How to prevent and address farming emissions?
National workshop, Hungary

The aim of the workshop is to discuss with stakeholder groups involved in agricultural emissions about how to overcome barriers to reduce agricultural GHG emissions, what is needed to effectively mitigate emissions. Furthermore, what should be done if the measure is in conflict with other policy objectives eg. animal welfare or biodiversity. As a basis for discussion, all the participants and speakers will receive the facts and sub-summaries prepared by the European Environment Agency (EEB) coordinating the EUKI project and the CE Delft professional institute in the 10 relevant sub-themes.

Date: 13 June 2018, 10:00-15:15
Venue: FUGA Centre, Petőfi Sandor str. 5., 1052 Budapest, Hungary
Pre-registration is required, latest by 10 June here:
https://goo.gl/forms/pceoOZAkJ5nazLvK2

PROGRAMME

9:30 – 10:00  Registration, coffee-tea

Morning: setting the scene – where are we and where do we need to be?

10:00 - 10:15  Welcome, introduction to the “farming and climate” EUKI project and its national workshop

*Monika Kotulak CEEweb, Alexa Botár MTVSZ*

10:10 - 10:35  Farming/agricultural emissions in Hungary

*Peter Kajner, expert, National Adaptation Centre, Mining and Geological Survey of Hungary*

10:35 - 11:00  Hungarian legislation and policy measures to tackle agricultural emissions

*Dr. Judit Berényi Üveges, agri-environmental referent, Ministry of Agriculture*

11:00 - 11:45  Opportunities, good practices first hand to reduce greenhouse gas emissions from agriculture

*dr. Ivan Gyulai Iván director, Ecological Institute: Learnings from deep mulch and no-till techniques as good practices and other opportunities, challenges*

*dr. Peter Roszlik Péter, Vice President of Hungarian Bioculture Assoc: Mitigation tools of ecological organic farming*
11:45 - 12:15 Q&A for all 4 speakers

12:15 - 12:50 Lunch, coffee-tea

Afternoon: What and where are the opportunities in CAP to address GHG emissions from agriculture?

12:50 - 13:35 Parallel group discussions, Round 1 (facilitators: Alexa Botár, Robert Fidrich, MTVSZ)

  - Group 1: Manure storage management; Anaerobic digestion of manure; Animal management
  - Group 2: Synthetic fertilizer management; Organic fertilizer management; Soil carbon conservation and sequestration

13:35 - 13:45 Short break

13:45 - 14:30 Parallel group discussions, Round 2 (facilitators: Alexa Botár, Robert Fidrich, MTVSZ)

  - Group 3: Land-based livestock farming, Switch in agricultural product
  - Group 4: Conversion to nature, Agroforestry

14:30 - 14:55 Facilitators feedback on groupwork results to plenary, Q&A

14:55 - 15:15 Summary and conclusions, follow-up and closing (Alexa Botár, MTVSZ)

Supported by:

Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

European Climate Initiative (EUKI)

based on a decision of the German Bundestag

This workshop is financially supported by the European Union but does not necessarily reflect its position or opinion.
The 4 presentation slides are available in Hungarian on www.mtvsz.hu or upon request. Summary notes of the forum:

**Q&A session after presentations:**

Question whether in the framework of the project there will be prepared any recommendations to influence the new CAP? Answer: Not directly in the project but the coordinator EEB and partners BirdLife and Ceeweb have their recommendations, are in contact with DGs about it, also using the forum outputs. Regarding the question of biomass, biodiesel BirdLife is focusing on the alternative fuels and its impacts, shifts in impacts, sustainability aspects.

Challenge: emissions from production and transportation of the imported agricultural tools, products are not counted in, so the burdens, impacts, externalias of the product are partly hidden – the benefits of local compared to imported products also remain partly hidden. Virtual water needs should be also calculated into the products: p.eg. 15,000 litres of water needed for 1 kg beef. Less use of meat in diets should be more promoted. Traditional grazing methods are not encouraged enough by the Ministry.

Management of CO₂ emissions: problematic if straw is used to fuel a bioethanol factory as this straw should be used for improving the soil quality. But the farmer might get more money (feed.in tariff) than for sustainable land-based husbandry. What Ivan Gyulai presented is mostly taught in the agri university (GATE Gödöllő).

Peter Kajner speaker: HU complying with the agricultural emissions is mostly due to the decerased animal husbandry. If emissions / animal unit is used, HU is more lagging behind: in Austria it is 30% lower. Antibiotics: HU 190 units, Norway 0 units. Yes the emission reductions calculations and system are mostly end-of-pipe, virtual water and exported products fall between the cracks, the system change approach is missing.

Judit Berényi Üveges speaker: even if some emissions are reported under different categories, the emission reduction measures still have to be realized. The benefit of the current registry is that it avoids double-counting or hiatuses, it is a technical tool.

Farago, climate expert: Registry does not help in itself, the burdens/problems are shifted and falls in between policies. P:eg. Burning straw is good energetically but bad from agricultural and environmental aspects.

Quality agricultural product is not appreciated enough, consumers in HU mostly buy the cheapest and „nice” products of which nutrient contents are usually not optimal. Where is the role of the food security? Farmers and local decisionmakers: the aim is to maximize profit, income. The Ministry can influence it with some support/subsidy systems or regulations.

Deep mulch, no-till and organic challenges: bio label is expensive for many locals so they do not use chemicals but they do not register as bio. Local villagers are no self-sufficient anymore but buy the cheap TESCO-type stores. There is a promise from the Ministry to publish a call supporting organic farming, so the money is not shifted. The system is not expensive as the Organic Authority (Biokontroll) asks only 0,1% which does not even cover their admin costs. True, there is no HU study yet that compares the various farming methods per GHG emissions and other measurable economical units. Re: no-till deep mulch: self-controlling system that needs min. 4 years to set up; production is 30% higher than average intensive farming methods, waste is only 10%. It is mostly used for self-sufficiency and not to sell it on the market. Ecological farming: product is 10x of the costs but also requires more staff costs as the workload is high.
Inputs to the 10 factsheets:

1. Manure storage management

Even more important than covering storage: the Carbon-Nitrogen ratio of manure: ideally 30-35 carbon: 1 nitrogen ratio. With or without covering the manure, the nitrite/nitrate/ammonia leeching starts, emissions occur independent of whether the manure is mature or not. Therefore, N-rich slurry requires a lot of carbon input, for example straw, mixing is natural. It is basically important what kind of manure/fertilizer is involved. For example, slurry is only good in yield but bad in quality. Deep litter (mulch) is used for manure treatment to avoid loss of N. Fresh litter is rather composted. See also Krancz procedure. Barriers: storage cover is expensive, type of manure is important: manure, deep litter etc. is better than slurry – but farmers are not motivated to change or lack the cost-benefit info.

2. Anaerobic digestion of manure:

The oxigen in excessive NOx-rich manure (eg slurry) obstructs anaerobic processes. Ammonia preservation: p.eg. via Krancz procedure. Anaerobic fermentation for biogas production by which carbon is removed as methane. Slurry for manure: 1 m3 for slurry requires 300 kg of straw, otherwise excess N will be emitted / released from manure (problems: N leakage, groundwater hazards) and the missing C will be taken from the soil by the plant (C-balance of soil decreases). Challenges for anaerobic fermentation of manure: high human labor; straw is scarce as it is usually burnt in power plants or used for the production of alcohol, so these are transported and not used locally. Biogas could/should be used locally but it is rarely the case.

3. Animal health management:

Switching from intensive to -extensive, non-large-scale husbandry: meat need could be met. Food quality, conscious consumption: does not spread by itself, needs nutrient labeling and info campaigns. Who decides what technology to apply: community regulations (local government, state); data collection and support/subsidy systems need to be improved. See also Meat Atlas. Hungary uses too many antibiotics, an eco-friendly agriculture, healthier environment requires fewer to none medicines. Incentives are needed for that. Emissions per animal are relatively high in Hungary, but we should also check the whole system emissions, so emissions of husbandry animals + pastures together.

4. Synthetic fertilizer management:

Fertilization can be aerobic, anaerobic, and facultative anaerobic. If the fertilizer contains too much N, digestion can become aerobic due to the oxygen content of the NOx from the fertilizer, so it stops the anaerobic fermentation. A free fertilizer counting program is needed to allow farmers to rethink and modify the nutritional management plan. Challenge: these calculators are only partially funded by public funds, so farmers need to pay for it. Mostly larger farmers can afford it but not smaller ones. Sewage sludge problem is getting worse. The chemical fertilization may delay systemic change while not an external input (fertilizer, petroleum based) would be needed at all if we do not remove all the C, nitrogen from the local agri system, but recycle the product/food waste p.eg.

5. Organic fertilizer management (different application techniques):

The key is to promote systemic approach, natural cycles, C and N cycles. Conventional fertilizer treatment: Krancz's anaerobic method: no mechanical engineering is needed. 1 m3
of slurry and 300 kg of straw. See also Iván Gyulai’s deep-mulch system. Deep mulch is used for manure treatment to avoid loss of N. Fresh litter (mulch) is rather composted. Sewage sludge, compost from the waste depot - unsafe, input / output should be better regulated to avoid toxicity etc. Barriers also: bureaucratic background, biomass-focused farming, nutrition management plan etc. is not thinking in cycles. Incentives are needed to modify such plans.

6. Soil carbon conservation and sequestration:

By reducing soil disturbance&rotation, maintaining soil cover and leaving crop residues on the surface: all possible, see deep mulch and no-till techniques presented by Ivan Gyulai, some good examples in Hungary. Challenge: min. 80% huge lands in Hungary, mainly grain and oil crops. Unfortunately, land-based direct payments encourage this land structure and also the replacement of farming machines. Organic farming changes the soil structure, makes it loose, helps to make carbon sequestration, machines does not need to be replaced. Kökény’s method works on a large land parcel, but it is also a bit problematic method because it uses glyphosate for plant protection.

Barriers, challenges: Weed-related misconceptions and lack of collaboration among farmers, the support/subsidy system favoring large farmers for centuries has been difficult to change, expertise and change of mind is difficult. Needs: supporting farmers in the transition period, more thorough and wide-spread research, support systems eg. indirectly eg. market, tax incentives; more specific technology, consultancy, extensive targeted information dissemination. Providing methods, tools for farmers is even more important than money/support.

7. Agroforestry:

Agro-forestry provides many choices but the joint element is that ecosystem services are to be considered, respected. In agroforestry the biodiversity is important, it can also be used in animal husbandry, eg. woody pastures. There is concern over the excessive stiffness of the cultivation branches, farmers are afraid of risks, trees shading crops, farmers are in general satisfied and they do not want to develop further, their innovation activity has declined. Maybe because of the subsidy system?

The problems here are similar: profit vs. target orientation, factory vs. living system approach. For example, forestry lobby: if enough trees appear on the land then they consider it as a forest (especially if there is a forest plan, the farmer have almost no say, not even in crop switch) , and the foresters will not let any changes or switch in cultivation - except for energy plantation. Trees have the ability to absorb more pollution when planted in a line amongst grain crops. The NAIK is dealing with the subject in Hungary and Csaba Gyuricza, they have their own indicators and scorecards. How to win new farmers for agroforestry? Challenge: the climate of our country is currently changing from forest-steppes to steppes.

Needs: support/subsidy system, research, knowledge sharing, regulations. A CAP stakeholders/experts committee could be set up and their recommendations should be considered by decisionmakers. Agroforestry should get more support in the next CAP. The AKI is working on recommending CAP performance indicators. Performance and other indicators should be set up for every form of farming.
8. Switch in agricultural product (e.g. from livestock to legumes)

The national agri strategy and government program both promote the growth of large-scale livestock farming, see agri-barons. Justification: in Hungary in the 1990s animal husbandry has dropped very low. Needs: intensive instead of extensive livestock farming to promote agro-ecological methods eg. animal byproduct recovery to be utilized for crop production and vice versa. The transition to high protein crops is good, but the indicators must be examined: should be extensive.

9. Conversion to nature:

AFINET conference at the end of June in Hungary, good knowledge sharing platform. Needs: to develop needs&costs&benefits plans. The weak green authorities could support conversion, but there is no real incentive system, enough compensation for farmers was lacking even for Natura2000 lands, agro ecological systems support were cut back. Barriers, challenges: local governments, farming communities are financial subsidy-driven, their dependence is maintained by decision-makers. So even if farms would transform into agri-eco systems it is mainly for self-sufficiency/food sovereignty, but they mostly would not be able to produce&sell on the market, now they would not be able to ask for support/subsidy. Short supply chains are not sufficiently encouraged.

10. Land-based livestock farming:

Emissions should be calculated jointly with pasture emissions, taking into account total maintenance and cultivation. How can it become extensive and what can be done if the lease is not extended? Water scarcity hinders the expansion of grazing, as grass burns/disappears at the end of spring. While beef cattle can only be kept in pastures with high groundwater levels. There is also a financial support problem here (not enough, not targeted).

Summary of HU barriers:

Financial:

HU: In general, subsidies/support systems in Hungary (including current CAP) favors big farms and huge lands, intensive agriculture. Agri-ecological support (and Natura2000 compensation) was cut back. This resulted in farmers being subsidy-driven: if the given support stops they usually do not carry on with (low emission) agri-eco practices, they are afraid of taking risks, are not innovative so are reluctant to switch from intensive to extensive or switch in product or convert to nature.

The Young Farmers program was suspended, agri-eco or organic methods are not supported enough and in most cases they work for self-sufficiency but not to sell it on the market (lack of incentives, indirect subsidies like tax breaks or market tools etc.). Most forum participants agreed that those methods of the 10 factsheets that likely delay structural / systemic change, should not be directly subsidized /supported (as priority) or at least carefully considered (based on indicators etc.). Smaller farmers cannot afford expensive (emission reductive) investments but they can rely more on less investment-intensive agri-eco methods.
Knowledge:

HU: Knowledge is sporadically available about low emission agri-eco methods in universities and in agri stakeholder groups, there are some good practical Hungarian examples (Krancc method, Kokeny method), studies about them. But comparative research with cost-benefit-need analyses and indicators on the various methods are mostly missing and existing research are not widely known by farmers. Nutritional/fertilizer management planning softwares and other relevant tools are also mostly available to only big farmers but not the small ones who tend to be interested in agri-eco methods.

Regarding organic farming, agroforestry and deep mulch, there are respective knowledge sharing platforms like Biokontroll, AFINET and Ecological Institute’s deep mulch materials, regular trainings and videos). Most participants agreed that farmers and other agri stakeholders’ inputs to the CAP process (to the HU Ministry of Agriculture and to EU) should be more systematic, we need to make more recommendations and proper indicators.

Trust:

HU: Farmers and municipalities (who own land) in general are unwilling to take risks and are subsidy-driven, they follow the Hungarian government’s aim to increase intensive animal husbandry (agri-barons - mostly cattle, pigs and sheep) and the policy favouring grain crops + oil crop for biomass energy/biofuels. There is a stakeholder platform for agri-eco farmers (Biokontroll-registered organic farmers, AFINET – permaculture network etc.) where smaller farmers share their experiences. But the „general, big” farmers and the agri-eco farmers share less trust.

Other:

HU: Most low emission / agri-eco methods rather rely on the ecosystem services thus those needs less investment but more workload or tools, many participants agreed that farmers need to be made less subsidy-driven but become rather target-driven. C and N natural cycles are to be respected, cyncular economy should be better used instead of the systemic change-delaying, end-of pipe analytic solutions also listed in the factsheets. Proper indicators are needed for the workload as well.

27 June 2018, by FFE.