Updates on Agricultural Emission Estimation (AgrEE) tool

Manjola Banja, Monica Crippa, Federico Pagani, Enrico Pisoni

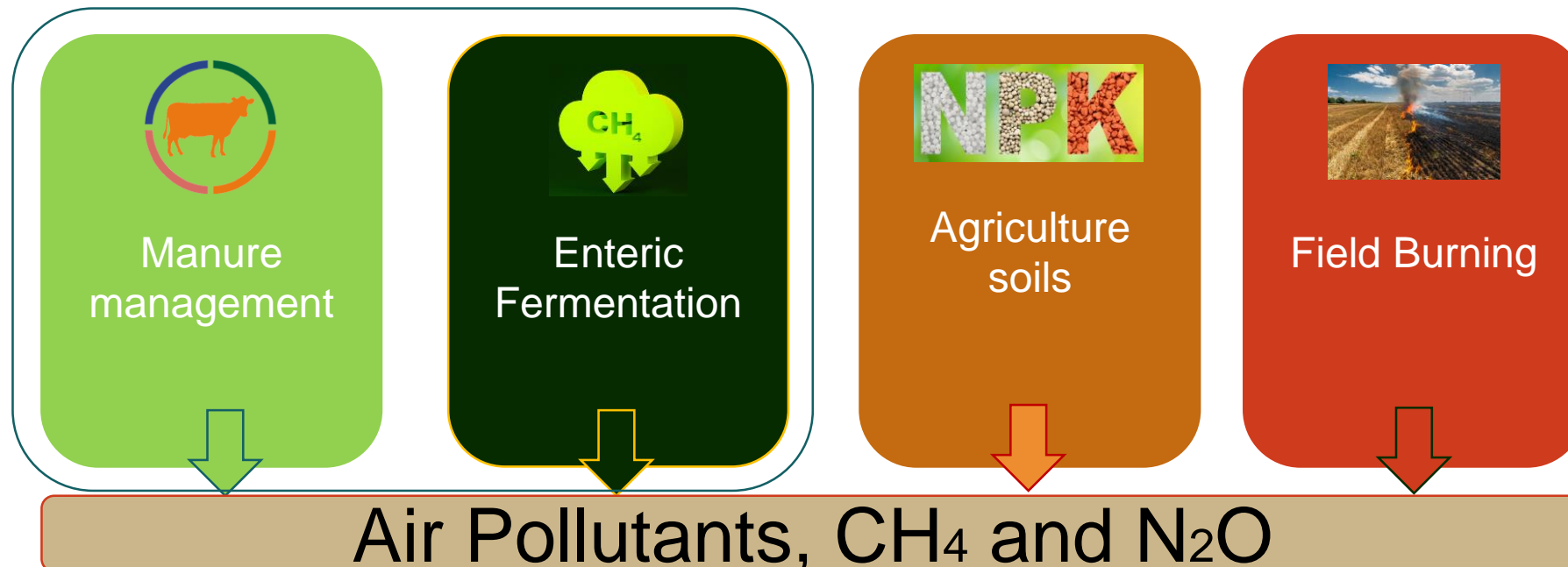Clean Air and Climate Unit, Joint Research Centre, Ispra, Italy

UNECE Task Force on Emission Inventories and Projections (TFEIP)

Agriculture Expert Panel, 18 April 2023

European Commission

Outline

- AgrEE tool – short overview

- AgrEE tool – registered users

- AgrEE tool - abatement measures for ammonia

- AgrEE tool – planned work

European Commission

AgrEE tool – short overview

- A user-friendly web tool, part of the EU methodological support to MS to improve reporting of air pollutant and GHG emissions from agricultural sector

- Ensuring policy coherence

- Based on EMEP/EEA Guidebook 2019, IPCC Guideline 2006 and 2019 Refinement with Tier 2 as the main method

- AgrEE tool testing phase was performed in June 2021 – MS feedback received

- Final version of AgrEE tool was launched by the end of February 2022

Manure management

Enteric Fermentation

Agriculture soils

Field Burning

Air Pollutants, CH_4 and N_2O

European Commission

AgrEE tool – short overview (2)

- Enable extracting results conform the CLRTAP Annex I template
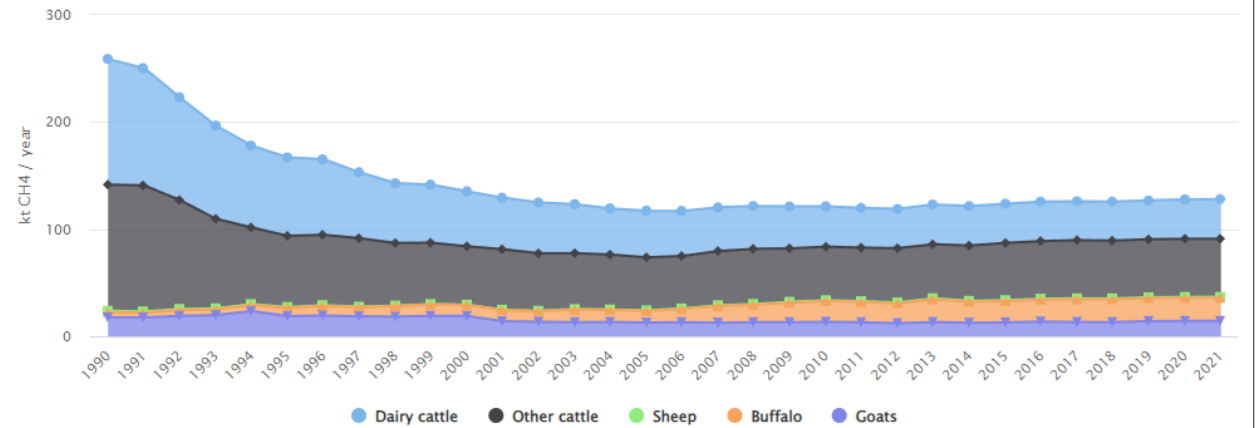- Facilitate trend analysis, result comparison, relative contributions (by categories/sectors)

ANNEX 1: National sector emissions: Main pollutants, particulate matter, heavy metals and persistent organic pollutants

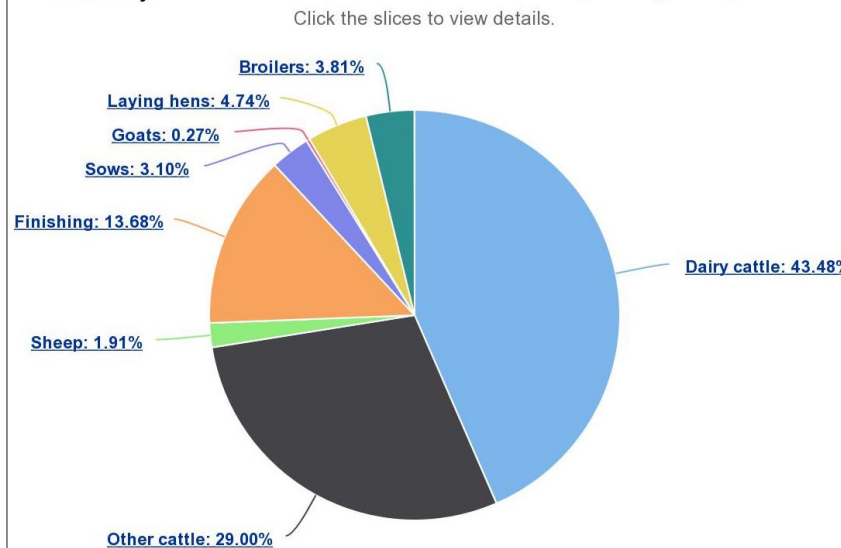| NFR			
COUNTRY:	XX	(as ISO2 code)	
DATE:	DD.MM.YYYY	(as DD.MM.YYYY)	
YEAR:	XXXX	(as YYYY, year of emissions and activity data)	
Version:	v1.0	(as v1.0 for the initial submission)	

XX: DD.MM.YYYY: XXXX	NFR sectors to be reported

NFR Aggregation for Gridding and LPS (GNFR)	NFR Code	Long name
K_AgriLivestock	3B1a	Manure management - Dairy cattle
K_AgriLivestock	3B1b	Manure management - Non-dairy cattle
K_AgriLivestock	3B2	Manure management - Sheep
K_AgriLivestock	3B3	Manure management - Swine
K_AgriLivestock	3B4a	Manure management - Buffalo
K_AgriLivestock	3B4d	Manure management - Goats
K_AgriLivestock	3B4e	Manure management - Horses
K_AgriLivestock	3B4f	Manure management - Mules and asses
K_AgriLivestock	3B4gi	Manure management - Laying hens
K_AgriLivestock	3B4gii	Manure management - Broilers
K_AgriLivestock	3B4giii	Manure management - Turkeys
K_AgriLivestock	3B4giv	Manure management - Other poultry
K_AgriLivestock	3B4h	Manure management - Other animals (please specify in the
L_AgriOther	3Da1	Inorganic N-fertilizers (includes also urea application)
L_AgriOther	3Da2a	Animal manure applied to soils
L_AgriOther	3Da2b	Sewage sludge applied to soils
L_AgriOther	3Da2c	Other organic fertilisers applied to soils (including compost)
L_AgriOther	3Da3	Urine and dung deposited by grazing animals

Country - Tier 2 - CH4
Livestock / Enteric Fermentation

kt CH4 / year

Dairy cattle • Other cattle • Sheep • Buffalo • Goats

Country - Tier 2 - NH3 emissions shares by categories, 2021
Click the slices to view details.

Broilers: 3.81%
Laying hens: 4.74%
Goats: 0.27%
Sows: 3.10%
Finishing: 13.68%
Sheep: 1.91%
Dairy cattle: 43.48%
Other cattle: 29.00%

European Commission

AgrEE tool – registered users

EU Member States
Belgium (3)
Austria (1)
Czechia (1)
Cyprus (1)
Denmark (2)
Finland (1)
France (1)
Croatia (1)
Italy (1)
Lithuania (1)
Malta (1)
Poland (1)
Portugal (2)
Romania (4)
Slovenia (1)

Non-EU
Norway (1)
Iceland (1)

Feedback on the use or needs are welcomed

- 24 inventory compiler/responsible representing 15 EU MS and 2 non-EU countries
- Researchers
- DG Environment
- DG Agriculture and Rural Development
- DG for Climate Action
- European Environment Agency
- Received requests from outside Europe

Mentioned in 2022 and 2023 IIRs under NECD reporting e.g Romania, Italy, Czechia

European Commission

AgrEE tool - abatement measures for ammonia

AgrEE tool – planned work

Project "**Support to the implementation of clean air legislation in Europe**" with DG Environment over period 2023-2025

- Regular maintenance and updates following EMEP/EEA Guidebook updates
  - NH3 emissions from crop residues Tier 1 and Tier 2 methodology and from fertilisers Tier 1 (based on drafts provided by TFEIP – under discussions)

    The JRC Emission Database for Global Atmospheric Research (EDGAR) experience of applying the IPCC methodology to estimate emissions from crop residues will be used

  - Introduction of 2019 Refinement IPCC guidelines new Eq.10.31(A), 10.32(A) and 10.33 (A, B, C, D, E) for nitrogen excretion rate

- Improvement and further development of the data visualisation and analysis section of the tool- e.g comparing and quantifying the effect of different feeding situations

AgrEE tool - planned work (2)
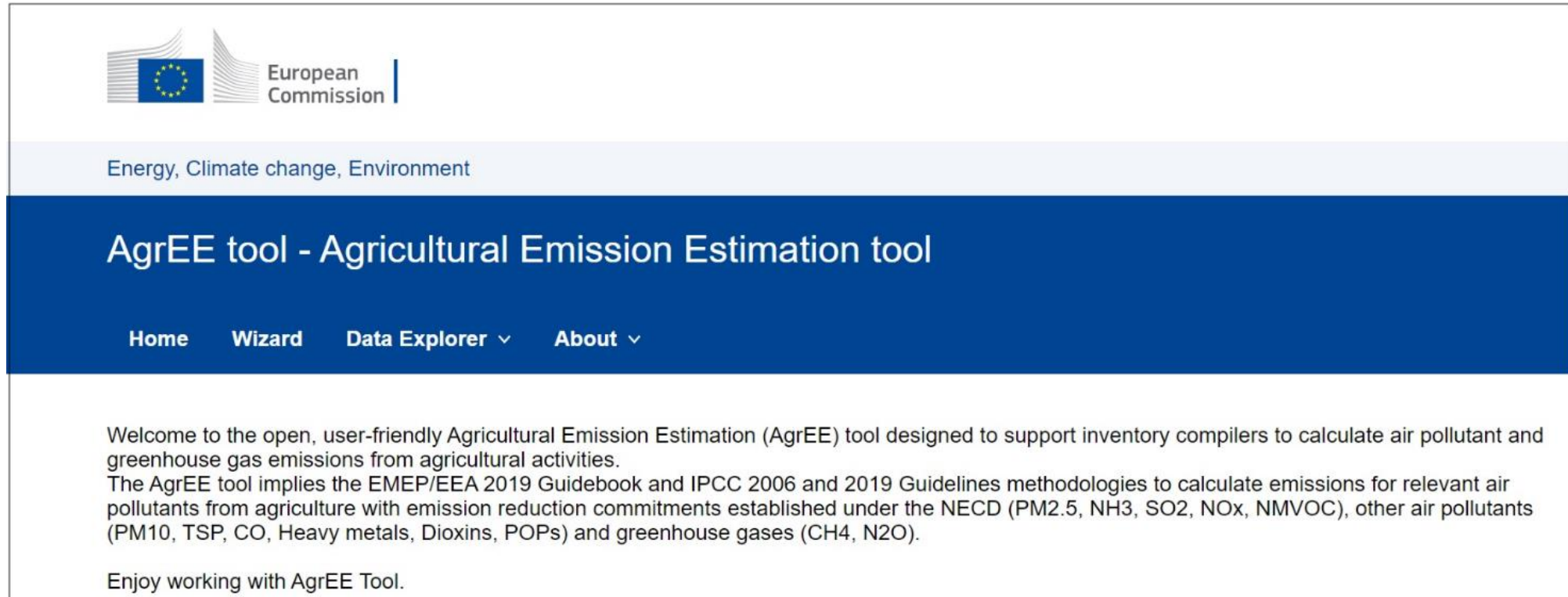
- Implementation of advanced approach for NH3 emissions with abatement measures

  - Activity data (abatement and reduction factor) can be inserted by the user in the tool

  - Calculation of abated ammonia emission factors (simple and combined) will be incorporated in the tool

  - Calculated average emission factors can be inserted in the tool

- Selection of measures will be based on IPCC guidelines, EMEP/EEA Guidebook, Informative Inventory Reports and available literature on ammonia emissions mitigation

ECE EB.AIR/149 -Guidance document on integrated sustainable nitrogen management

Slurry Injection (70-90% reduction)
Band speading & trailing (30 -35% reduction)
Rapid incorporation (up to 90% reduction)
Slurry dilution (~30% reduction for ratio 1:1)

European Commission

Questions?

https://edgar.jrc.ec.europa.eu/agree_tool/

Contact: JRC-AGREETOOL@ec.europa.eu

Keep in touch

EU Science Hub

joint-research-centre.ec.europa.eu

🐦 @EU_ScienceHub

f EU Science Hub – Joint Research Centre

in EU Science, Research and Innovation

▶ EU Science Hub

📷 @eu_science

European Commission

Thank you

European Commission