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animal
task
force

A European Public-Private Partnership

12th ATF Seminar
17 November 2022

**Outcomes of the ATF-EAAP LFS
Symposium, September 5th, 2022:
Important messages**



Michael Lee, President of the EAAP
Commission on Livestock Farming
Systems



& Frank O'Mara, President of the
Animal Task Force



**Livestock emissions
and the COP26 targets**



Photo credit: Volker Hartmann/Getty Images

The Challenge set for the session

- Greenhouse gas (GHG) emissions are among the greatest challenges faced by livestock farming. At the same time, livestock has a strong mitigation potential, about 30% according to FAO.
- Several recent or almost complete important reports (IPCC, FAO, DG Agri...).
- The ATF & the EAAP Commission on Livestock Farming Systems would like to review the state of the art on GHG emissions from livestock, the role of methane, the different metrics to measure emissions and mitigation levers at various scales.

Annual Agriculture, Forestry and Other Land Use Emissions

- Agriculture makes a substantial contribution to total non-CO2 GHG emissions (47%)
- Methane the dominant agricultural gas
- Global Emissions from all non-LULUCF categories other than rice rising (Europe is a LULUCF sink)
- Agricultural non-CO2 emissions continue to rise
 - 1990 – 1999 - 5.2 ± 1.4
 - 2010 – 2019 - 6 ± 1.6

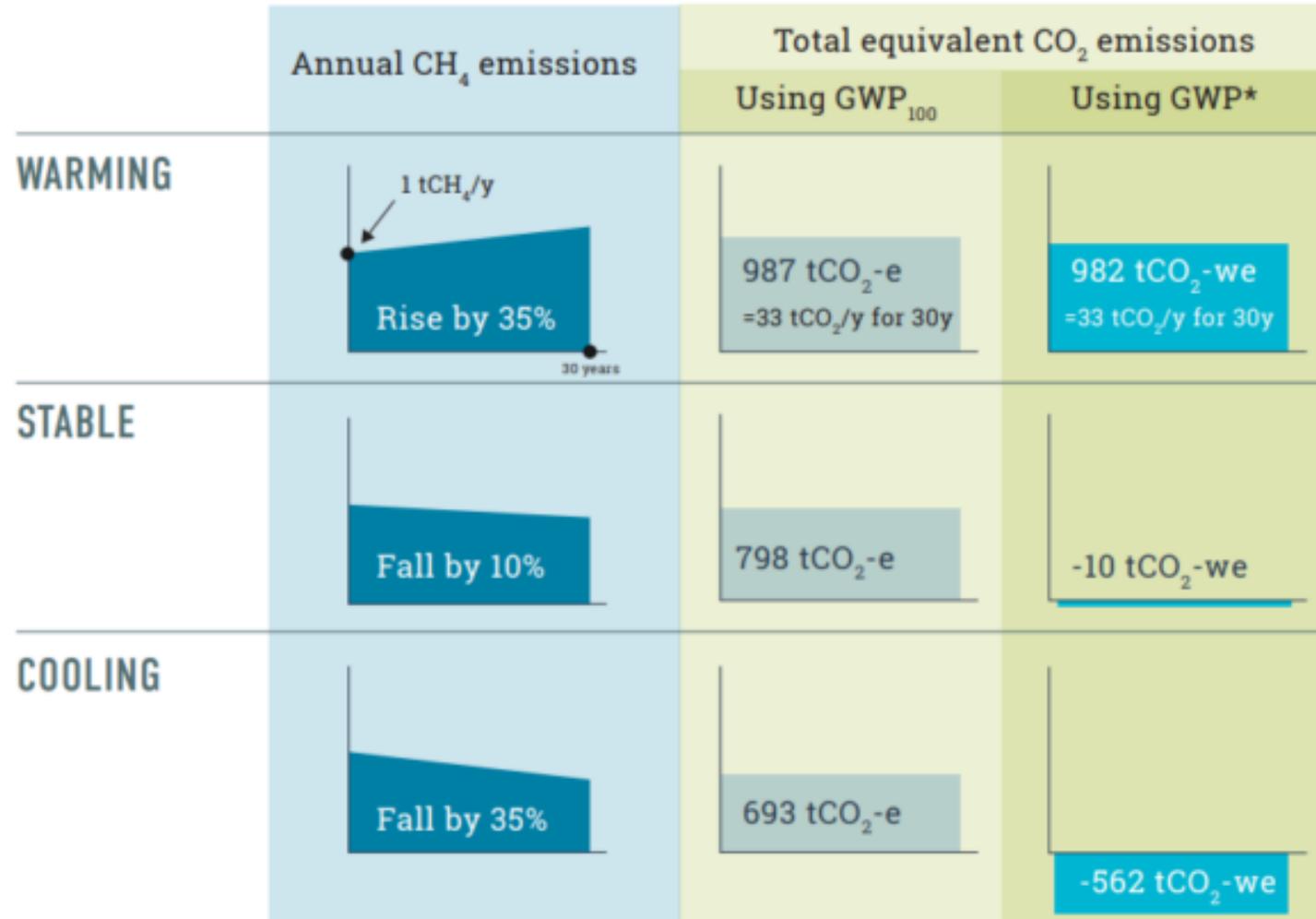
Intervention - challenges

- Biggest driver is population growth and therefore consumption (Africa and Asia)
- Efficiency improvements offset by increasing production
- Sustainable Intensification could reduce emissions by 1.7GtCO₂e/yr – but only works with a reduction in total animals
- Reduction in food loss and waste could reduce emissions by 2.1GtCO₂e/yr
- Is over consumption ‘food waste’? Shift to sustainable diets in the west and support sustainable livestock development in Africa

Methane and metrics

- 2nd largest contributor to global warming (contributing ca. 0.5°C of the 1.5°C)
- Increasing atmospheric concentration and warming contribution
- Need to balance emissions (737-576 TgCH₄/yr) and total sinks (625-556 TgCH₄/yr)
- Why are we measuring GHG?
 - Cost-effective emission reduction
 - Social cost of present-day emissions
 - Overall temperature change contributions
 - Physical requirements to meet a global temperature target

GWP* vs GWP100



The EU climate policy – towards climate neutrality

- The climate law enshrines into EU legislation climate-neutral by 2050 (55% reduction by 2030)
- To achieve climate neutrality and thereafter negative emissions the EU needs to increase carbon removal and establish sustainable carbon cycles
- Carbon farming principles (adaptation):
 - Afforestation and reforestation
 - Conservation tillage (soil protection)
 - Wetland restoration
 - Increase in permanent grassland
 - Agroforestry
 - Blue carbon – coastal wetlands, permaculture
- Tier 3 target for methane, establishing an international methane emissions observatory
- Copernicus Atmosphere Monitoring Services: satellites and ground measurements to monitor true methane levels and identify leaks.

Promising mitigation practices (EU)

- Breeding (herd health)
- Improving animal diets
- Valorising waste (anaerobic digestion)
- Manure management
- More sustainable diets (contraction of the sector)
- Enteric fermentation (methane suppression)



3-NOP

The value of breeding

	Available	Estimated cumulative £	Estimated cumulative GHGs
Improving carcass efficiency	NOW	↑22% profit	↓10% in CO ₂ eq
Improving breeding efficiency	NOW	↑35% profit	↓18% in CO ₂ eq
Improving feed efficiency	SOON	↑40% profit	↓26% in CO ₂ eq
Genomic informed improvement	NOW (for some breeds)	~↑50% profit	~↓35% in CO ₂ eq
Integrating new plant varieties	Some development needed	~↑55% profit ?	~↓40% in CO ₂ eq ??
Integrating rumen bug genetic info	Some science still needed	~↑55% profit ?	~↓50% in CO ₂ eq ??

Feed supplements



Progressing towards authorisation as zootechnical feed additive (for dairy)
Positive EFSA opinion 19Nov21

Initially, dairy cow only

Being explored as a method approved in a voluntary carbon trading scheme

	Intellectual property	Sufficient data	Regulatory pathway	Supply chain to farm	Supply chain to animal	Means of verification	Market acceptance	Incentive
Bovaer (3-NOP)	Green	Green	Light Green	Yellow	Yellow	Yellow	Yellow	Yellow
Mootral (garlic)	Green	Yellow	Green	Yellow	Yellow	Yellow	Yellow	Yellow
Agolin Ruminant (plant extracts)	Green	Yellow	Light Orange	Green	Green	Yellow	Green	Yellow
SilvAir (nitrate)	Green	Green	Green	Yellow	Yellow	Yellow	Yellow	Yellow
Asparagopsis seaweed	Green	Yellow	Green	Red	Red	Yellow	Green	Yellow

Active ingredients are Feed Materials

Not available in commercial quantities

More acceptable than 'synthetic' products?

In NL, will be an approved technology within the ANCA nutrient management system

Progressing towards authorisation as zootechnical feed additive (for dairy)

Simplistic personal opinion
Many shades of grey

Net Zero & Livestock: How farmers can reduce emissions

An independent summary of currently known science & evidence

- **Outline key GHG mitigations**

- For the five main livestock types in the UK

- **Assess Strategies**

- Cost
- Relative impact (& certainty)
- Ease of implementation
- State of readiness
- Other impacts

- **Model their impact using different approaches**

- Life Cycle Analysis tools i.e. Carbon Calculators on case study farms
- The national inventory (UK GHG Emission Inventory)

