



National Farmers' Federation

Public Submission to Natural Resource Management Ministerial Council National Committee on Soils and Terrain

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Member Organisations



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National Farmers' Federation

The National Farmers' Federation (NFF) is Australia's peak national body representing farmers, and more broadly agriculture across Australia. The NFF's membership comprises all of Australia's major agricultural commodities. Operating under a federated structure, individual farmers join their respective state farm organisation and/or national commodity council. These organisations collectively form the NFF. Each of these state farm organisations and commodity council's deal with state-based 'grass roots' issues or commodity specific issues, respectively, while the NFF represents the agreed imperatives of all at the national and international level. There are 154,472 farms in Australia - including those for whom farming is not their primary business. However, there are 137,969 farms solely dedicated to agricultural production¹. The NFF represent these people at a national level.

Introduction

The NFF welcomes the opportunity to make a submission to NRM Ministerial Councils' Soils discussion paper. Generally, NFF supports endeavours to develop a better understanding of the soil and its ecology, research, development and extension and particularly skills. However, options adopted by Governments must encompass approaches that provide the maximum ability for farmers to make timely cost effective decisions about soil management on farm. NFF does not support soil management and monitoring approaches focussing on increased regulatory burden (red tape) and increased compliance costs to private landholders.

The following sections address the questions raised in the response sheet.

The need for a strategic approach

A concise strategic approach is required if there is to be a marked improvement in soil quality in Australia. Attempts by landholders and Non-Government Organisations (NGOs) addresses only localised issues. Australia is in need of a unified concerted effort to improve the health of its fragile soils, and this will require the support of the Australian Government.

By developing a national strategic approach to soil management, individuals and communities will be given better access to new information when it is available, and will be in a better position to adopt any new technologies and/or approaches to soil management. This will enable more on the ground capacity to assess and adopt, where appropriate, new soil management technologies and practices and for policy makers to have access to data to help them keep informed of areas of concern. NFF expects this would include tools such as the 'top ten' actions available to landowners in each region.

¹ Australian Bureau of Statistics, Agricultural Commodities 2005/2006

A strategic approach will also assist in coordinating a national response as soil management issues that impact across borders. The COAG National Committee can play an important role in providing a national framework to improve soil management. NFF believes that more emphasis is needed on a national approach to integrate soil issues into the myriad of other environmental policies.

Adopting a strategic national approach will enable the coordination of research and development into soil ecosystems and will foster the integration of landholder knowledge this research will bring. Already steps are being made to address the issue of soil health and management as an entire ecosystem. The work of Dr Pauline Mele (Principal Research Scientist at the Victorian Department of Primary Industries) into a new DNA approach is providing beneficial insight on new farming methods to improve soil communities and maintain agricultural productivity. She states, "Transferring such results into effective policy requires an integrated approach, by scientists and economists, and relies on linking key soil variables to ecosystem services, such as water quality"².

Support for the perspectives in the discussion paper

In general, the NFF is supportive of the overall perspectives outlined in the discussion paper. The agricultural sector with its multiplicity of functions makes it a "strategic asset" for the future of our continent and indispensable to achieve the goals of improving and protecting soil health outlined in the discussion paper. Landholders in Australia are in need of a national strategic approach to soil management, as the current policy results in "...competing claims and a fragmented, haphazard extension effort"³.

Farmers are aware of the importance of maintaining soil health as it directly affects productivity. They do however, require a more complete picture of the dynamics of the functions of the ecosystems that are contained in soils in order to maximise management practice and improve productivity. This may be achieved through a national strategic approach, while minimising costly regulation, and coordinating research into these processes.

The NFF is supportive of the vision and guiding principles outlined in Chapter 2 of the document and believe that the challenges reported are the crucial to improving the statistical information available on the health of Australian soils. Soil health and management needs to be perceived within an ecosystem framework to address the diverse community of organisms in soils and their roles in productivity.

The NFF concurs that the concept of landscape must encompass the aspect of community and NFF supports the ideal that "the concept of landscape should not imply a static

² Sourced from New farm practices a win-win for environmental outcomes and farm sustainability on 11/12/08
http://www.abare.gov.au/corporate/media/2008_releases/OL08_d16_mar08.html

³ Campbell A (2008) Managing Australia's Soils: A Policy Discussion Paper, prepared for the National Committee on Soil and Terrain (NCST) through the Natural Resource Management Ministerial Council (NRMMC), p. 8

snapshot, a visual image, but rather an evolving context shaped by ecological, hydrological and climatic processes and human activities”⁴.

Landholders are crucial to government attempts to gain information on current soil management practices and their place. Soil management and information retrieval should not be considered the sole responsibility of landholders, but rather the broader responsibility of the Australian people, with support from the Australian government to help frame how this resource is managed responsibly. As an example, fertiliser companies can provide data on the types of fertilisers used by farms to address specific soil health problems such as acidity and sodicity.

The building sector is another industry that must also recognise its responsibility for managing soils, as many areas are lost to agriculture when rezoned as urban or peri-urban environments. A unified approach to soil health and management will aid in collating knowledge on soil ecosystems across all areas of Australia and will provide valuable insight into the roles of organisms within soil ecosystems. Government must take a leadership role to ensure better management of soils beyond the farm gate.

The NFF acknowledge the challenges outlined on page 7 and recognise that these will require concerted effort from many factions of the community. The NFF is supportive of incentive schemes to promote better soil management and believe that these will be essential in challenging and changing soil management techniques for some farmers. The NFF is prepared to work with the government to develop a shared set of soil management priorities such as options that would allow remediation of depreciated soils. If farmers are better equipped with knowledge (such as the organisms that provide vital functions to soil ecosystem health within their particular landholding), can tailor soil management to these systems to improve productivity, then this alone will act as an incentive to most to adopt new management practices.

The NFF would question where the source of funds for developing and delivering a national strategic soil management plan if incentive schemes were to become a major element in adopting new soil management policies. NFF suggests that soil management is important to Australia’s food and fibre resources, and consequently should be funded by Governments as part of future budgetary priorities within environmental portfolios.

The NFF is cautious about supporting certain proposals outlined in the discussion paper. Farmers already, and continue to, face numerous regulatory burdens that impinge on their ability to make timely and important decisions regarding how their land is used (see Productivity Commission Reports on the impact of red tape on agriculture). NFF would not support legislation that further restricts management decisions for farmers or imposes extended ‘Duty of Care’ obligations as outlined on page 9 of the discussion paper. NFF strongly opposes any enhanced or additional regulations that may impose added costs to landholders.

⁴ Campbell A (2008) Managing Australia’s Soils: A Policy Discussion Paper, prepared for the National Committee on Soil and Terrain (NCST) through the Natural Resource Management Ministerial Council (NRMMC), p. 7

The suggestions outlined on page 9 describing future reporting requirements and their effects on global markets would pose an issue with many of our members. NFF rejects the suggestion of mandatory reporting on soil quality. To do otherwise will result in perverse and unintended consequences, such as market distortion due to the temptation to report better results if it will mean a better end price for crops. NFF also questions how measurement, monitoring and reporting quality assurance will be determined.

NFF are also cautious of any legislative or legal recommendations that certain soil types are 'beyond help'. Knowledge of soil ecosystems is in its infancy, and Dr Pauline Miller describes the situation: "The most diverse ecosystem on the planet, the soil biological ecosystem, is also the least well understood. Its complexity has resulted in the polarisation of R&D efforts in two main areas - the discovery of new species, and management impact studies using relatively rudimentary tools"⁵. Historically, some were of the view that highly salinised lands could not be rehabilitated. But perseverance and investment has re-established the productive base of such land.

Furthermore, with the development of new technologies the view that some soil types are beyond help will be reconsidered, particularly with improvements to the knowledge based of soil ecosystems that are relatively not well understood. NFF rejects the suggestion that government ought to step in and dictate through legislation exclusive land use decisions based on types of soils. NFF views this as impeding and affecting the ability of landholders and primary producers to respond innovatively to problems identified in soil management as part of the wider farm decision-making process, particularly in a timely way.

Given the range of climate change issues that many farmers are facing now, flexible soil management decisions must remain with the farmer, and supported by government. More beneficial to landholders and soil health, would be extensive research and development in soil carbon sequestration and other soil management options to inform the community of the environmental and economic benefits of healthy soil.

Your role and responsibility for managing Australia's soils

Communication will be essential for delivery of an effective and efficient change in soil policy. Farmers occupy and manage 61 percent of Australia's land mass. As such, they are at the frontline in delivering environmental outcomes on behalf of the broader community⁶. Any real change in soil health and management is contingent on the support of landholders.

NFF is committed to pursuing the best outcome for farmers across Australia. It is in the best interests of farmers to increase the level of knowledge in soil ecosystems to increase productivity and maintain environmental stewardship. The NFF welcomes any

⁵ Sourced from A New Charter for Exploring Australia's 'hidden' Natural Resource, the Soil Biota
http://www.lwa.gov.au/Programs/Current_Programs/Innovation/Senior_Research_Fellowships/Dr_Pauline_Mele/index.aspx on 11/12/08

⁶ Australian Government Bureau of Rural Sciences, Land Use of Australia 2001-02

opportunity to engage with government to refocus soil management as part of the national agenda.

What are your needs in managing Australia's soils?

To assist the farming community in maintaining environmental stewardship and the costs associated with improving and maintaining soil health, the government will need to invest in providing incentives to farmers to further the knowledge of soil quality in Australia. Alternatively, governments must consider other ways to enable farmers to meet the full costs of production, including maintaining and improving soil health and productivity. Currently, consumers are reluctant for such costs to be passed onto them through the increased price of food.

Seventy one percent of farmers reported barriers to greater NRM activity, including a lack of financial resources (78.9%), time (63.1%), government incentives (40%), age and ill health (22.2%)⁷. Most farmers are already engaged in monitoring soil types for key plant chemicals (such as phosphorous and nitrogen), soil organic levels and acidity. What is needed is the research into the dynamics of the functions of various organisms within the ecosystem that protect the crop against disease, and gather required nutrients, promoting better quality crops and greater productivity. However, care must be taken not to replicate existing services (possibly State based) such as Soil Conservation Authority in Victoria.

In order for the agricultural sector to contribute to qualitative knowledge building for soils in Australia, funds will be needed to assist farmers to develop new understanding of soil ecosystems to promote improved productivity.

Research is urgently needed to establish the current health of Australian soils. The Audit Summary Report 2002⁸ identified significant gaps in the information available on soil health. This information will be critical in identifying and addressing the most pressing issues for soil health in Australia. Farmers monitoring soil on their land, and the soil then is modified using fertilisers to provide further opportunities for production improvements. The challenge farmer's face is that they are unable to address the diverse community of organisms and their interrelationships within the soil, and thus are not able to measure the overall health of the ecosystem. Currently landholders face the dilemma of no real indicators of improvement or decline in the health of their soil ecosystems. There is a need to plug the gaps in this data, particularly for an economical way to add biomass to the soil.

The case for strategic reinvestment in soils

⁷ Australian Bureau of Statistics, Natural Resource Management on Australian Farms 2006-07.

⁸ Campbell A (2008) Managing Australia's Soils: A Policy Discussion Paper, prepared for the National Committee on Soil and Terrain (NCST) through the Natural Resource Management Ministerial Council (NRMMC), p. 22

Soils are the basis for all vital environmental services, as such it requires that all Australians be aware of, and take an active role in promoting soil health. The community is ready and the social climate is ripe for the message of soils importance in all environmental cycles.

The agricultural sector in particular can play an important role in developing new soil management strategies for Australia, but a commitment is needed from the government that encompasses adequate financial resources for research & development and the deployment of new knowledge. Without adequate support from the government, particularly in the area of soil ecosystem research, there will be no paradigm shift in the daily activities that in some situations lead to degraded soil health. Farmers already see the benefits of maintaining healthy soil. However, they need further understanding in the dynamics of the ecosystems that underpin productivity.

Soil condition monitoring system

The suggestions put forward to gain a cost-effective monitoring system of soil condition are comprehensive in their scope and the NFF believe would go a long way towards addressing the current lack of monitoring of soils. Developing such a strategy would eliminate to a certain degree the issues of boundary responsibilities involved in soil management. NFF rejects any suggestions that may result in the targeting of monitoring of individual properties. Most farmers utilise service providers (such as agronomists) to assess soil health to maximise production and there should be caution to ensure that landholders are not obligated to engage in certain monitoring activities beyond the scope of their normal production activities.

In building the national and state knowledge base in soils, the NFF would like to see more emphasis placed on the importance of firstly attracting and secondly maintaining skilled professionals to participate in research and development in this field. Australia is in desperate need of more scientists working in the area of soil ecosystems. Promoting this skill base will aid in reducing future risks in policy decision making processes, and will improve the knowledge base of biophysical processes into the future.

Soil management is in urgent need of an image overhaul. As stated previously, Australia is focused on improving environmental standards. Metropolitan dwellers are more aware than ever before that the health of Australia's farming community is crucial to their own food and fibre security. This public focus must be utilised to increase awareness of the integrated role soil plays in maintaining healthy ecosystems.

Are there adequately skilled people

There is currently a lack of skilled professionals working within this vital field. The situation will be even more urgent in the near future, as the current professionals move into retirement, there is reduced uptake of tertiary level education in the field, and as our brightest are lured overseas by substantially bigger incomes.

This is lack of soil professionals of particular concern to the NFF, as many decisions regarding NRM are based on the research and groundwork findings of these professionals. The undesirable consequence of this system is that when these professionals are lost, the knowledge is also lost leading to minimal information on which to base policy decisions.

Farmers are not skilled soil professionals and cannot be expected to perform the same function as soil professionals. Farmers and landholders, who are dependent on healthy soils to underpin production, require the support of skilled soils experts if they are to continue to improve their management of soil. Government needs to invest in this important area.

Options for rebuilding capacity

The two options should not be viewed as mutually exclusive. A combination of the two options would be the far more effective than one option alone, and would allow the knowledge to be accessible to more people. As stated in the discussion paper, a 'multi-faceted education and training approach is required'⁹ if intentions are to be converted to action.

Current curriculums need to be revised to include soils as part of a healthy environmental system. There is a need to include the range new technologies such as those outlined on page 52 and supported by Dr Pauline Mere, "A vast array of emerging technologies including soil metagenomics, microsensors and bioinformatics (advanced visualisation tools) are now offering an opportunity to rethink the way we conduct soil biology research in Australia"¹⁰. Training is needed to develop the skill base of our emerging soil professionals.

Putting soil back onto the agenda for tertiary studies either as a specialised soils focused module, or as a plug-in to existing environmental science curriculum is vital to improving our knowledge base in the future. Either option would aid in increasing the basic knowledge of many future agricultural workers with minimal cost. Developments in technology have enabled long distance education to be easier than ever before, this resource should be utilised for rural and remote communities that do not have access to tertiary institutions and where face-to-face training is not feasible.

Another suggestion to bring soil management into the forefront of community thinking is to introduce the subject at a basic level into primary school curriculums. If young people first encounter the issue of cyclic environmental systems and the inter relationships of environmental factors affecting their health at an early age, as well as developing skills in basic monitoring techniques, this would place the importance of soils firmly in their mind and promote the next generation of soil professionals.

⁹ Campbell A (2008) Managing Australia's Soils: A Policy Discussion Paper, prepared for the National Committee on Soil and Terrain (NCST) through the Natural Resource Management Ministerial Council (NRMMC), p. 52

¹⁰ Sourced from A New Charter for Exploring Australia's 'hidden' Natural Resource, the Soil Biota http://www.lwa.gov.au/Programs/Current_Programs/Innovation/Senior_Research_Fellowships/Dr_Pauline_Mele/index.aspx on 11/12/08

The NFF would also like to suggest the possibility of implementing a Soil Professional's Scheme, similar to that which has been adopted to attract rural doctors. The NFF believe that a scheme such as this would to some degree influence those choosing science at a tertiary level to think about soil biology as a viable career choice.

NRM investment model soils literacy

The NFF is not directly involved with the regional NRM investment models, although many of the people we represent are. Australian farmers spent \$3 billion on Natural Resource Management (NRM) over 2006-07, managing or preventing weed, pest, land and soil, native vegetation or water-related issues on their properties. More than \$2.3 billion was spent on weed and pest management, while land and soil-related activities accounted for \$649 million of total expenditure¹¹. Australian farmers invest \$237 million-a-year in research and development. This is over and above the \$217 million spent by Federal and State Governments each year on agricultural research and development¹². A national strategic plan is required to maximise the benefits for the expenditure that farmers engage in.

The suggestion put forward in the discussion paper that National Landcare Program (NLP) as the most appropriate program to deliver better focus on soils is one of a number of organisations that may be appropriate. Others could include the NRM regional organisations, Land & Water Australia and so on, or alternatively and combination of organisations working constructively together. The most appropriate organisation(s) should have the funding and the capacity to address regional research and development needs and aid in building knowledge of regional soil capacities and capabilities. This will also facilitate regions to identify and develop effective research particular to their particular soil ecosystems.

Lack of capacity is a major obstacle for regional NRM groups. It will be critical in acquiring further knowledge of soil management for these groups to gain better access to professionals in the field, if they are to implement any changes to current soil management practice. The NFF would encourage adopting the list of opportunities suggested in the discussion paper, provided they were adequately funded to make a sustainable difference and targeted accordingly.

The Mackay Whitsunday Regional NRM group example given on page 56 outlines what can be achieved when industry and NRM groups work in collaboration to tackle a common problem. The government supported this project after the proactive approach of the NRM group was recognised as a means of improving environmental outcomes at a 'catchment-scale'. A national soil strategy is critical if soil conditions are to improve. Regional NRM groups cannot operate in isolation and require adequate support from state and federal government. As stated in the discussion paper "improving and making the soils information base more accessible, increasing the availability of skilled professionals, improving the overall extension system and developing a much more cohesive and

¹¹ Australian Bureau of Statistics, Natural Resource Management on Australian Farms 2006-07

¹² Department of Agriculture, Fisheries and Forestry, At a Glance, 2007

comprehensive national approach to soil monitoring and research”¹³. Without the additional support of governments, NRM projects will not be as effective as they could be.

Future Options

The best way forward is going to involve a myriad of initiatives operating at many levels within an overall national strategic framework. The first initiative must involve raising awareness amongst the public and to lesser degree NRM professionals of the cyclic integrated dynamic nature of soil ecosystems and their innate connection with the big environmental issues of our time. ‘Rebuilding commitment’ is vital if a national strategic approach is to be embraced by the agricultural sector as well as the wider community.

It is important to develop a business case and value proposition in order to rebuild commitment to gain support for the national strategic approach. The NFF concurs with the propositions put forward in the discussion paper as to the types of things required that would move towards building this case. As outlined in section 4.2, a communication strategy is vital to raising awareness about soil management issues. Obtaining appropriate data to inform policy makers of the reality of the health of soil in Australia is crucial. Getting a cost benefit analysis of what good soil management can achieve for land users will be needed. There is an urgent need to quantify and articulate the links for soil and the big environmental issues like greenhouse gas emissions or water quality. Research and development is required if the potential role of soils to assist in meeting our Kyoto carbon commitments are to be realised.

The NFF is supportive of an institutional arrangement for soil condition monitoring. NFF concurs that this as a crucial step toward rebuilding commitment to soil health in Australia. The NFF agrees that an institutional arrangement for soil condition monitoring can play the role of coordinating national activities and research and development needs, and minimising patchy fragmented research. An institutional arrangement is crucial to plug the gaps in research and development, and coordinate other ongoing soil research and getting the finding of such research out to those who require it most.

Adopting a national approach to soil management can enable research and monitoring to be closely linked, as suggested on p51. The NFF supports the idea that the Healthy Soils for Sustainable Farms program as a suitable model for delivering a national approach. We also support the need for a network of long-term ecological research (LTER) sites as recommended by Dixon and McKenzie 2007, to further our knowledge base of soils.

There is a need in Australia to address the knowledge base deficiencies that effective soil management requires. The deficiencies in knowledge of the dynamics of soil ecosystems are particularly concerning as they are crucial to planning a national strategic framework to better understand soil health. There is a strong case presented in the discussion paper for rebuilding our capacity to manage soils. The NFF believe that preserving and

¹³ Campbell A (2008) Managing Australia’s Soils: A Policy Discussion Paper, prepared for the National Committee on Soil and Terrain (NCST) through the Natural Resource Management Ministerial Council (NRMMC), p. 56

developing skilled professionals in soil biology that will assist better management is crucial to gaining the required knowledge for long-term effective soil management, and this issue must be addressed before any future policy decisions can be assessed for their urgency or effectiveness.

Open comment

The farming community would benefit from a unified strategic plan to soil management provided information gaps are overcome. The opportunity presented by the issues of climate change have put environmental issues at the fore front of public opinion, now is the time to implement systems that aid in the development of new practices and systems that will enable it to prosper.

The NFF requests that language pertaining to regulations be carefully assessed. The farming community has shown remarkable resilience to changing environmental conditions. Consequently, farmers must be allowed to make land use decisions in order to continue to adapt to climatic change and make timely farm management decisions. Further legislation limiting and determining what can be done with particular soils and areas would be opposed by the NFF on this basis.

The Australian community is generally not aware of the integrated nature of soil ecosystems in the big environmental issues currently facing us. Although the public is becoming more informed of the importance of soil health, most are not aware of the link to other environmental concerns of our time, or the opportunities further developments in research may provide to productivity. If the general public is aware of threats to soil health (e.g. salinity, acidity and sodicity), it is usually perceived to be a rural or remote issue, brought about by unsustainable farming, and not something that affects people in their everyday lives.

Most people in the wider community are oblivious to urban and peri-urban areas as potentially harboring threats to soil health or the consequences of these threats. This is usually viewed as a local council issue as suggested in the discussion paper when it states “funding sources for broader non-agricultural aspects of soil conservation such as peri-urban, urban, infrastructure and the links with the planning system are far from obvious”¹⁴. NFF supports enabling all Australians to contribute to better soil conditions in Australia.

The diverse farming community in general is well versed in the soil conditions for their particular landholding, but may not have the same level of understanding for land outside their boundary. Many do not have the technical skills of soil professionals to understand the soil conditions or results of particular fertiliser applications to long-term soil ecosystems. Changing climatic conditions and movements in global commodity markets that may affect choices made as to enterprise mixes on farms have required that farmers

¹⁴ Campbell A (2008) *Managing Australia's Soils: A Policy Discussion Paper*, prepared for the National Committee on Soil and Terrain (NCST) through the Natural Resource Management Ministerial Council (NRMMC), p. 55

become increasingly sensitive to soil conditions and management, and progress has been made. New techniques and technology are being developed every day. Knowledge of the dynamic communities that make up soil ecosystems is developing. What is required to foster this progress is adequate financial and infrastructure support from state and federal governments to promote and develop soil management knowledge and biological data in Australia.

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