



# Improving national emission inventories for the agricultural sector in Europe

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# Background

Air pollutant emissions from agriculture in EU have decreased much less than in other sectors, due to limited legislation in this sector.

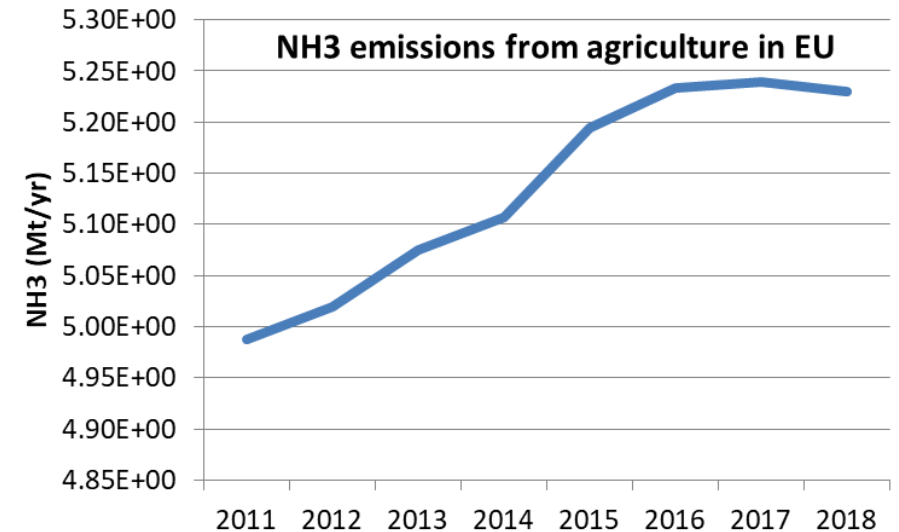
Emission reductions are also required for agriculture:

**-Industrial Emissions Directive:** e.g. for large pig and poultry farms, but not for cattle (which are the highest emitters for NH<sub>3</sub>)

**-National Emission reduction Commitments Directive** sets national reduction commitments for SO<sub>2</sub>, NO<sub>x</sub>, NMVOC, NH<sub>3</sub>, PM<sub>2.5</sub>



Reliable air pollutant emission inventories are required to compute emissions reductions to implement the NECD and to develop emissions projections and policies and measures under the National Air Pollution Control Programmes.



# How to improve agricultural emission estimates

- From the review of reported MS emission inventories: agricultural emissions are coarse and often based on a Tier 1 methodology.
- To improve agricultural emissions inventories reported under the NEC Directive: development of a tool to model emissions of air pollutants from agriculture for all EU MS and beyond



Project launched by DG ENV in collaboration with the Joint Research Centre (Ispra) for the time period 2020-2021.

**Objective:** providing more robust emissions under the NEC Directive, for compliance checking, as well as for the development of emissions projections and policies and measures under the National Air Pollution Control Programmes. This tool could already serve the next cycle of the related NEC reporting obligations.

# Development of a tool for agricultural emissions

- computing emission factors from all agricultural subsectors and for all relevant regulated pollutants under the NEC Directive (NO<sub>x</sub>, NMVOC, NH<sub>3</sub> and PM<sub>2.5</sub>),
- provide information on CH<sub>4</sub> co-emitted by the same sources,
- opportunity to gather information on activity data to further refine MS inventories.



+ Detailed information from agricultural practices etc. in various regions/MS + CAPRI model (Common Agricultural Policy Regionalised Impact)



Involvement and data sharing from MS to incorporate very local information on agricultural techniques and practices (for crops, cattle and manure management).

# Methodological overview

- **Manure management:** Tier 2 or Tier 3 approach (for N-containing compounds: N-flow tool + information on the different techniques of manure storage and manure/sewage application on soils). For NMVOC implementation of Tier 2 approach (feed intake data, fraction of housed animals, etc.)
- **Agricultural soils:**
  - crops cultivation: Tier 2 approach
  - use of inorganic fertilisers (NH<sub>3</sub>): Tier 2 approach considering climate regional characteristics, soil pH, etc.
  - use of animal waste on soils: Tier 2 approach
  - animals on pasture: Tier 2 or Tier 3 approach
- **Agricultural waste burning:** Tier 2 approach
- **Enteric fermentation:** Tier 2 approach (CH<sub>4</sub>)

**Parameters need to be collected at country level -> data sharing through TFEIP, EEA, etc.**

# Database and tool development

## Creation of a consistent database with:

- Activity data (FAO vs. reported data by MS),
- Agricultural practices and technologies for individual countries (based on EDGAR, MS, CAPRI) (e.g. livestock housing & storage type, manure application, etc.),
- country specific parameters to compute EFs (e.g. climate regional characteristics, feed intake data, etc.).

## EFs tool:

Online technical platform to compute emission factors (EFs) and activity data related to the different agricultural sub-sectors.

# Thank you



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