How to include farmers in the emission trading system

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The EU has committed itself to an ambitious 20 % reduction of greenhouse gases (GHG) by 2020 compared to the 1990 emissions level. Moreover, the EU goal beyond 2012 is to strengthen, expand and improve climate change initiatives. Therefore, there is a strong need to consider more carefully how to integrate as many sectors as possible in these efforts.

Farmers, however, do not trade GHG under the Kyoto agreement. The idea of including farmers in a national emission trading system has been launched in Australia but it has not yet been applied to the EU.

One important tool to improve climate change initiatives is emission trading. Thus, the EU launched the world's first Emission Trading System (ETS) for GHG on January 1 2005 as part of the efforts to comply with the target levels in the Kyoto Protocol.

The ETS is a unique innovation in modern environmental regulation, which has been transferred to the EU based on successful American experiences. In the EU ETS, the ownership of one permit or 'allowance' gives the right to emit 1 ton of CO_2.

Numerous ways to reduce greeenhouse gases

The EU ETS implies that trade of GHG allowances (as translated into CO_2 equivalents) can take place between firms in different countries. Almost half of total CO_2 emission in the EU is covered by the market, including more than 10 000 installations. There are numerous ways to reduce GHG, e.g. via wind turbines, solar and wave power, bio fuels, energy efficiency measures and – a more recent method – a change in farming techniques. Farmers, however, do not trade GHG under the Kyoto agreement. Why not? I suggest that they should. The idea of including farmers in a national emission trading system has been launched in Australia but it has not yet been applied to the EU.

Sector	%
1. Public Electricity and Heat Production	27,8
2. Transport	19,5
3. Manufacturing Industries and Construction	12,7
4. Agriculture	9,2
5. Industrial Processes	8,5
6. Residential	8,5
7. Commercial/Institutional	3,3
8. Waste	2,8
9. Petroleum Refining	2,7
10. Fugitive Emissions from Fuels	1,7
11. Agriculture/Forestry/Fisheries	1,5
12. Manufacture of Solid Fuels and Other Energy Industries	1,4
13. Solvent and Other Product Use	0,2
14. Other (Not elsewhere specified)	0,2
Total	**100**

Table 1: GHG emissions from different sectors in the EU-27, 2007.

Greatest GHG emitters in EU

Table 1 shows that Public Electricity and Heating Production is the greatest GHG emitter in the EU with 27.8 % of total emissions. Transport is second (19.5 %) and manufacturing/construction third (12.7 %). Agriculture ranks number four (9.2 %).

At the moment, three of the great GHG emitters are

not covered by the EU ETS, namely 2. Transport, 4. Agriculture and 6. Residential. Thus, while the debate on GHG has mainly focused on the energy, industrial, and residential sectors and households, only very limited attention has been paid to the significant potential to limit GHG emissions in the agricultural sector in spite of the fact that it emits about one tenth of total GHG emissions in the EU-27.

How to facilitate the inclusion of farmers

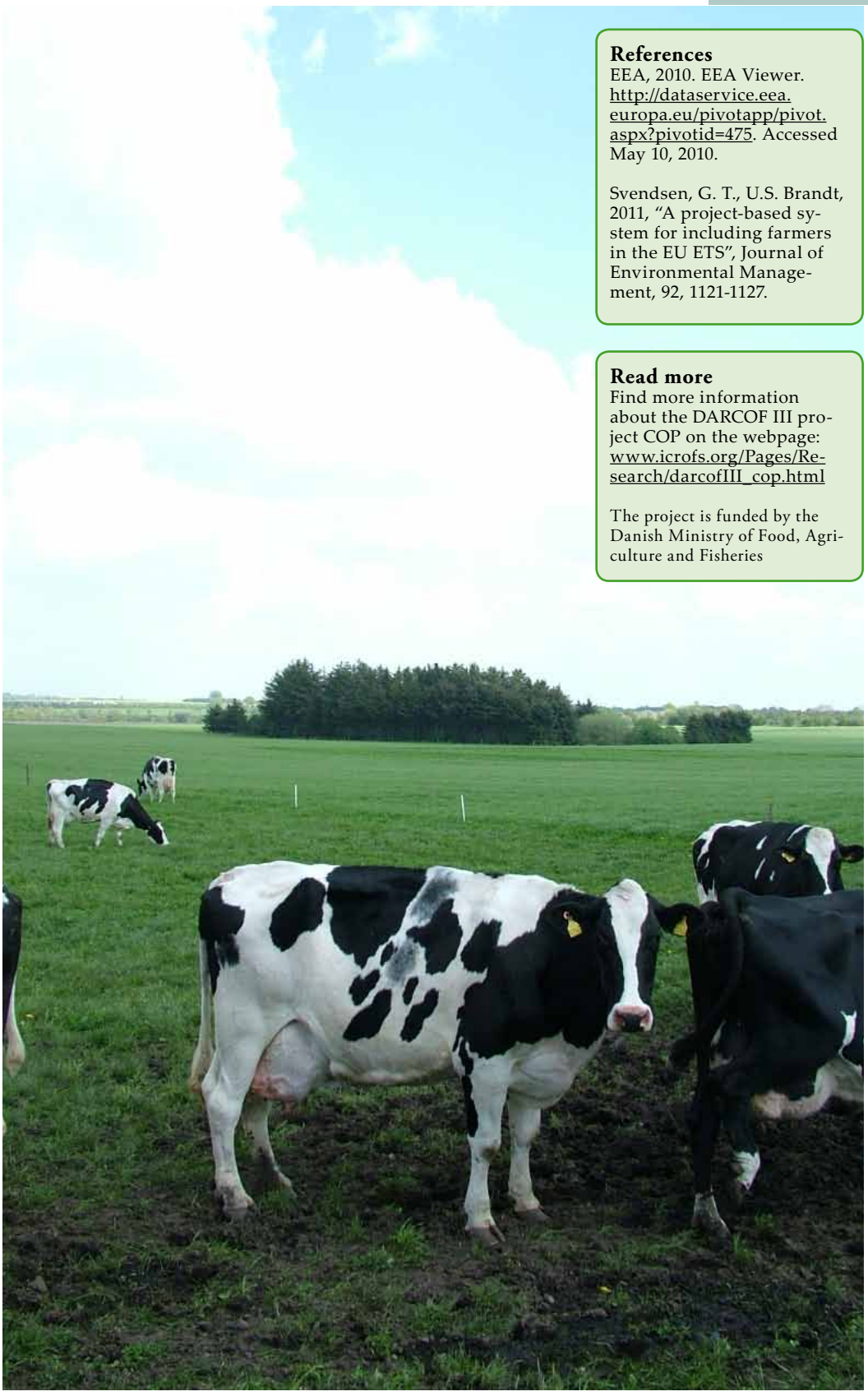
Much uncertainty is involved in the measurement of emission of methane (CH_4) and nitrous oxide (N_2O) from farming. This has so far been seen as an obstacle to the inclusion of the farming sector in the EU ETS. Is it possible to develop a system that may facilitate the inclusion of farmers in the EU ETS? One possibility could be to reward practices that reduce GHG by granting permits.

As a starting point, farming contains a number of processes, like keeping animals, or producing crops. Each of these processes can be subdivided into activities like keeping different animals. Finally, for each such activities, different practices exists, like which fodder to give cows. The basic idea of this system is that instead of measuring the emission directly, one may calculate the (average) change in emission from the baseline practice to the new practice. The whole idea of the system is that the authorities can in advance specify what practices should be accepted as valid reduction measures. This could be motivated, e.g., by not including practices that are judged to generate uncertain results.

Use of farming practices with minor uncertiainty

Such a practice-based approach implies that the regulator in advance makes a list over farming practices that can be used as valid reduction measures in the EU ETS system. This brings about the question of which practices to include? One reasonable criterion would be to only include practices in which the uncertainty is minor. The uncertainty here could relate to measurement uncertainty or simply lack of understanding of the underlying biological/chemical processes. As new research reduces such types of uncertainty or new methods that contain less uncertainty are developed, the list of acceptable practices can be expanded.

Overall, this system encourages GHG reduction either by introducing a new and less polluting practice or by reducing the polluting activity. When doing so, farmers will receive GHG permits corresponding to the amount of reduction following the change in practice. Farmers are then free to sell or store these permits in the EU ETS.



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