atf animal task force
A European Public-Private Partnership

#ClimateSmartLivestockFarming

Animal Task Force – 9th seminar

Wednesday 6th Nov. 2019 10:00 - 13:00

Seminar report

TOWARDS A CLIMATE SMART EUROPEAN LIVESTOCK FARMING

Animal Task Force 9th seminar

November 6th, 2019 – Brussels, Belgium

Table of contents

Background

International climate agreements, like COP21, have initiated a new era for climate policies. The livestock sector has potential to contributing to mitigating climate impact. In the EU, the sector accounts for 40% of global agricultural emissions or 7% of total emissions, producing about 2,400 Mt of CO_2 equivalent annually, but also methane and NO_2. Enteric emissions, emissions from manure and land use change (LUC) due to deforestation for feed production are among the principal contributors.

Thanks to significant efforts, the livestock sector in Europe is starting to contribute to mitigation of climate impacts (SDG 13). R&I, new technologies and relevant incentives to implementation of best practices may enable the livestock sector to come close to CO_2 neutrality for monogastrics and to achieve a 40% reduction for ruminants. Ways to proceed include e.g. implementing mitigation options and enhancing carbon storage under grasslands soils.

Climate targets should be integrated into a holistic approach to avoid trade-offs and foster a sustainable use of resources, preservation of biodiversity and improvement of soil quality. Future solutions need to optimise multiple factors through a systems approach, which takes into account the interplay between the system components.

Format of the 9th ATF Seminar

The seminar of the Animal Task Force aims to bring together animal science with practice of animal production and connect researchers, policy-makers, industry representatives and societal organisations. Every year, a different topic is addressed. The discussion starts at the ATF-EAAP annual meeting, which outcomes are then discussed with a large panel of European stakeholders during the ATF seminar, in Brussels.

Aim

The seminar aims to contribute to:

- **Engage a dialogue with various stakeholders;**
- **Support knowledge development and innovation, foster ownership by farmers and industries;**
- Address **how research and innovation can help the livestock sector;**
- **Provide input to European research and innovation agendas and to public policies** to secure Europe's role as a leading global provider of safe and healthy animal-derived products.

PROGRAMME

10:00 **Welcome & outcomes of the 7th ATF-EAAP special session**
Jean-Louis Peyraud, ATF President - @PeyraudJean

10:10 **Public policies: Expectations towards livestock farming**
Bas Eickhout, Member of European Parliament - @BasEickhout

10:25 **Demand driving food systems**
María Sánchez Mainar, FIL-IDF - @FIL_IDF

10:40 **Having another look on methane**
John Lynch, Oxford University - @OxfordPhysics

10:55 **The environmental footprint of animal foods: beware of simplifications**
Frédéric Leroy, BAMST - @fleroy1974

11:10 **C sequestration in soils, restoration of abandoned lands with pastures, legumes and animals**
Tiago Domingos, Terraprima

11:25 **IPCC report: expectations towards livestock farming**
Jean-François Soussana, INRA/FACCE JPI - @Inra_Intl @FACCEJPI

11:40 **Questions & answers**

PANEL DISCUSSION

12:00 **Panel Discussion**
moderated by Martin Scholten, WUR - @mcthscholten @WUR
with audience and:

- *Iris Bouwers, LTO - @IrisBouwers @LTONederland*
- *Angelantonio D'Amario, UECBV - @AngeloDAmario*
- *Dušan Chrenek, DG Clima - @EU_Commission @DusanChrenek*
- *Tassos Haniotis, DG Agri - @EU_Commission*
- *Anna Lóránt, IEEP - @IEEP_eu*

12:55 **Conclusion & closing**
Jean-Louis Peyraud, ATF President - @PeyraudJean

Welcome and Introduction

The ATF Chair Jean-Louis Peyraud opened the 9th ATF seminar. Over 140 participants from industry, research, policy making, civil society, farmers' organisations were counted.

The Animal Task Force (ATF) promotes a sustainable and competitive animal production in Europe. We are a public private partnership of experts from knowledge institutes and industry representative organisations from across Europe. We work on setting the European agenda for research and innovation in the animal domain. More information: www.animaltaskforce.eu @AnimalTaskFrc

Public policies: Expectations towards livestock farming

By Bas Eickhout, European Parliament - http://www.europarl.europa.eu/portal/en@BasEickhout

Bas Eickhout has been active as Parliament member for over 10 years within the Green party. Demands towards livestock is not only about climate. **The 2020 UN Biodiversity Conference planned in China creates a momentum for biodiversity.** We really need to take action and the EU will have to revise its biodiversity strategy. **Animal welfare** is also an increasing demand. Those demands need to be met by the sector. **Technical solutions will play a role but they are not enough.**

We need to learn from what has been going wrong for years, for example from the specific situation of Nitrogen in the Netherlands. The Dutch government has been trying to meet all demands from the industry, resulting in many years of intensive farming, with a large agricultural sector, 2nd exporter in the world. A nice achievement but at high environmental cost. The European agricultural model is based on similar trade-offs. For ten years, the Dutch government has been promising to fix all technologically… this strategy led us into the wall… the only one solution that is now on the table is halving livestock in the Netherlands. **There is future for livestock but not in the same numbers as today**. The CAP reform can help us in transition of livestock farming, but current proposals are not doing that. **What can livestock farming do about biodiversity? Can we build agricultural models in conjunction with forestry, nature?** We need binding targets. Let's grasp the momentum of the CAP reform, otherwise society will force to sudden measures. In a transition to sustainable agriculture, what should be in the **interest of farmers is fair pricing**. Currently, there is no fair pricing. Today, they are forced to go larger otherwise they don't earn enough money. The power and profits are in the hands of retailers. We should change that model. Our meat will get more expensive, but better prepare for societal demands.

Demand driving food systems, Climate change drivers for dairy production

By María Sánchez Mainar, FIL-IDF - https://www.fil-idf.org/ @FIL_IDF

María Sánchez Mainar has ten years' experience in the livestock sector, on research and project management positions. Within International Dairy Federation, she overviews the areas of sustainability, animal health and welfare, farming, environment, and science and technology. The IDF is the leading source of scientific and technical expertise for all stakeholders of the dairy chain. A recognized international authority in the development of science-based standards for the dairy sector, IDF has an important role to play in ensuring the right policies, standards, practices and regulations are in place to ensure the world's dairy products are safe and sustainable. **Environmental performance is a key driver of the livestock sector**. A shift in demand towards prevention and making producers responsible for the pollution they cause has led farmers, industry and regulators to seek limiting environmental liabilities through the improvement of environmental performance.

October 2016, the **Dairy sector has signed a commitment together with FAO on the contribution of the dairy sector to the achievement of key Sustainable Development Goals** such as ending poverty and hunger, and protecting the environment. FAO-LEAP guidelines are widely used, into a Global Livestock Environment Assessment Model. **Climate change is really driving the production for dairy sector and carbon farming schemes or standards have become a must, all the more with the new market on GHG.** National GHG mitigation programmes or voluntary schemes supported by measurement tools have been implemented, like the "Low carbon dairy farms" in France, "Carbon neutral Milk" in Brazil, or the "US Dairy Stewardship Commitment".

More information in the slideshow

Having another look at methane

By John Lynch, University of Oxford - http://www.ox.ac.uk/ @OxfordPhysics

John Lynch is an environmental scientist interested in the impacts of agricultural production. He has a PhD from the University of Warwick in agricultural ecology, and has held previous positions at the University of Nottingham and Teagasc exploring indicators of farm sustainability. His current work at the University of Oxford focuses on agricultural greenhouse gas emissions, particularly those associated with livestock production systems. He gives an overview of greenhouse gas (GHG) emissions from livestock, especially ruminants. For most foods, the biggest source of GHGs is on-farm agricultural emissions. For ruminants, direct methane emissions from the animals themselves dominate their CO_2-equivalent 'carbon footprints', and discussions around sustainability.

But our common use of **CO_2 equivalents in current reporting and policy provides a simplified picture**. It assumes that all GHG affect climate in the same way, and can overlook important differences between methane and CO_2**. Methane is very important: compared to CO_2, each molecule of methane in the atmosphere has a much greater warming impact**, and methane is the second largest contributor to anthropogenic global warming. We do need to take it seriously. But accurately valuing its impact is essential. Much of our **CO_2 emissions will stay in the atmosphere for centuries or more, while methane has an average lifetime of around a decade**. Thus, methane is a "flow pollutant", while CO_2 is a "stock pollutant". If we group all gases using a single weighting, we lose the dynamics. **Policy makers should be aware of these dynamics when setting targets.** Over the next century, we need to decrease emissions from all sources, but stopping fossil fuel use must be the priority: if we fail to do this, then the benefits of reducing emissions from other sectors, including agriculture, will appear relatively small. In conclusion, it is worth getting methane right, but it's only part of the story.

More information in the slideshow

The environmental footprint of animal foods: beware of simplifications

By Frédéric Leroy, BAMST - http://www.bamst.be/ @fleroy1974

Frédéric Leroy has studied Bio-engineering Sciences and obtained a PhD in Applied Biological Sciences. He holds a professorship in the field of food science and (bio)technology at the Vrije Universiteit Brussel. He is also president of the Belgian Association for Meat Science and Technology (BAMST), a non-profit association of researchers and academics.

According to some, animal foods should be eliminated, in agendas going much beyond 'cutting back'. This is supported by certain large industries and even the C40 cities initiative and some of the UN fractions now urge us to drastically restrict beef and dairy. What is proposed as alternatives often follows **reductionist approaches to food and nutrition**, supported by ingenious lifestyle marketing and

encompassing products that claim to be 'plant-based' where no plant can be seen. Although it is often stated that switching to veganism has a vast impact on one's GHG emissions, **effects are rather small** compared to other lifestyle factors. More worryingly, this may result in a greater number of **deficiencies in essential nutrients**. When looking at animal production on the macro level, contextuality and the **heterogeneity underpinning global numbers** need to be considered, such as large disparities in production efficiencies between countries and livestock systems. Besides a further exploration of the potential for carbon sequestration, one other important question is whether the higher GHG cost of some foods can be offset by their nutritional value. With respect to food security, global challenges are related to protein *quality* and deficiencies in various minerals and vitamins, most of which are highly available in animal foods (*e.g.*, calcium, zinc, iron, and vitamins A, D, and B12). Given the current state of malnutrition and poor metabolic health in both developed and developing countries, it is **irresponsible to condense intricate challenges to binary thinking based on a plant vs animal divide.** Animal husbandry *does* require optimization, as does plant agriculture, but is all-too often used as a symbol and scapegoat, allowing us to ignore more challenging and inconvenient interventions.

More information in the slideshow

C sequestration in soils, restoration of abandoned lands (soils and biodiversity) with pastures, legumes and animals

By Tiago Domingos, Terraprima - http://www.terraprima.pt/en

Tiago Domingos, M.Sc. in Engineering Physics (IST) and Ph.D. in Environmental Engineering (IST), is an associate professor in Environment and Energy at IST, University of Lisbon, and CEO of Terraprima. His main research areas are Ecological Economics and Modelling. Tiago Domingos introduces a **system that aims to restore lands** after millennia of inadequate management, losses of soil organic matter in areas where soil tillage has destroyed soil fertility, and increasing fire risk. It consists in **introducing sown pastures mixing up to 20 varieties of an adequate balance between legumes and grasses with well managed grazing**, making the most of a **symbiosis between trees and pasture** in silvopastoral conditions. Trees provide shadow to plants, allowing for a reduction in temperature and water loss. The system allows a very fast increase in soil organic matter and hence in carbon sequestration.

Developed in the 1970' in Portugal, the system was widely implemented through the Terraprima, Portuguese Carbon Fund project, which was considered the best climate solution in Europe in 2013, in the European Commission's "A World You Like with a Climate You Like" contest. **It is immediately applicable in any country with Mediterranean conditions.** In this model, **farmers are providing the service of carbon sequestration**. Obstacles to upscaling like inadequate fertilisation and animal husbandry, and jobs unattractiveness will be overcome through precision agriculture technologies enabling the monitoring and modelling of soils, plants and livestock, optimisation of management and integration in a technical software platform covering economic, social, and environmental issues.

More information in the slideshow

IPCC special report on climate change and land: Which options for livestock farming?

By Jean-François Soussana, INRA/FACCE JPI - http://institut.inra.fr/en @Inra_Intl @FACCEJPI

Dr. Jean-Francois Soussana is Vice-Chair of INRA for international affairs. Dr. Soussana is member of the Working Group II of IPCC and was Lead Author for the 3rd, 4th and 5th Assessment Reports and is now lead author for the Special Report on land and climate change.

The report **explores the potential global contribution of land management responses options** to mitigation, adaptation, combating desertification and land degradation, enhancing food security, biodiversity loss… **like agroforestry, improved livestock management, improved grazing land management** vs increased food productivity, reduced grassland conversion to cropland or bioenergy. **The first ones have either negligible effects or positive co-benefits** while the second ones have less positive or even negative trade-offs. **Combating desertification and land degradation has co-benefits for the climate** while large-scale deployment of mitigation options such as bioenergy and afforestation would have negative impacts on food security, biodiversity and land degradation.

The report also explores responses options at value chain level, like dietary changes reduced food waste, sustainable sourcing, improved food processing and retailing, improved energy use in food systems… **Diversification of diets** (more fruits, vegetables, protein crops, nuts) **and production systems** (integrated systems, diversified rotations, genetic diversity, resilient and low-emission livestock) **supports climate change adaptation and mitigation.** By 2050, food transitions towards healthy diets could release millions of km^2 of land with co-benefits for the environment and health and bring about an emission reduction of between 0.7 and 8.0 Gt CO_2eq. Late action in all sectors can reduce the potential of all these options in most parts of the world and limit their effectiveness, and could also have irreversible impacts on some ecosystems.

More information in the slideshow

PANEL DISCUSSION

The panel consisted out of five panellists:
- Iris Bouwers (IB), LTO
- Tassos Haniotis (TH), DG Agri
- Angelantonio D'Amario (ADA), UECBV
- Anna Lóránt (AL), IEEP
- Dušan Chrenek (DC), DG Clima

Martin Scholten (MS) moderated the discussion and opened the panel session with a slide –link.

MS: Listening to the opening address by Bas Eickhout, we hear about a tension about a role of livestock. Usually, there are two different opinions: 1/ If we want to stay into the planetary boundaries, we have to **stop or reduce livestock production**; 2/ **Our food system** is not optimum to stay in planetary boundaries, but we can change it.

Question: What are the essentials, priorities, conditions for the transition?

IB: Thanks for involving farmers. I'm an active farmer. **Younger farmers are open to a transition.** Measures proposed by Bas will not **reward farmers**, while they need perspective. I'm urging not only scientists but also policy makers to prevent a lock-in. **We need intergovernmental solutions that research can support.** If I was better paid, I would be happy to reduce my livestock numbers to take even better care of my animals.

TH: DG Agri is preparing proposal CAP and contributing to the Farm to fork strategy. The sector has entered the **Farming 4.0 digital era**. So far, we have solved economic problems and social problems at the cost of the environment. Today, Farming 4.0 could solve environmental and economic issues, not without social tensions. This is not specific to the farming sector, energy, transport, clothes are also concerned. Getting away with livestock will not save the planet, we need it on land. We have seen this example in Portugal that the **livestock sector and permanent pasture have increased the income of farmers and productivity, provided a better link of farmers with a broader economy, together with a positive impact on the environment**, **climate**

change and biodiversity. We need to allow **younger and more educated farmers** to get in to potentially generating more growth in rural areas. We need impact assessment to measure this.

AL: I would like to underline the importance of **involving farmers in transition and rewarding them for the delivery of public goods**. We need a transition not only on environmental issues; we also need a social, governance transition leading to a new contract between society and farmers.

ADA Human being has always leaved in a transitional phase. I think the priority is **on research and innovation to find ways to mitigate the impacts of the sector.** We need robust models and research and innovation investments to support the livestock sector. UECBV has been involved in H2020 projects aiming at mitigating waste and impacts and reduce waste and supports this kind of Research & Development also for the future.

DC: We need a transformation in all EU economic sectors including agriculture. Last year, we looked at all sectors to prepare a climate strategy. **Agriculture should contribute to achieve a climate neutral economy.** Of course this sector has a lower mitigation potential. We need to use carbon sinks and land management, the whole food systems plays an important role. We need to motivate farmers to take up sustainable business models. In our long term strategy, we have looked at **animal production where several possible options** like precision livestock farming, genetic selection, feed management, anaerobic digesters, etc. make it possible. The IPCC report also considers consumption. It shows that **slight dietary changes have huge influence on emissions**. **DG Clima is also looking on how to help farmers in providing rewards for ecosystem services.**

Public: There are assumption about the importance of microbes in our stomach, skin, soil, raising the importance of nutrition and food. **Farmers need to communicate with consumers in sustainable way to regenerate agriculture and think holistic**.

Public: We need **market mechanisms to bring skills sets to farmers' communities on the management of land.** Trees do not lobby.

Public: To improve the governance towards a climate smart agriculture, when will we have an **indication on the ecological footprint of our meal**?

Public: It's nice to hear that livestock is part of solutions. **How do you see the livestock sector in the Green Deal?**

Public: We need to go to systemic solutions, to have people looking things in an integrated way. This should **change the way we design our curricula for training and education in agriculture**, **biology,** etc. At present, those domains have different values.

Public: We want to reach economically viable farming with a **good use of modern technologies,** including plant and animal breeding. I already test my soil, looking into organic matter, CO_2. Extensification is not the answer.

IB: Taking the example of Netherlands. Farmers have started huge protests. The population of young farmers (5.6%) is not increasing. **Something has to change if we want to have people in the countryside.** Climate change, environmental issues, biodiversity… do not give a positive outlook, but an individual farmer does not have the tools to change. We would be happy to help the Commission. **We need new business models and holistic approaches**.

TH: We have been making proposals in policies, they have a long term return. Towards a greening policy, we analysed how beneficial it is to have trees at the margins of farms. Yet complexity in the wording of our measures have led farmers to cut down these trees… **we should think twice when drafting a policy proposal.**

Question: Within the European Green Deal – what do you want?

AL: We want a "**climate smart livestock" or rather a "sustainable livestock" sector.** We also have a biodiversity crisis. We don't want to be net zero and loose our biodiversity. **Livestock has potential to deliver many benefits to biodiversity. Interventions should happen both on the production and consumption side.** We need healthy and balanced diets. We need to use all tools available to drive this transition. Policies need to be ambitious, and follow a holistic approach. The Green Deal has potential to address all these issues.

DC: The **Green Deal has the ambition to contribute to a healthy planet and healthy people**. It will include measures regarding emissions, biodiversity, circular economy. We are working on a **Farm to Fork strategy.** The role of the **Common Agricultural Policy is crucial**. Green Deal will set up instruments to foster sustainable finance, use of structural funds, to support projects having positive effects on the planet, research infrastructures, science, modernisation, etc. **We have to help farmers**, countries should support them.

ADA: Will the **Green Deal be attractive for the industry**? At present, it is seen by many people as a Black box. Perhaps, we will not reinvent the wheel, but rather endorse and improve what is already existing or assessed. We should consider **micronutrients in manure, soil depletion, carbon sequestration, organic carbon (Copernicus Sentinel is a relevant tool to work on that) and to revise the Habitat Directive (for instance semi natural dry-grasslands, strictly dependent on livestock).**

JFS: I am coordinating a European research network on agricultural soil and carbon sequestration that conducted a large survey among farmers that showed **main barriers towards more carbon sequestration is dedicated advice to farmers**. We need to set up **funding for transition years.**

Public: The European Commission is preparing the Farm to Fork strategy. I would like to ask **ATF, as a research oriented forum, to support policy makers in holistic approaches.** As a user of research, I ask you to **make analysis of how criteria for sustainability could be aggregated to inform strategies**.

Public: I'm a **young farmer**, student at KU Leuven. **I see things in a more pessimistic way**. I see the number of sanitary regulations is ever increasing, makes our life difficult. The CAP reform budget is subject to major concerns. CETA and Mercosur agreements are in contradiction with European policies, exposing European production to overseas regulations, competing forces, different public opinion on animal welfare...

Question: How can we change concerns into trust in the future? What should be the role of science in the future of sustainable healthy food systems?

TH: **Science** is dedicated to the provision of truth with a margin of error and a certain level of confidence. We are aware **there has to be feedback loops to learn from what we do**. Technologies are not black and white, rather neutral. I think there are 3 important gaps: **transfer to farmers, basic knowledge, feedback mechanisms**. There is also a gap in the perception of science and in data sharing. Otherwise livestock has a central role to play.

AL: We need a **holistic approach**, but **this should not be used as an excuse to delay actions, many of which have the potential to bring new opportunities to farmers**. **Science has to be translated into policies**.

ADA: I'm an agricultural and environmental scientist. Science will help. **We have to be very careful on the nutritional aspects of livestock products** (cf. Frédéric Leroy's slides) on **not making simplistic a comparison between vegetable and animal proteins** , indeed comparing different product categories may lead to relevant distortions (not all the proteins and the vitamins are the same). In addition, regarding food systems, I see we need to work on manure management.

DC: Science is very important. **Politicians are listening more and more to scientists. I see a huge movement almost everywhere. I have an optimistic view. This is feasible to address climate change.**

IB: **Science is key to come to solutions in the sector, with the involvement of farmers.** I'm happy to hear that only economic viable farms can deliver public goods. I agree with Bas Eickhout: we should put our money where it matters.

Question: How many people are under 35 years old in the assembly?

Around 25.

Closing remarks

By Jean-Louis Peyraud, ATF President

He thanks the speakers and the audience for the very exciting session and gives a summary.

Emissions from the global food system are estimated around 21-37% of total anthropic GHG. **Food is only part of our carbon footprint** despite some very publicized messages. **Our way of living should change**, not only our food system and our diets, said Frédéric Leroy and DG representatives. **A moderate reduction of protein of animal protein will be beneficial.**

"Livestock has a future", said Bas Eickhout. Actually, a world without livestock is a nonsense. "**Livestock is part of the solution and we need ambition in policies**", said Anna Lóránt. But, livestock system should change after several decades of growth with no or low consideration for the health of our ecosystems and our climate. **Livestock can contribute to a more efficient agriculture providing ecosystems services. Its role should be to recycle into food systems non edible biomass** (over 70% agricultural biomass is not edible) **and provide manure to replace mineral fertilizers. Avenues for improvement are possible in many areas**, like in the dairy sector or thanks to pasture based solutions proposed by Terreprima.

Climate targets should be integrated into a holistic approach to avoid trade-off with food security, biodiversity... this goes even far beyond livestock farming (competition between grassland and bioenergy). **We will do nothing without farmers**, as show the recent events in the Netherlands, and **young farmers are open to transition**. I was impressed by Iris saying *"I will be happy with a far smaller herd taking more care of my animals"*. A consequence is that **we need to reinforce co-innovation processes between research, farmers and other sakeholders of food systems in EU projects**. Living lab could be a good tool. **"Technical solutions are not sufficient and new policies should be designed and applied",** claimed Bas Eickhout. Finally, everybody stressed that science is very important. We **need scientific evidence to inform policy making.** But do we have evidence? Yes to a certain extent. But John Lynch shows that knowledge is evolving so "**we need feedback between research and policy makers"**, like Tassos Haniotis mentioned. New and simplified policies are required to support a transition towards the implementation of renewed good practices (Green Deal, Farm to Fork, CAP), but we have also experienced that CAP is a steamer with a long history and difficult to manage.