

## **Environmental Farmers Network**

### **Submission to the Environment and Natural Resources Committee, Parliament of Victoria Soil Carbon Sequestration in Victoria**

EFN represents farmers in Southeast Australia interested in sustainable farming in a social, environmental and economic sense. We represent mostly commercial farmers very concerned about the impact of climate change on farms, people and landscapes, loss of farm biodiversity and the impact of peri-urban development on farming. We strongly encourage State and Federal Governments to develop market mechanisms that reward landholders providing ecosystem services such as retention and protection of biodiversity on farms. The Environmental Farmers Network gives voice to a growing number of farmers dedicated to the environmental health of rural regions whose views are not being represented by traditional farmer organizations.

#### **Premise**

- The EFN strongly encourages those activities which increase the accumulation of organic carbon in soil for 3 basic reasons
  1. soil health<sup>1</sup> is invariably improved by the accumulation and cycling of organic carbon compounds
  2. sequestration contributes to reduction in atmospheric carbon dioxide
  3. it will improve the income stream, and sustainability of farm activities if incorporated as part of the CPRS.

#### **Benefits to Agriculture**

- Increasing soil carbon levels improves soil condition and water holding ability enabling increases in farm productivity. (Improved efficiency of agricultural production and a sustainable business contribution.)
- If soil carbon was included in the CPRS then improving soil organic carbon levels (ecosystem service as a commodity) would provide an additional income stream for farmers.

#### **Environmental Benefits**

- Reduction in greenhouse gases. Farmland covers a large area and so any increase in soil carbon will have a large impact.
- Better soil structure as a result of organic activity and the accumulation of humus will reduce runoff, reduce flooding incidence and minimise erosion.

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<sup>1</sup> A genuinely healthy soil will produce a broad range of ecosystem services and will not experience degradation.

## Measurement of Carbon

- Measurement is problematic as soil organic carbon varies with depth and with soil type. Further it varies over short distances and with different nutrient and moisture status. Cost effective standards for the objective measurement of soil carbon will need to be developed that have adequate confidence limits. (As with measuring wool fibre diameter in sale lots, similarly you can never know the exact amount of soil carbon sequestered in a given area of land). We understand that current CSIRO research shows that soil carbon levels can only be measured to about 90% accuracy.
- Soil organic carbon exists in various forms as it is progressively used as an energy substrate for biological activity. The larger particles (from crop stubbles) are easily consumed and oxidised while the humic carbon compounds (which are very small particles bonded to soil minerals) are much more stable in the soil environment. While it is relatively easy to quickly increase the gross soil carbon level it is very difficult to increase the **stable** soil carbon level and this process takes many decades.
- Encouragement must be given to the use of best practice techniques in agriculture such as minimum or no till cultivation, perennial pasture establishment, stubble mulching etc. To quote the Land and Biodiversity White Paper - "Finding ways to better reflect the value of healthy soils in decision making processes, including farm management systems will drive more sustainable soil management into the future".

## Costs

- Increasing soil organic carbon in soil may require additional inputs of nitrogen and phosphorus to compensate agricultural plants for the competition provided by the increased biological demand in the soil. This could have a negative impact on CO<sub>2</sub> balance and therefore impact on climate change.
- Some biological farming systems may be able to increase soil carbon without the need for large inputs of artificial fertilisers, by encouraging increased populations of beneficial soil flora and fauna which can encourage efficient recycling of nutrients
- If soil carbon was part of the CPRS then loss of soil carbon with droughts, heat waves and fires will impact on landholders who opted into the scheme.

## Identify harm or detriment

- Most Australian soils are naturally relatively low in organic carbon. Land clearing followed by many years of farming has exacerbated this in lots of areas. We consider therefore that the risk of harmful outcomes is very low overall.
- There is a potential equity issue for existing responsible and advanced farmers. Those who have already increased soil organic carbon levels to an optimum will be disadvantaged over those with run-down soils.

### **Identify linkages to CPRS and other Federal Government Policies**

- No linkage to CPRS at present.
- Encouraging better farming practices that increase soil carbon would ameliorate climate change impacts and improve land and farming productivity and viability.

### **Identify linkages to Victorian Government Policies**

- Future Farming Policy promotes best practice agriculture to ensure farm businesses are productive, competitive and sustainable. Increasing soil carbon levels is best practice.
- The Land and Biodiversity White Paper recognises the importance of healthy soils to the Victorian economy.
- Catchment Management Authorities across the State are involved in soil health strategies.

### **Options for Victorian Government to support soil carbon sequestration.**

- Education of landholders via DPI Future Farming Program as to the benefits of soil carbon sequestration.
- Encourage farmers to use the Environmental Best Management Practices (EBMP) tool to benchmark and improve their farming practices with particular reference to the “Soils” and “Greenhouse” sections
- Increase research into techniques
  - to increase the long term and stable forms of soil organic carbon, and
  - techniques to efficiently and accurately measure/monitor soil carbon.
- Incorporation of soil carbon levels in farm gross margin and carbon toolkit accounting systems. Eg toolkits available on Farm Institute and Melbourne University (greenhouse) web sites.

### **EFN bias**

- Soil organic carbon provides the energy delivery arrangement for the entire soil system. It is almost impossible to overstate its importance. Organic carbon is generally the stuff which props-up the physical attributes of a soil, and hence is fundamental in delivering aeration, permeability, water holding capacity, and physical resilience to boot.
- The delightful thing about the soil organic carbon trading potential is that it is “icing on the cake”.
- Increasing soil organic carbon is an important weapon in reducing atmospheric carbon within the terrestrial carbon cycle but should not overshadow the capping and reduction of emissions emanating from the use of non-renewable fossil fuels.

Contact Details; [www.environmentalfarmersnetwork.net.au](http://www.environmentalfarmersnetwork.net.au)

Secretary Peter Forster , 655 Jacksons Creek Road, Ararat 3377 phone 03 5352 1530

Email [forster@bordernet.com.au](mailto:forster@bordernet.com.au)



Caroline  
Williams/ParlOfficer/PARL  
09/02/2010 05:20 PM

To Tom Holden/ParlOfficer/PARL@PARL, Karen Taylor  
cc  
bcc  
Subject Fw: Environmental Farmers Network submission to soil  
sequestration inquiry

**Caroline Williams** | Executive Officer  
Environment and Natural Resources Committee | **Parliament of Victoria**  
A: Parliament House, Spring Street, East Melbourne 3002  
T: (03) 8682 2802 | F: (03) 8682 2818  
E: [caroline.williams@parliament.vic.gov.au](mailto:caroline.williams@parliament.vic.gov.au)  
W: [www.parliament.vic.gov.au/enrc](http://www.parliament.vic.gov.au/enrc)



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<[forster@bordernet.com.au](mailto:forster@bordernet.com.au)>  
09/02/2010 03:54 PM

To <[enrc@parliament.vic.gov.au](mailto:enrc@parliament.vic.gov.au)>  
cc  
Subject Environmental Farmers Network submission to soil  
sequestration inquiry

Dear Sir/Madam

I forwarded you our submission last night but failed to attach our contact details, web site etc. They are now attached.

Please use this copy.



Cheers Peter Forster Secretary EFN [EFN Soil Carbon submission.doc](#)