

Response to the Discussion Paper on Agriculture, Land and emissions

Preliminary Observations

We support the intent of the Agriculture and Land Plan and have made comments below in relation to various aspects in the discussion paper. Given its importance we are disappointed that the response time to make representations appears very short and hence we suspect many people may not bother to provide input. Short response periods seem to be a feature of all government calls for representations on matters of significance and this is clearly evident in the Australian Capital Territory where we reside and where, over a long period, we have made multiple representations on planning and development proposals that directly and negatively impact the environment.

In the limited time available we have attempted to respond to most of the questions posed by this paper based on our own experiences in land and environmental management. To provide context we have provided examples of what practices we employ to manage emissions and to sequester carbon.

Background to our experience on the subject

We operate a small (150 Ha) low-intensity superfine wool enterprise within the Australian Capital Territory, we are second and third generations on the same property. In 2005 250 Ha was withdrawn from the property to establish two nature reserves, one a lowland woodland and the other natural temperate grassland. The property is unique in the ACT as it is:

- *Heritage listed* – it is one of the best surviving examples in South-East Australia of a working property which originated under the Soldier Settlement Scheme in 1919 and still operates with all its original infrastructure. It was, prior to 1919, part of the original *Duntroon* property;
- *Environment* – the entire area of the property consists of native grassland and lowland woodland and is adjacent to the two reserves mentioned above. All the woodland is protected (hopefully) under the EPBC Act and all the native grassland is classified as Category 1 grassland under the ACT Grassland Conservation Strategy;
- *Rare, Threatened and Endangered Species* – within the property area exist several rare, threatened and endangered species including the Grassland Earless Dragon, Striped Legless Lizard, Perunga Grasshopper, Diamond Firetail and Hoary Sunray. There is a wide variety of native annual and perennial grasses, forbs, herbs, rush and lilies.

Given these unique characteristics we have, over several decades, attempted to protect, conserve and improve the biodiversity of this small area.

We have also undertaken extensive efforts over the same period to protect the area from inappropriate development. These efforts have, to date, been largely successful. Two notable achievements being the relocation of the ACT Prison and the Geoscience Australia complex to alternative sites. We also respond to any ACT Development Applications, EIS,

government environmental strategies, planning strategies and proposals that are likely to impact on the property directly or indirectly within our region.

The property and its biodiversity and heritage has been extensively researched over many decades by a wide range of ecologists, scientists and others. In recent months the property was the launch site for the ACT Government's National Resource Management Plan and has featured in Landcare case studies.

THE NEED FOR HIGHER AMBITION

1.1 Reducing Future Climate Risk

Our experience is consistent with the ABARES modelling regarding reducing profitability. Although we are not classified as a broadacre farm nonetheless we are of the view that reduced returns are a common feature of many agricultural enterprises large and small. Climate change, in our view, has not yet been the major risk or contributor to this decline and the more common current issues relate to increased costs which are unable to be passed on.

Most primary producers are price-takers and cannot set their price for the goods produced but must suffer the vagaries of the market. For example, our sole income is derived from wool and sheep both of which are sold by auction and the recent major declines in both wool and sheep prices have a major impact. Grain, sugar, cotton and dairy prices are also largely buyer rather than seller market driven. We suspect the same would apply to suppliers of agricultural produce to the major supermarkets whereby the supermarket sets the price.

Climate change is however rapidly increasing as a major risk factor to our operations and to the environment in which we operate. Accordingly, we closely monitor current changes and future projections particularly for rainfall, evapotranspiration, soil moisture and extreme weather events. Frankly, we are very pessimistic about the ability of all countries, including Australia, to make any meaningful changes that will ameliorate the increasing impacts of climate change. The completion dates for significant advances in emission reductions seem to be extended as previous timelines are breached and the previous 2020, 2025 and even 2030 dates are now extending to 2050 and 2070 and the end of the century.

1.2 Securing access to markets

We agree that there is an increasing demand for evidence of sustainability and expectations from buyers regarding climate credentials. To this end we are already Livestock Production Assurance (LPA) certified and SustainaWool Green certified. Regrettably this makes little or no difference to the price offered for our meat and fibre. We also undertake full carbon accounting for all Scope 1, 2 and 3 emissions which reveals we are net sequesters of carbon but, as a small producer, there is no obvious or simple way to pass that information on.

While many of the major corporates have made grandiose statements about their intentions about net zero, we suspect much of that is just positioning for a competitive stance and at worst greenwashing. Where a net zero stance relies largely on ACCU's there is little or no incentive to reduce emissions.

1.3 Biodiversity as a solution

We agree that there are opportunities for land managers and producers to deliver carbon storage with positive nature outcomes and although by comparison our operation is small, we are already delivering on these objectives of better than net zero and enhancing our sensitive environmental landscape with minimal external assistance financial or otherwise.

The Government target of attempting to protect 30% of Australia's land mass by 2030 is commendable but unless the type of land mass is carefully targeted it will be largely ineffective and meaningless. From a food and overall security perspective our most precious resources are water and soil, and far stronger measures are required to restrict almost anyone from buying and trading a water allocation and to protect our prime agricultural soils which are increasingly being lost to residential and industrial development and mining.

We suspect that the proposed *Nature Repair Market* will produce similar results to the ACCU's whereby it is only the well-financed and larger organisations that will be able to afford the entry costs and to meet the extraordinarily complex baseline calculations and audit requirements to participate. Our research, and research from others, on the ACCU process suggests it is a flawed process often with dubious carbon sequestration benefits but highly lucrative to those large organisations that can afford to enter the market. We consider it does little to encourage high emitters to reduce emissions but rather offset them by a financial transaction.

Seeking Views

Opportunity to increase carbon stores and reduce emissions

- Almost all the discussion on agricultural carbon storing relates to trees and little or nothing is mentioned on the potential for carbon sequestration in grasslands, native or improved. We have examined available research worldwide on grassland sequestration as it is our primary avenue for carbon storage. There is a dearth of research on the subject particularly in relation to Australian native grassland. More research is required on the ability to model potential sequestration for varying Australian native grass types and soils and a methodology to calculate that sequestration without the need to undertake expensive and destructive soil testing. We have built several basic models, based on the scientific research available and using satellite data, that attempt to calculate our soil carbon sequestration and we utilize FullCam also in this process.
- Of our total GHG emissions 91.5% relates to enteric fermentation. While some research is being undertaken on chemical and other methods to reduce methane in livestock it appears most options would only realistically apply to intensive fed livestock and not those grazing on pasture. Viable and cost-effective methane

reduction options need to be identified for grazing livestock and research is also needed on the impact on methane production for livestock grazing on improved or native pastures.

BUILDING ON EXISTING EFFORT AND KNOWLEDGE

2.3 Local and regional initiatives

We support the funding that has been provided to support projects by national resource management (NRM) regional bodies and Landcare groups. We have been small beneficiaries in the past of NRM grants for drought resilience and land management activities. This type of funding is critically important particularly for the smaller agricultural producers as many of the other Commonwealth initiatives are directed toward larger enterprises.

2.4 State and Territory goals and programs

The ACT Government has produced a range of strategies and plans related to agriculture, climate change and food strategy and we have made representation on all those initiatives.

2.5 Commonwealth Initiatives

- *Climate-smart sustainable agriculture* – most grants are effectively not applicable to smaller enterprises or only to medium to large scale projects. The funds for enhancing ANSIS is welcome as we use this data in addition to data derived from GloSIS and SoilGrid. Access to free reliable satellite data tools to assist producers to assess soil conditions and composition, biomass, groundcover etc., is a vital resource and Government should wherever possible provide avenues for producers to access this information.
- *MERiL* - The MERiL program is also supported, and we are actively watching the results of this initiative. As indicated above, methane reduction methods that can be applied easily and cheaply to grazing livestock, as opposed to intensive feedlot production methods, is essential if enteric fermentation emissions are to be reduced.
- *Climate Active* – this program is beyond the reach of most smaller businesses due to the cost of obtaining and maintaining certification. It is also somewhat spurious in its claims as a certified brand can utilise ACCU's as a means of achieving the carbon neutral status. Nor does it appear that Scope 3 emissions are included. In our case we undertake detailed calculations for our GHG emissions (Scope 1, 2 and 3) using approved models, and model our grassland and woodland sequestration that results in our enterprise being a net sequester yet we are never likely to obtain Climate Active certification.
- *Carbon Farming Outreach Program* – currently closed to applications.

We fully support the recent Government initiatives to strengthen Australia's environmental laws. From long-term experience in making multiple representations on proposed developments in the ACT we are soundly of the view that the current laws

including the EPBC Act are totally inadequate to provide a framework to protect our environment and not fit for purpose.

Nature Positive Plan – we completely support the views expressed in the Minister’s Foreword to this plan that “Native species extinction, habitat loss and cultural heritage destruction are all accelerating, and reform is urgently needed”. Professor Samuel’s review into the EPBC Act clearly concluded the Act needs urgent reform.

While the stated objectives of this Plan are commendable, we are not confident at all that much will change. Time and time again in our representations we have pointed out the situation where developers always seem to be able to retain a consultant, ecological or otherwise, that can provide an opinion that aligns with the view that development should proceed and damage to the environment is “unlikely”. Negative environmental aspects of the development are generally dismissed or minimised and it appears that authorised persons under environment legislation generally accept developers’ information at face value without undergoing appropriate due diligence.

The following brief observations are provided on the Nature Positive Plan:

- *Standards* - A great deal will hinge on the proposed National Environmental Standards, they need to be comprehensive, clear, unambiguous and enforceable;
- *Legislation* - Environment legislation never appears to make provision for developments that result in negative environmental outcomes after approval. The legislation should place the onus clearly on the developer to assume total responsibility and liability (and penalties) for all significant negative outcomes occurring post approval. This aspect does not seem to be adequately covered by the public accountability aspect of the Plan;
- *Accreditation* – we have grave concerns in allowing States and Territories to become accredited to allow for single-touch decision making. Our experience suggests this will not produce positive environmental outcomes;
- *Regional planning* – again our experience suggests that regional planning favours intensive development for financial benefit and places the environment last. We are in an area that is already “experiencing development pressure and with high biodiversity values” and an “Area of High Environmental Value”. Currently this does not seem to stop continuing development proposals. With the proposal to complete the first round of regional planning only by 2028 it will come too late for many sensitive environmental areas already threatened;
- *Offsets* – the current process for offsets can only be described as totally ineffective and appears to provide a legal avenue to proceed with a development proposal despite the potential loss to the environment. The Plan states that current offset arrangements are contributing to environmental decline with many delivering no benefit at all. We agree entirely with this view;
- *Nature Repair Market* – refer to comments above on this initiative;
- *EPA* – devolving accreditation to States and Territories will eliminate the potential for independent assessment by the EPA;

- *Call in* - Call in powers of the Minister are a concern, and we question the presumption that a development that has a negative impact on a matter of “national environmental significance” is preferable to the “national interest” given the thrust of the information in the Minister’s foreword to this Plan;

Seeking Views

Are there initiatives or programs that could be applied or expanded on a national scale

- From our perspective there are precious few initiatives that can be applied to the smaller enterprise either because the application/entry requirements are restricted or far too complex and expensive (the ACCU process is a classic example);
- Some of the excellent Government initiatives that we utilise include, Dr.Sat, Climate Services for Agriculture, SILO, AussieGrass, Farm Data Portal, eSpade, ANSIS, FullCam, LOOC-B, LOOC-C, Australian Water Outlook and My Climate View to name a few. We have also accessed limited funding via the Future Drought Fund. Some of the data and features of these services could be expanded. We use many other data and satellite services from private or grower organisations.

How can the Government bring together existing effort into one Plan

- We don’t think it is feasible to combine everything into one Plan but awareness of the existence of this myriad of information is important, but it is likely that many who could benefit from it are unaware they exist or are difficult to locate. Many of them are listed in this Plan but it is likely few will read it. A government-based website that identifies and provides links to all relevant data and services on agriculture and land, carbon etc. might assist.

OPPORTUNITIES TO REDUCE EMISSIONS

3.1 Livestock

We are following the developments and research into methods to reduce enteric fermentation as it represents 91.5% of our GHG emissions albeit on a very small scale. Emissions from livestock waste are minor given our livestock are pasture grazers not on intensive management. Clearly, methane reducing options for livestock grazing need to be simple and low cost to apply. Some potential methane reducing additive application methods for grazing livestock might include additives to stock water and or in lick blocks. We are examining available research on the impact on methane production in livestock grazing on native grasses and the digestibility of various native grasses but there is very limited research available on Australian conditions. This is an area of research that would be beneficial. We already actively undertake improved flock and pasture management through rotational grazing and other measures which can result in a small reduction in methane output.

3.2 Cropping and horticulture

As we do not undertake any cropping or tillage of any kind, soil carbon loss from this activity is nil. Other measures we adopt to limit emissions include:

- There is no application of fertiliser or lime.
- No field burning is undertaken.
- The only biomass removed is from livestock grazing – no hay or fodder production.

3.3 Fuel and energy

Energy costs represent 5.5% of our emissions of which 70% are Scope 1. Most of the energy is in fuels for machinery and a minor amount in electricity which is all sourced from renewables. There is currently very little scope to reduce fuel use, some small items of equipment have been replaced with electric where feasible, but the Plan recognises that replacing high power machinery using alternative energy sources is not yet a practical option.

3.4 Carbon storage in the land

Options available for carbon storage include soil carbon sequestration and carbon stored in trees.

Both options are utilised on our property but there are some caveats to this activity. Wholesale tree planting is not an option in our situation as we must retain the character of the existing protected lowland woodland with trees indigenous to the area and planting of trees across the native grassland is not possible as it is a natural treeless plain and protected as such. This limits the carbon storage potential for trees. Calculating carbon sequestration into grassland is a difficult exercise as there is minimal research into this activity particularly in Australia. Traditional methods employ extensive soil sampling to test carbon levels from a baseline year, but this is expensive, intensive, often destructive and, unless undertaken very carefully, can be inconclusive in its results (National Soil Carbon Research Programme: Field and Laboratory technologies, CSIRO, 2011). We have adopted a process of modelling our carbon sequestration into grassland using extensive data from satellite imagery. This method is not perfect but is constantly being improved.

As each soil type can only accommodate a specific maximum percentage of carbon assuming it is not yet at this maximum, soil carbon sequestration is only a temporary measure for 25-50 years at best. We attempt to model our sequestration using various methods including using FullCam over a 25 and 50 year timeframe.

We consider it is imperative that a cheaper solution to assessing soil carbon content, and hence accurate ongoing sequestration calculation, is found and the SOC-M project and proposed modifications to FullCam will assist. This is particularly important for land areas where there are significant changes in soil types over a small area, such as our property.

Soil carbon loss can occur through tillage and erosion where ground cover falls below about 70%. No tillage occurs on our property, and our management practices aim to maintain

minimum ground cover of 80% suitable for the habitat of endangered species and to maintain soil moisture and structure.

3.4.1 Circular economy and waste

Waste management is a specific item within our management regime. All waste is separated into any recyclable component, metal, organic, paper, glass, oil and all such items are transported to a recycling centre and details recorded as part of our modelling. Our waste emissions are 0.2% of total emissions fully offset by the effect of recycled material.

Seeking your views

Most important options, short and long-term to reduce emissions

- For a livestock producer, such as us, enteric fermentation and viable methane reduction solutions are the key to reducing emissions, all other emissions are minor. These solutions will need to come from detailed research and development which is beyond the capacity of most producers.
- Pasture management through effective rotational grazing and improving digestibility of pasture can make small reductions until more significant solutions become available.
- We also employ recognised flock management techniques that can contribute to lower emissions including - maintaining stock numbers at a defined maximum of only about 3 DSE Ha, reducing to 1 DSE Ha in poor seasons; turning off unproductive stock; turning off all stock at 4 years of age which is earlier than the traditional 5-6 years cast for age; enhancing fertility rates and measures to maximise animal health.
- Obviously just reducing livestock numbers and flock/herd sizes would have an immediate effect but it also has an immediate negative impact on viability and a reduction of an important source of protein and fibre.

Solutions to increase uptake

- Producers need to know what their emissions are and that requires an effective, comprehensive and user-friendly emissions and sequestration calculator. We have examined all the calculators commonly available in Australia and none are what we would call complete as they lack some Scope 1 and 2 emissions and all Scope 3 plus none cater for grassland sequestration. We use a calculator designed and used in Europe.
- Any solution needs to be easily applied and cost effective as all producers are suffering from increased cost yet generally are unable to pass those increases on.

DEVELOPING EMISSIONS PATHWAYS

We have little comment to offer under this section of the Plan except that we remain pessimistic about the proposed reductions proposed for 2030 and 2050. There are too many vested interests unprepared to take a reduction in the bottom line for any major

changes to emissions during this period. Meeting our Global Methane Pledge appears to be an extremely difficult task.

Seeking your views

Agriculture and land sector contribution in medium-longer term

- For livestock producers we can only foresee an eventual reduction in livestock numbers, particularly in sheep, as costs increase and returns from fibre particularly have not increased in relative terms for a decade. Such a reduction will achieve a reduction in methane but at a cost to overall production.
- For cropping it is difficult to predict as we are not in that part of the industry. Zero or low till may become more common but past general practices will remain and some reduction in emissions is likely with improved technology for fertilizer type and application. Those changes may result in a reduction in emissions.
- Water scarcity will be an increasing problem, from lower stream flows and groundwater, and which may result in a reduced area of irrigated crops.

SUPPORTING AND ENABLING CHANGE

There are several issues worthy of brief comment in this section of the Plan.

- R&D is a critical component, who by is the real question. GHG is a complex subject and associated R&D is beyond the expertise and capability of most land managers and so it must be undertaken by specialist entities including the CSIRO. Much of the research currently available relates to operations and situations outside of Australia, some of which can be relevant but from our experience it may be breed or climate related which does not transpose to Australian conditions. Another aspect we have noted is that a large body of the information on emissions and sequestration relates to cropping situations only with a lesser emphasis on livestock, less again on grazing livestock and less again on grazing livestock on native pastures. These gaps in research need to be filled;
- Emission and sequestration issues are not ones commonly dealt with by agriculture or land managers and the figures associated with the results need to be identified, calculated and interpreted which will be foreign to most land managers. Accordingly simplified tools need to be developed and freely available to make the task of calculating emissions and sequestration available. These tools could be derived from the R&D mentioned above;
- The Plan mentions some farm businesses are working to understand their emissions and implement climate-smart practices (such as they may be available). While there is a good deal of information and resources available, it is often difficult to find and usually spread across multiple sites. Some form of Government compendium of online resource data might assist;
- Accessing relevant research data is often difficult. While some data is publicly available online, much of the information is held by a few scientific publishers that

charge high fees for access. Even relevant CSIRO papers we have attempted to access are only available at significant cost. The other complication is that much of this information requires reasonable computer skills which for many is a challenge;

- There appear to be plenty of service providers that are prepared to assist farm and land managers, but this advice comes at a cost which many are unable or unwilling to pay for, given other cost increases and poor product returns. Financial assistance schemes to provide at least preliminary guidance to get started on the calculation of emissions and sequestration could be helpful;
- Understanding on-farm emissions can be somewhat of a minefield for the uninitiated. The Plan mentions there are a wide range of carbon calculators. We have examined almost every calculator that is freely available. Many will calculate enteric fermentation accurately and we have found little variance between the results when using our livestock numbers. Some will extend to Scope 1 and 2 emissions for fuel and energy but little more. We have found only one calculator that comes close to what we require to calculate Scope 1, 2 and 3 emissions including livestock, energy, materials, chemical, equipment, waste and distribution costs and to assist with sequestration data, and we now use that regularly. It was sourced from Europe. We consider there is no valid reason why a comprehensive carbon calculator based on Australian conditions could not be developed and made freely available to farm managers and it would assist greatly in enabling consistent and comprehensive data.

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