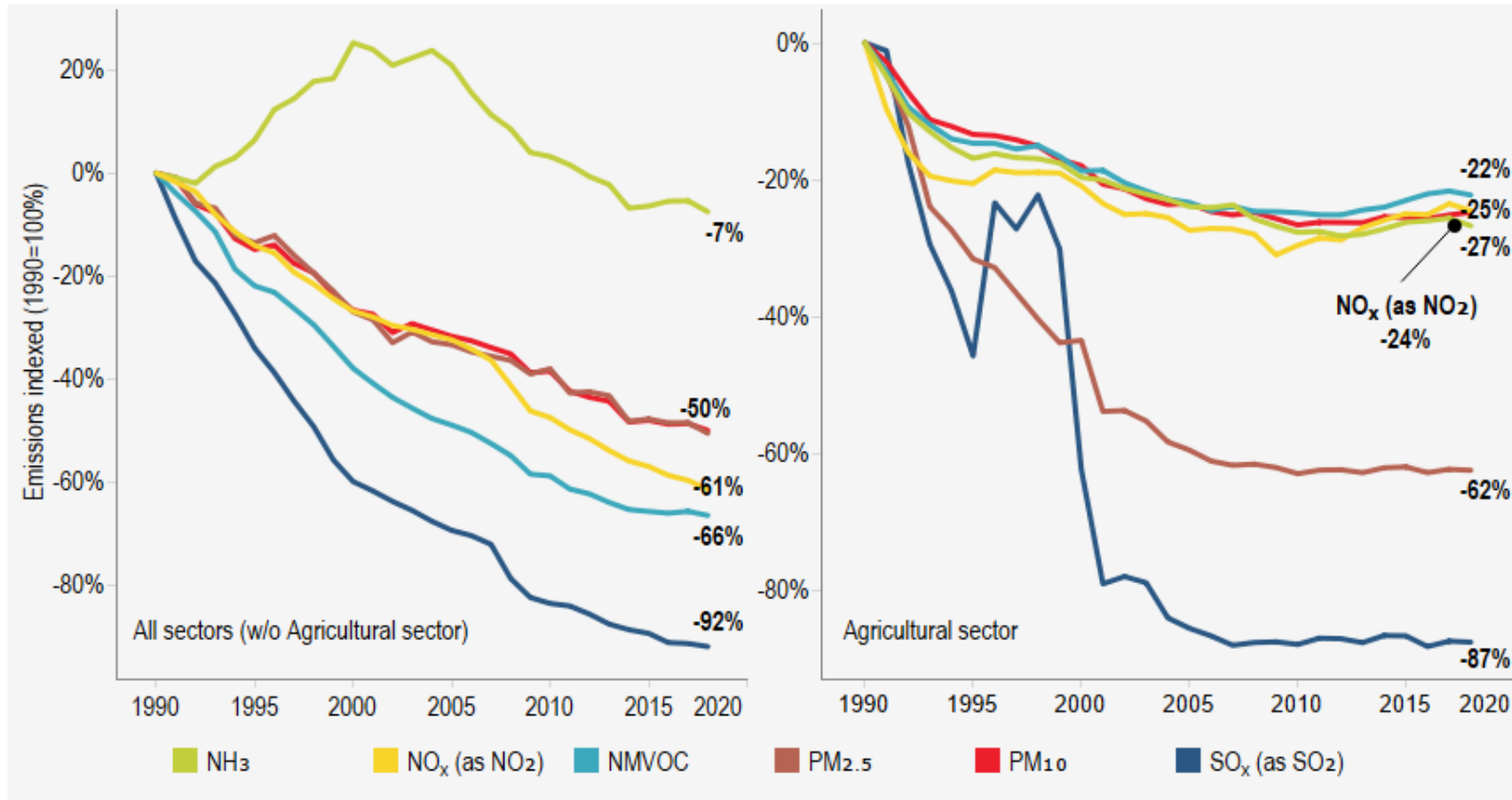# Insights on the Agricultural Emission Estimation (AgrEE) prototype tool

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Background

Air pollutant emissions from agriculture in EU have decreased much less than in other sectors.

Emission reductions are required for agriculture:
- **Industrial Emissions Directive**: e.g. for large pig and poultry farms, but not for cattle (which are the highest emitters for NH3)
- **National Emission reduction Commitments Directive** sets national reduction commitments for SO2, NOx, NMVOC, NH3, PM2.5

How to improve agricultural emission estimates

Project launched by DG ENV in collaboration with the Joint Research Centre (Ispra) for the time period 2020-2021 to "***Support the improvement of national emission inventories for the agricultural sector in Europe***"

Providing more robust emissions inventories under the National Emissions reduction Commitments Directive (NECD), for compliance checking, as well as for the development of emissions projections and policies and measures under the National Air Pollution Control Programmes.

Development of a tool for agricultural emissions inventories through the involvement and data sharing from MS to incorporate very local information on agricultural techniques and practices. The tool could already serve the next cycle of the related NECD reporting obligations.

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

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Region of interest: EU27+UK

Period covered: 1990-2018

Air pollutants: NH_3, NOx (as NO_2), NMVOC, PM10, PM2.5

Greenhouse gases: CH_4, N_2O

Enteric Fermentation

Manure Management

Agricultural Soils

Field burning of agricultural residues

Compilation of the emission factor and activity data database

Sources: EMEP/EEA Guidebooks (2013, 2016, 2019), IIRs 2020
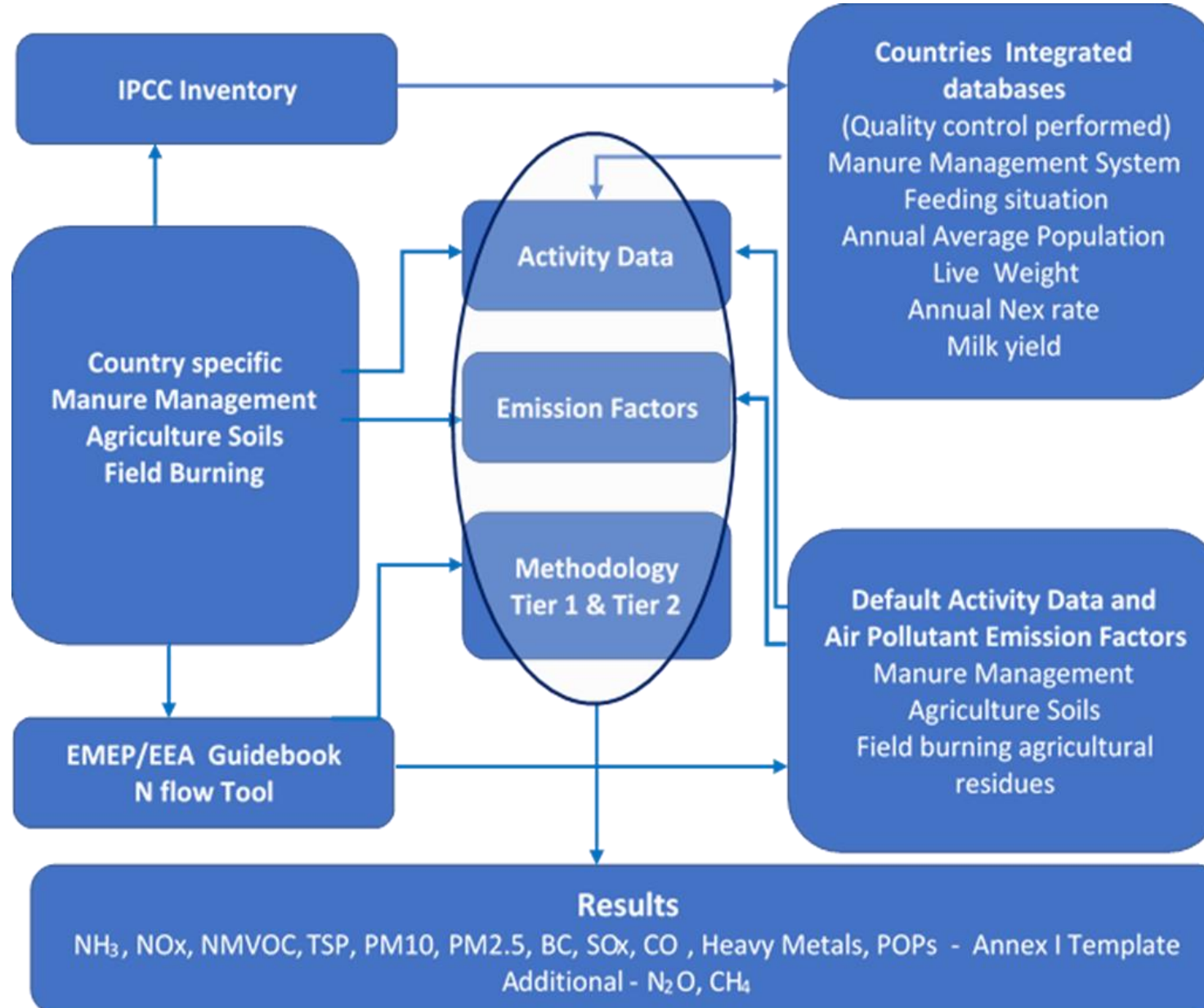Review and check by MS during period January – March 2021
Emission Factor Type: Default + Country Specific – Expanded after MS review
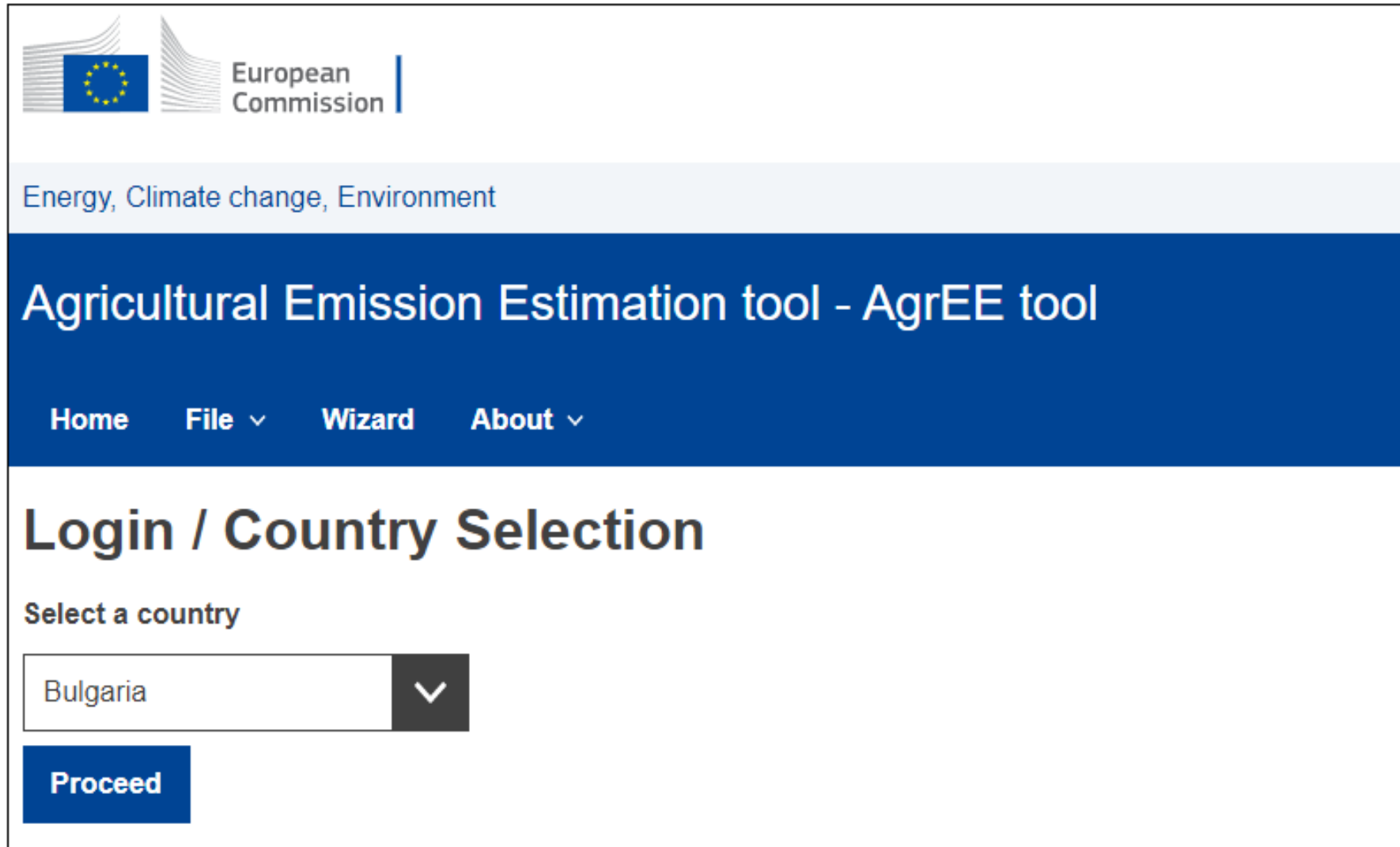Activity data: Expanded after MS review
Air pollutants: NH3, NOx, NMVOC, PM10, PM2.5
All agricultural subsectors and categories

A user-friendly tool to be used by inventory compilers

Prototype tool for emission computation (1)

Prototype tool for emission computation (2)

Prototype tool for emission computation (3)

Copy from previous year

Wizard
Bulgaria - NH3

Data Type	Description	System	Fuel	Unit	2012	2013 >	2014 >	2015 >	2016 >	2017 >	2018 >
Livestock / Dairy cattle / Dairy cattle (3B1a)											
AD	Number Livestock	All Types	All Types	head	297800	297920	301240	285770	273740	261690	243060
AD	AWMS	All Types	Slurry	percentage	0,0	0,0	0,0	0,0	0,0	0,0	0,0
AD	AWMS	All Types	Solid	percentage	100	100	100	100	100	100	100
AD	Housed Period	House	All Types	Days	302	302	302	316	316	316	316
EF	EF NH3	Grazing (3Da3)	Slurry	kg NH3/AAP/year	4,4	4,4	4,4	4,4	4,4	4,4	4,4
EF	EF NH3	Grazing (3Da3)	Solid	kg NH3/AAP/year	4,4	4,4	4,4	4,4	4,4	4,4	4,4
EF	EF NH3	House Storage Yard (3B)	Slurry	kg NH3/AAP/year	22	22	22	22	22	22	22
EF	EF NH3	House Storage Yard (3B)	Solid	kg NH3/AAP/year	16,1	16,1	16,1	16,1	16,1	16,1	16,1
EF	EF NH3	Manure Application (3Da2a)	Slurry	kg NH3/AAP/year	15,4	15,4	15,4	15,4	15,4	15,4	15,4
EF	EF NH3	Manure Application (3Da2a)	Solid	kg NH3/AAP/year	6	6	6	6	6	6	6

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Prototype tool for emission computation (4)

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

NFR 2019-1

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

ISO2: DD.MM.YYYY: YYYY		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 IIR)	
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	
L_AgriOther	3Dc	Farm-level agricultural operations including storage, handling and transport of agricultural products	
L_AgriOther	3De	Cultivated crops	
L_AgriOther	3F	Field burning of agricultural residues	
L_AgriOther	3I	Agriculture other (please specify in the IIR)	
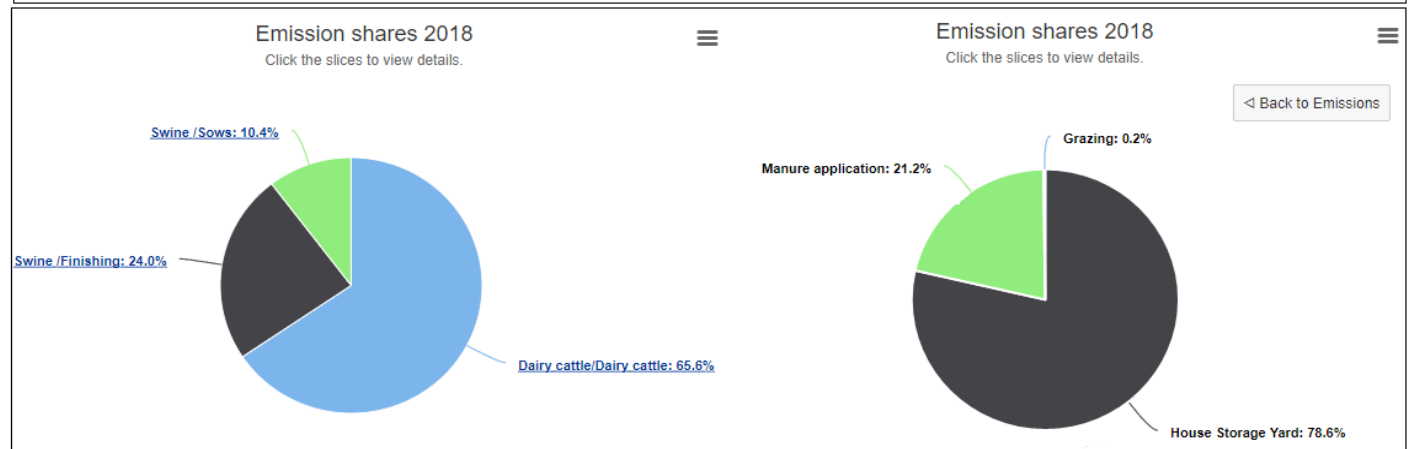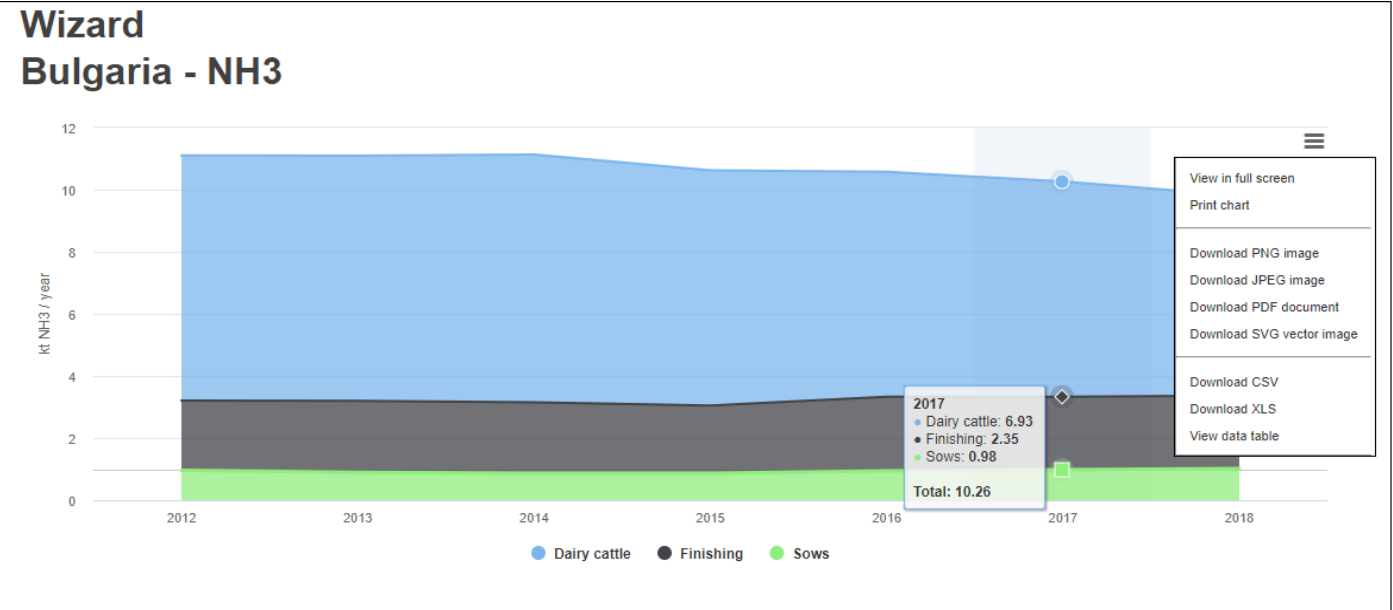
Main features and added value of AgrEE

- User-friendly, flexible, allowing data manipulation (e.g. AD, EFs),

- Ensures consistency of emission calculation for all MS in line with the EMEP/EEA Guidebook 2019. The default AD and EFs will be kept updated, which means less time consuming for the user/inventory compiler.

- Covers all categories of emissions in Manure Management, Agriculture Soils, Field Burning.

- Provides emissions for all relevant pollutants from agriculture regulated under the NECD (NOx, NMVOC, NH_3 and PM2.5), CH4 and N_2O for each MS.

- Trend analysis, compare results from different methods, EU overview, relative contributions, etc.

- Possibility for MS to move towards higher tiers for those emission categories and air pollutants that were so far calculated applying Tier 1 method

Main features and added value of AgrEE

- It will allow MS to report for emissions categories that they possibly do not yet cover,

- The information needed to apply Tier 2 methodology will be gathered for those MS that currently apply Tier 1 for all or several categories. In case some pieces of information are missing, assumptions/suggestions will be provided to other sources (models, literature, data from related countries).

- The tool will be fed also by the activity data and emission factors sourced from EDGAR database (e.g. Tier 2 emission factors for field burning of agriculture residues) and other sources/literature.

- The tool will enable Member States to extract their emissions and data as requested under the NECD reporting template.

- The tool can provide the possibility to take into account the effect of abatement measures for certain systems and categories

The way forward

- Tool implementation (both Tier 1 and Tier 2) – May 2021

- Preparation of needed input to run Tier 2 method – May 2021

For those MS that currently apply Tier 1 for all or several categories

- Tool testing, feedback collection and implementation – May - June 2021

Tool testing and validation will be done in collaboration with MS and DG ENV. Volunteers are welcome!

- Tool finalisation -The tool is aimed to be finalised by autumn 2021, so that Member States can use it for their NECD inventory reporting deadline of February 2022.

- The tool is totally optional. No obligation to use

Thank you

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