

### Participation fee

NJF members before July 1: 2 500 SEK

NJF members after July 1: 3130 SEK

Non members before July 1: 3 750 SEK

Non-members after July 1. : 4690 SEK

### Seminar location

Quality Hotel Resort Hafjell has been contacted. Web side:

[http://www.tripadvisor.com/Hotel\\_Review-g190462-d206367-Reviews-Quality\\_Hotel\\_Hafjell-Lillehammer\\_Oppland\\_Eastern\\_Valleys-Overture56964.html](http://www.tripadvisor.com/Hotel_Review-g190462-d206367-Reviews-Quality_Hotel_Hafjell-Lillehammer_Oppland_Eastern_Valleys-Overture56964.html)

### Organizing committee

Prof. Bal Ram Singh, UMB, Ås, Norway (Chairman), Dr. Arne Grønlund, Bioforsk, Ås, Norway, Jon Gudmundsson, Ag Univ. Iceland, Reykjavík, Iceland, Prof. Jørgen E. Olesen, DIAS, Foulum, Denmark, Prof. Thomas Katterer, SLU, Uppsala, Sweden, Prof. Martti Esala, MTT, Jokioinen, Finland, Prof. Raimo Kõlli, EAU, Estonia, Prof. Rattan Lal, OSU, Columbus USA

### Registration

Registration on <http://www.njf.nu/>

### Seminar contact

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### Travel information

By air: Oslo airport, Gardemoen. There are frequent trains from the airport to Lillehammer town. The hotel is just 10 minutes by taxi from the train station. Norway bus express between the airport and the hotel operates 5 times a day. Details on train and bus timetables from the airport to Lillehammer will be provided in the second announcement.

By train: From the central railway station in Oslo there are frequent trains to Lillehammer town.



Nordic Association of Agricultural Scientists

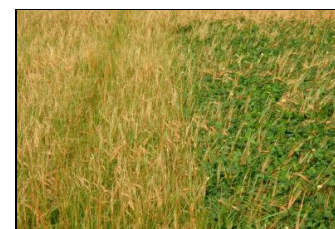


Nordic Centre for Studies of Ecosystem Carbon Exchange  
and its Interactions with the Climate System

## NJF Seminar 387

Preserving and storing carbon in soils of cool temperate regions

27-29 September 2006 Norway



### Background

Soils of the northern latitude are an important reservoir of organic carbon, especially those under natural ecosystems and wetlands.

In contrast, most of the agricultural soils have been source of atmospheric enrichment of carbon dioxide through mineralization of soil organic matter, accelerated soil erosion, and drainage of wetlands. Recent changes in crop management, including incorporation of crop residues, may have reduced CO<sub>2</sub> emissions from soils.

With predicted global warming and the attendant increase in temperature and change in precipitation amount and distribution, however, most of these soils may become a major source of carbon dioxide.

Therefore, understanding soil carbon dynamics along with that of soil nitrogen and water and temperature regimes under different management systems is critical to identifying mitigation options.

Because of the cool climate, dominance of perennial land use, relatively large proportion of peat and organically rich soils, the northern European regions have a large potential of soil carbon sequestration, but also a potential for large CO<sub>2</sub> emissions.

Yet the databases for soil carbon pools and dynamics are scanty and the existing information from long-term experiments has not been adequately and systematically collated and synthesized for use by policy makers and land use planners.

## Topics

### Session 1. Soil carbon stocks under present and future climate

The soil stores large amounts of organic carbon. Soils of northern latitude are important in this context. Present land use has turned many of these soils from sinks to sources of carbon. Predicted global warming and changes in precipitation amount and distribution can also change many areas from presently acting as sinks to become sources of atmospheric CO<sub>2</sub>. It is important to have good estimates of the size of the C stocks in soils of various systems in northern regions, how they behave and have behaved in past and how they are likely to respond to predicted climate change. The composition of these stocks is also highly variable and can be crucial for vulnerability of the SOM to changes in management and climate. This session will focus on the estimation of C-stocks both on regional and ecosystem scale and how they respond to climate change.

### Session 2. Assessment methods for carbon stock and changes

General internationally agreed-upon methods for estimating soil carbon stocks and changes are not available. However, robust and flexible protocols for monitoring and verifying changes in soil C are urgently needed for national reporting according to the Kyoto protocol. The most suitable assessment method chosen will depend on the information that is available at regional or national scale. This section will focus on definitions (e.g. land use class, organic soil etc.), methods for estimating unbiased estimates of C stocks (e.g. from C concentrations to C amounts per are), methods for estimating C fluxes (repeated inventories, flux measurements, models) as well as formal assessment of uncertainty and issues of scaling.

### Session 3. Socio-economic and political aspects of soil organic carbon

The storage of soil carbon does not only influence net CO<sub>2</sub> exchange with the atmosphere. Soil organic matter is also one of the key factors in determining soil quality and thus affects the ability to produce food of sufficient quality and quantity. Many of the policy options available for influencing soil carbon storage have multiple additional effects on crop production, farm income, greenhouse gas emission, nutrient losses to the environment etc. All of these side effects need to be quantified in order to provide consistent comparisons among different options, and this often involves estimating the societal costs of different mitigation options.

### Session 4. Carbon dynamics and stock management in organic soils

In many countries, especially in northern Europe, large areas of peatland have been drained for agriculture or forestry. This has led to increased C losses to the atmosphere.

Restored peatland, on the other hand, has shown a great potential for soil organic carbon sequestration. Restoration and management of peatland can therefore be important mitigation method both by preventing CO<sub>2</sub> loss and establishing C sequestration. Draining and cultivation of peatland also affect N<sub>2</sub>O and CH<sub>4</sub> dynamics in these soils. Information on the options in C stock management of these soils can be crucial for policy makers with regard to paragraph 3.4 of the Kyoto protocol. The C loss due to drainage of peat land can have considerable impact on the outcome of national inventories to the climate convention (FCCC). It is therefore of great importance to compile as much information on C-dynamics of these soils as possible.

### Session 5. Carbon dynamics and stock management in mineral soils

Management practices can make soil a sink or a source of atmospheric carbon. Practices, which lead to transfer of C from soil to atmosphere include deforestation, burning, ploughing and continuous cropping. In contrast, practices that make agricultural soil a sink are conservation tillage, judicious use of fertilizer, cover crops, crop rotation, and fallowing; improved pasture and growing deep-rooted crops. Therefore understanding the dynamics of soil carbon and its stock is essential to make the soils of managed ecosystem a potential sink of C through appropriate land use and judicious management practices.

## Keynote speakers

The four keynote speakers invited are: Prof. Torben Christensen (session 4), Sweden, Prof. Pete Smith, UK (session 5). Dr. Annette Freibauer Germany (session 2) and Prof. Rattan Lal, USA (session 1).

A minimum of 3 invited speakers on the above mentioned topics are desired.

## Target group

- Soil, environmental, climate change scientists
- University and Research institution scientists
- Inventory people
- Administrators/ policy makers
- Advisors / consultants

## Call for papers and posters

Deadline for voluntary papers for oral and poster sessions is June 30, 2006. Submission of title and abstract (200 words) for oral or poster presentations should be sent to the Organizing Committee (Balram.singh@umb.no or arne.gronlund@jordforsk.no). The Committee reserves the right to select oral presentations among the submitted titles. Extended abstracts (1-5 p) of all accepted papers (oral and poster) will be published in Proceedings of NJF seminar no. 387. The committee has negotiated with the international journal "Nutrient Cycling in Agroecosystems" and the selected papers will be published in this journal after a normal review process. More details on this aspect will follow in the second announcement.

## Additional information

The official language of the seminar will be English. All abstracts and presentations must be submitted in English. Participation fee includes proceedings, reception on arrival day, lunch and dinner the second day and lunch the third day. Coffee/tea refreshments will be served both days. One half-day excursion on September 30 is being planned and more details will follow in the second announcement.