



Meeting of Energy and
Environment Committees, 21 January
2008

Meeting of the COSAC
Chairpersons and the Troika, 18
February 2008

Meeting of Defence Committees, 3
March 2008

Meeting of Foreign Affairs
Committees, 17-18 March 2008

Meeting of Cultural Affairs
Committees, 14 April 2008

Meeting of the XXXIX COSAC, 6-8
May 2008

Meeting of Agricultural Affairs
Committees, 2-3 June 2008

- Invitation
- Programme
- Registration forms
- General Information
- List of participants
- Speech Fischer Boel
- CWB - Committee on
Agriculture, Forestry and Food
- Substantive issues for
discussion Summa
- Substantive issues for
discussion Verbič
- Substantive issues for
discussion Djordjevič
- Substantive issues for
discussion Erjavec
- Photogallery

Other Events in Slovenia

Other events abroad

Information for the media

Public information

02.06.2008

PRESS RELEASE - The future of
the Common Agricultural Policy of
the European Union, food
security...

29.05.2008

MEDIA INFORMATION - Meeting of
Agricultural Committee
Chairpersons at the National
Assembly of th...

08.05.2008

MEDIA INFORMATION - XXXIX
COSAC Meeting, Brdo pri Kranju,
7- 8 May 2008

[Home](#) > [Meeting of Agricultural Affairs
Committees, 2-3 June 2008](#)

> [Substantive issues for
discussion Verbič](#)

T- T+

Substantive issues for discussion Verbič

Jože Verbič, Agricultural Institute of Slovenia

Impacts of the measures to reduce greenhouse gas emissions in agriculture on food security and competitiveness of European agriculture

Introduction

The European policy's objectives to reduce greenhouse gas (GHG) emissions are quite ambitious. At the European Council in March 2007, the EU committed to reducing its overall emissions to 20% below 1990 levels by 2020, and claimed to be ready to scale up this reduction to as much as 30% if other developed countries made comparable efforts. By adopting the climate and energy package in January 2008, the European Commission paved the way towards achieving the above objectives, and agriculture will certainly need to bear its share of responsibility. In the EU-27, agriculture contributes 9% of the total GHG emissions. Its hitherto efforts to reduce emissions have been relatively successful. Without considering the carbon sinks on the account of increased forest biomass and land-use change, the EU-27 reduced its emissions by 20% compared to the base year already in 2005. However, the fact that agriculture achieved the set objectives 15 years prior to the envisaged deadline does not mean that efforts to further reduce emissions should be discontinued. Among all economic sectors, agriculture will probably be the most affected by climate change and should therefore serve as a role model to all the others.

Until recently, the Common Agricultural Policy envisaged no particular measures to reduce GHG. Reduction was achieved through measures pursued under other objectives, such as water protection. On the other hand, the measures to ensure extensive livestock farming had a rather opposite effect. With the Council Decision on Community Strategic Guidelines for Rural Development of 2006, the reduction of GHG emissions finally became a priority issue. However, the measures to reduce GHG emissions - details thereof are left to the discretion of Member States - require a slightly different approach as the one used for the protection of waters, soil and biodiversity. In particular, we need to be aware that also agricultural products imported from other continents are burdened with GHG and that reducing the volume of agricultural production in Europe alone will not contribute to mitigating climate change.

The greatest contributors to GHG in agriculture are methane - produced by fermentation in the digestive tract of farm animals as well as during the storage of animal manure - and nitrous oxide, released from cattle manure storage facilities and generated by fertilisation with livestock manure and mineral fertilisers. Agriculture contributes to GHG emissions also indirectly, through the release of ammonia into the air and the leaching of nitrates into the water. These produce nitrous oxide in natural ecosystems, which is attributed to agriculture. Among the various agricultural activities, most GHG are contributed by animal production, particularly ruminant production.

Measures to reduce GHG emissions and their impact on the competitiveness of agriculture and food security

Global measures to reduce GHG emissions must be planned based on their environmental efficiency. This means that the various agricultural practices need to be assessed in terms of emissions per product unit and not in terms of emissions per agricultural land area unit or livestock unit. Among the many solutions to reduce GHG emissions in agriculture, increasing efficiency of animal production and improving the nitrogen cycle have the greatest potentials.

Increased animal breeding efficiency

Methane emissions per product unit are considerably higher in extensive animal production (slow growth, low milk yield, etc.) than in intensive production. Taking for example the emissions generated in milk production, a considerable difference among individual EU Member States may be noted. According to estimates, emissions per kg of milk produced in the country with the

lowest milk yield per cow are almost 60% higher than in the country with the highest milk yield.

The difference among individual farmers is even more obvious. Thus, in terms of GHG emissions, the animals producing less than they are able to produce - based on their genetic potential, the natural conditions and the modern technical solutions - are deemed unfavourable. The most important measures to reduce the methane emission in animal production is better use of feed energy that may be achieved only by promoting genetic progress, by adequate feeding, by providing a suitable environment, and by providing for an adequate animal health care.

A better use of energy also increases the competitiveness of animal production, as it decreases the consumption of feed per product unit. A slightly more intensive breeding is favourable also because of lower amortisation costs for the stables and lower labour costs in certain activities, such as milking. In pig and poultry production, the measures for a better energy use also aim at greater food security, as they reduce cereal consumption. In ruminant production, the impact of such measures on food security depends on their implementation. If better use is made of the feed from permanent grassland, food security improves; if, on the other hand, the utilisation of feed is improved by increasing the share of cereals in the diets, food security decreases.

The agriculturally most developed EU countries have already used most of their possibilities to reduce GHG emissions by increasing production efficiency, while the countries with low production levels still have considerable reserves. However, in planning such measures other objectives should not be neglected. It might also be difficult to coordinate the solutions proposed for reducing methane emissions with those proposed to preserve biodiversity, as large emissions are unavoidable in extensive grazing and late meadow mowing. Although the protection of genetic sources must have priority over GHG emissions, it needs to be defined in

Event calendar

M	T	W	T	F	S	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

◀ June 2008 ▶



more detail where and how to protect the genetic sources and where more attention should be devoted to GHG.

Improving the nitrogen cycle in agriculture

In nature, most nitrogen is found in the air. This is molecular nitrogen (N₂) which is environmentally neutral and inaccessible to plants. Molecular nitrogen assumes forms that are accessible to plants through biological fixation - resulting from the symbiosis of leguminous crops and bacteria - and through industrial fixation, serving as basis for the mineral fertilisers industry. When such nitrogen enters the cycle at the farm, losses occur which can not be totally avoided. They can, however, be reduced. The nitrogen cycle at farm releases nitrous oxide - a powerful greenhouse gas. Nitrous oxide emissions are best reduced by decreasing the flow of nitrogen and taking appropriate measures to prevent nitrogen loss. All together, this diminishes the need for industrially fixed nitrogen, and is best achieved through efficient use of cattle manure. However, such is only possible in combined units, that comprise both plant and livestock production, or by transfer of cattle manure from specialised animal production farms to specialised plant production farms. This means that emissions of nitrous oxide may be reduced through diversification of agriculture which enables a better utilisation of cattle manure. Diversification also allows an increase of soil's organic matter which serves as a carbon dioxide sink.

The past development of agriculture clearly showed that specialised farms were more competitive than non-specialised farms. Such advantage was particularly obvious in the periods of low fossil fuels prices when it was cheaper to use mineral fertilisers than arrange for transport of cattle manure. Later on, the increase of fossil fuel prices reversed the situation and significantly improved the competitiveness of non-specialised agricultural holdings with combined plant and animal production. Diversification of agriculture is also favourable in terms of food security - agricultural holdings engaged in diverse activities are less prone to disturbances on the world markets.

The environmental and economic objectives are most difficult to coordinate in ruminant production on grassland. Given the high concentration of protein in grassland forages, ruminants excrete a lot of nitrogen which consequently increases the emissions of nitrous oxide. The large quantities of excreted nitrogen can be avoided with cereal supplementation. This is, however, less economical, particularly if cereal prices on the market are high. Given the poor digestibility, lower growth rate and lower milk yield, also methane emissions on grassland are higher. This issue should be devoted particular attention due to the large contribution of ruminants to GHG emissions. Possible solutions include breeding grass with high sugar content as well as increasing the extent of grazing in areas of traditionally indoor rearing systems.

Possible agricultural policy instruments to reduce GHG emissions

Experience in assuming the obligations under the Kyoto Protocol has shown that slow progress in reducing GHG emissions is due to fear of decreased economic competitiveness, slower economic growth, and lower material standard of the population. Such fear is unnecessary in agriculture, as the proposed solutions to reduce GHG emissions are mostly favourable also in economic terms. In order to reduce GHG emissions and improve competitiveness and food security, the following should be taken into account in drafting the agricultural policy:

- The measures of rural development programmes should be evaluated in terms of environmental efficiency, i.e. based on emissions per product unit. Due to the global nature of GHG emissions the measures aimed at reducing the volume of agricultural production do not contribute to mitigating climate change. The evaluation of the above measures must be comprehensive and also include emissions in other sectors (production of mineral fertilisers, plant protection products, transport, etc.) and carbon dioxide sinks.
- Public agricultural advisory programmes should place more emphasis on issues that have been neglected in the period of agricultural products' surpluses, in particular training and consultation on efficient animal production which presents the largest potentials for reducing GHG emissions.
- Integrated farming - including plant and animal production - needs to be promoted. The agri-environmental measures have so far only determined the ceiling of livestock density on agricultural land. In order to better utilise animal manure and reduce the need for industrially fixed nitrogen, agri-environmental measures should also set the lower limit to livestock density on farm and define the lowest possible quantities of animal manure that farms without livestock should take over from animal production farms.
- The public needs to be informed of GHG emissions released from the various agricultural practices. The negative connotation of economically efficient animal production should be eliminated, as it is favourable in terms of GHG emissions.

Conclusion

Generally speaking, the measures to reduce greenhouse gas emissions contribute to greater competitiveness of agriculture and greater food security, as lower emissions of methane and nitrous oxide also mean energy and nitrogen saving. In reducing greenhouse gas emissions, improving the competitiveness and providing food security, the production function of a multifunctional European agriculture should not be ignored.