EU. The failure till now to enact “truth in labelling” legislation not only means that there are many Australian farmers and products sold in Australia that claim to be Organic but are not Certified. It also means the process of developing and enacting such legislation provides us with a unique opportunity to incorporate these new labelling laws into a range of broader initiatives. Our suggestion of an ambitious but achievable goal and commitment such as the “50% Less Nitrate and Pesticides by 2030” could be announced along with the launch of a national program supporting a transition to Organic and related practices, modelled on overseas initiatives such as the US TOPP program. (see text box below). This commitment could be launched in combination with the announcement of planned introduction of “Truth In Labelling” laws around Organic products. The announcement of the planned legislation that will make it compulsory, commencing in, say, two years’ time, that all products labelled “Organic” must be provably Certified Organic, could be included as a “stick” policy within a combination of a range of “carrot and stick” policies and programs aimed at encouraging a shift to “climate smart” Agriculture and Land management.

Can Australia top TOPP? In Australia we need a comprehensive range of initiatives including, for example, mentoring programs and real funding and resources to help encourage and assist farmers and land managers make the shift to Agroecological practices. Many farmers claim they cannot afford the cost of Certification and of “going Organic”. Their expectation is that such a change will mean a reduction in yields and so in income, for the first few years after they cease applying synthetic fertilizers and pesticides. This means that programs that provide financial support for farmers and processors to progress to full Organic Certification will be needed too.

The US recently launched an ambitious range of policies and programs to support a transition of US agriculture to being more climate smart. They aim to achieve this by supporting a shift to Organic production practices to drive a reduction in their dependence and use of toxic pesticides and synthetic fertilizers.

A key part of the range of initiatives is known as TOPP, the US Department of Agriculture’s Transition to Organic Partnership Program.¹⁸ This US initiative summarised overleaf is a good starting point for ideas and programs for Australia to emulate. These Australian initiatives will need to be marketed to both farmers, land managers and the broader community as a significant range of policies to support farmers and Land Managers, with co-ordinated Federal and State government Climate Action policy initiatives. To make the necessary transitions in how we grow, process and consume food

¹⁸ URL = <https://www.ams.usda.gov/>

and fibre to being more climate smart requires both increased supply from farmers as well as more demand from consumers.

Transition to Organic Partnership Program (TOPP)

Transition to Organic Partnership Program (TOPP) is investing up to \$100 million over five years in cooperative agreements with non-profit organizations who are partnering with others to provide technical assistance and wrap-around support for transitioning and existing organic farmers. AMS is building partnership networks in six regions across the United States with trusted organizations serving direct farmer training, education, and outreach activities. The partner organizations will:

- Connect transitioning farmers with mentors for at least one year after certification.
- Build paid mentoring networks to share practical insights and advice.
- Provide community building opportunities to include:
- Train-the-mentor support Technical Assistance Workshops and field days covering topics including organic production practices, certification, conservation planning, business development (including navigating the supply chain), regulations, and marketing.
- Help producers overcome technical, cultural, and financial shifts during and following certification.
- Engage educational and training institutions (including crop advisors and extension agents) on organic workforce training and education and future human capital planning.

Over time, technical assistance resources will be made available to all candidate and existing organic farmers through the USDA website.

TOPP is a collaborative effort involving many partners working together towards a common goal.

Conclusion

Ministers, bureaucrats, policy makers, scientists and other advisers, please put yourselves in the shoes of farmers and land managers everywhere – we who are focusing on producing, creating, managing, surviving and helping others survive. Now we listen to the spin and rhetoric, watch in awe but more likely are simply ignorant of or not patient or skilled enough to absorb the plethora of climate actions, programs and initiatives on offer around us. How do we know what is going on that may benefit our operations? How do

we gather the knowledge and data about our operations to transform them to become more climate friendly and remain viable, or more desirably, grow in viability and resilience? How do we afford to make the transition, or cope with the costs if we do not?

Those involved in agriculture, food production and land management are indeed on the front line of climate change. We are looking for leadership, in all levels of government and across civil society. We are looking for practical, understandable, and affordable guidance and assistance. We sincerely call on you to help us to contribute to global climate action and to be part of the global solution, not part of the problem!