REPUBLIC OF ESTONIA
MINISTRY OF THE ENVIRONMENT

Ammonia emissions and measures for reduction in Estonia

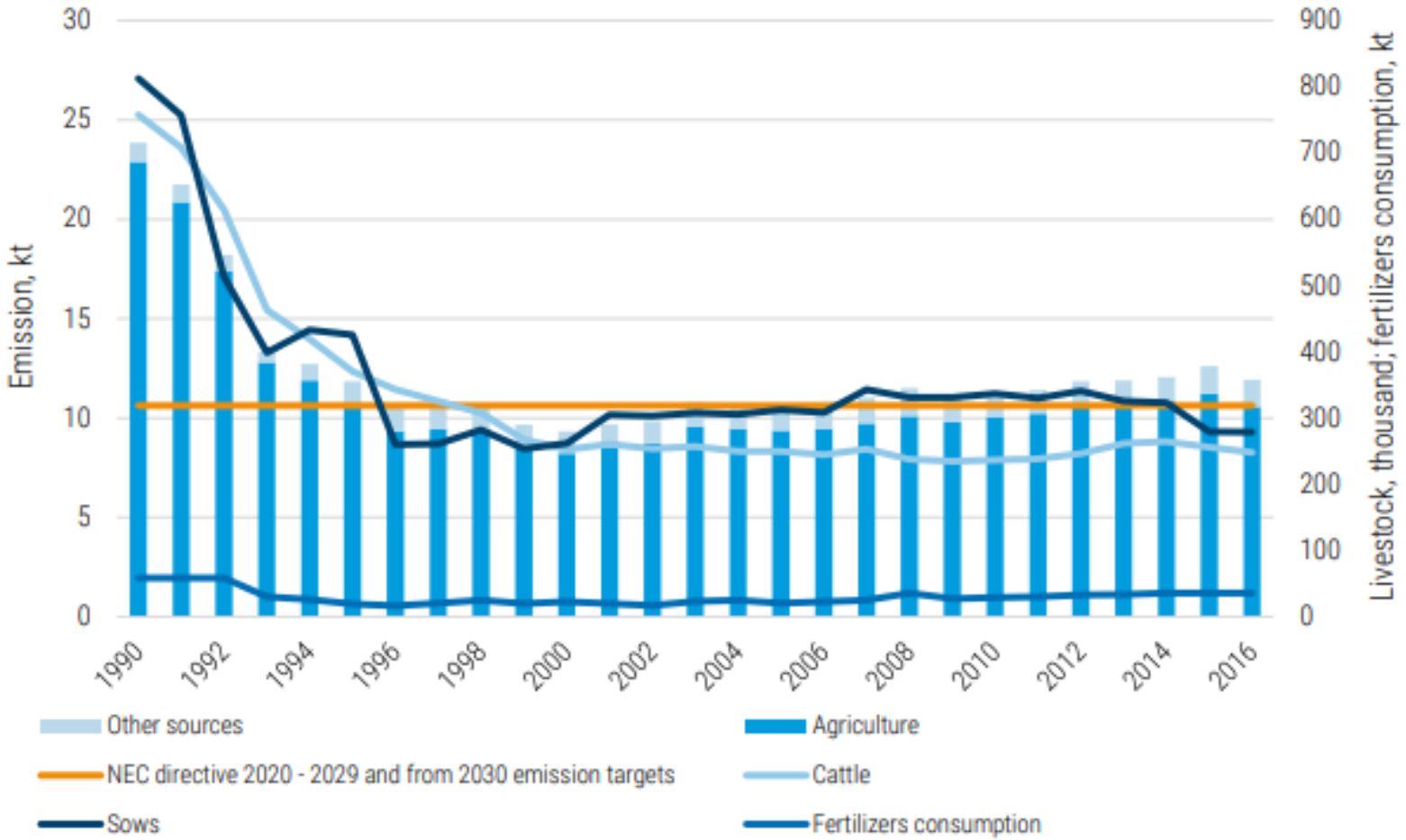
Riina Maruštšak
Ambient Air and Radiation Department / Senior Officer
Ministry of the Environment of Estonia

13 February 2019, Finland

Outline

- Estonian ammonia emissions
  - Study to improve the ammonia inventory and the results
- Agricultural legislation – ammonia reduction
- National Air Pollution Control Programme for 2020–2030 (NAPCP)
  - Estonian commitments
  - Measures for ammonia reduction

Estonian ammonia emissions

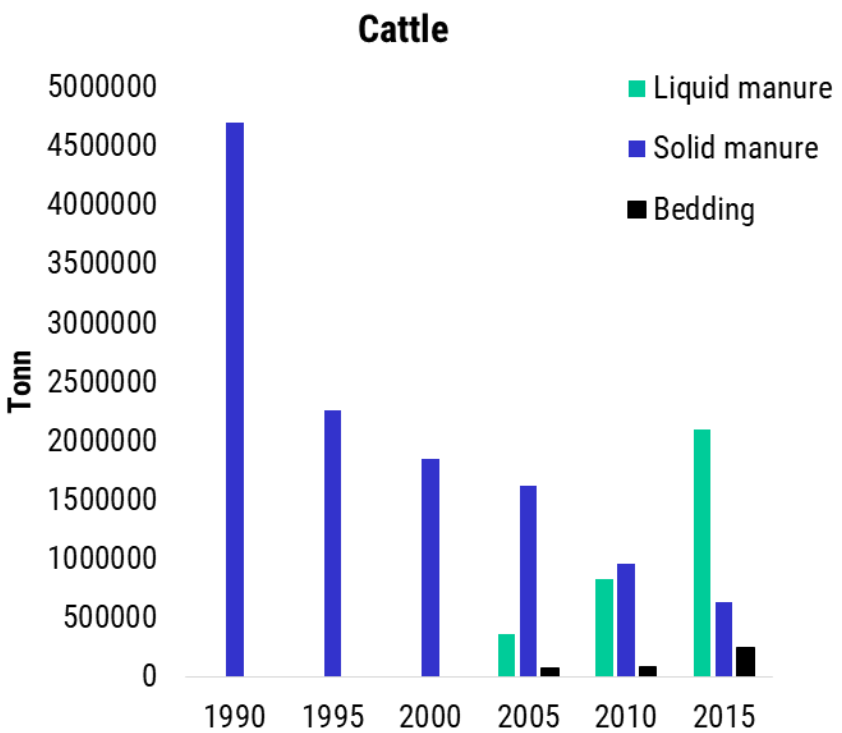


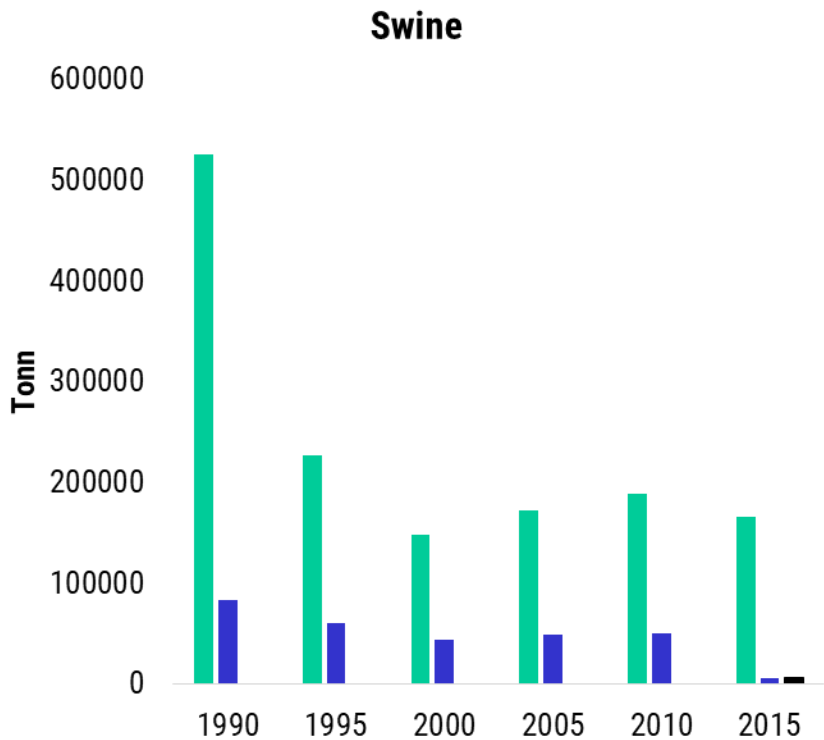
Source: Estonian Inventory Report 1990–2016

Study on technologies in livestock production (1990–2015)

- Information on implemented technologies in livestock production in period 1990–2015
  - Updated data on manure management usage for swine and cattle
  - Technological improvement of manure storage
  - Changes in manure spreading techniques
- Basis for the NAPCP and potential measures for ammonia reduction
- **Improve data in the ammonia inventory** – from Tier 2 to Tier 3 (cattle and swine)

Manure management for swine and cattle in 1990–2015





Results

	Total NH_3 emission (recalculation), kt	Total NH_3 emission (IIR 2018), kt
2005	9,4	9,4
2015	9,4	11,2
Difference	**0%**	**20%**

When it comes to choosing measures, it should be possible to reflect them in the inventory – assessment of the progress towards national reduction targets

Agricultural legislation (1)

- Water Act
  - Requirements for the storage and use of manure, silage and other fertilizers
- Industrial Emissions Act
  - BAT requirements, including national BAT for cattle
  - Environmental permits for large scale farms
- Ambient Air Act
  - Requirements regarding air emissions (calculation methods, application of environmental permits, yearly reporting etc.)
  - Environmental permits for medium scale farms

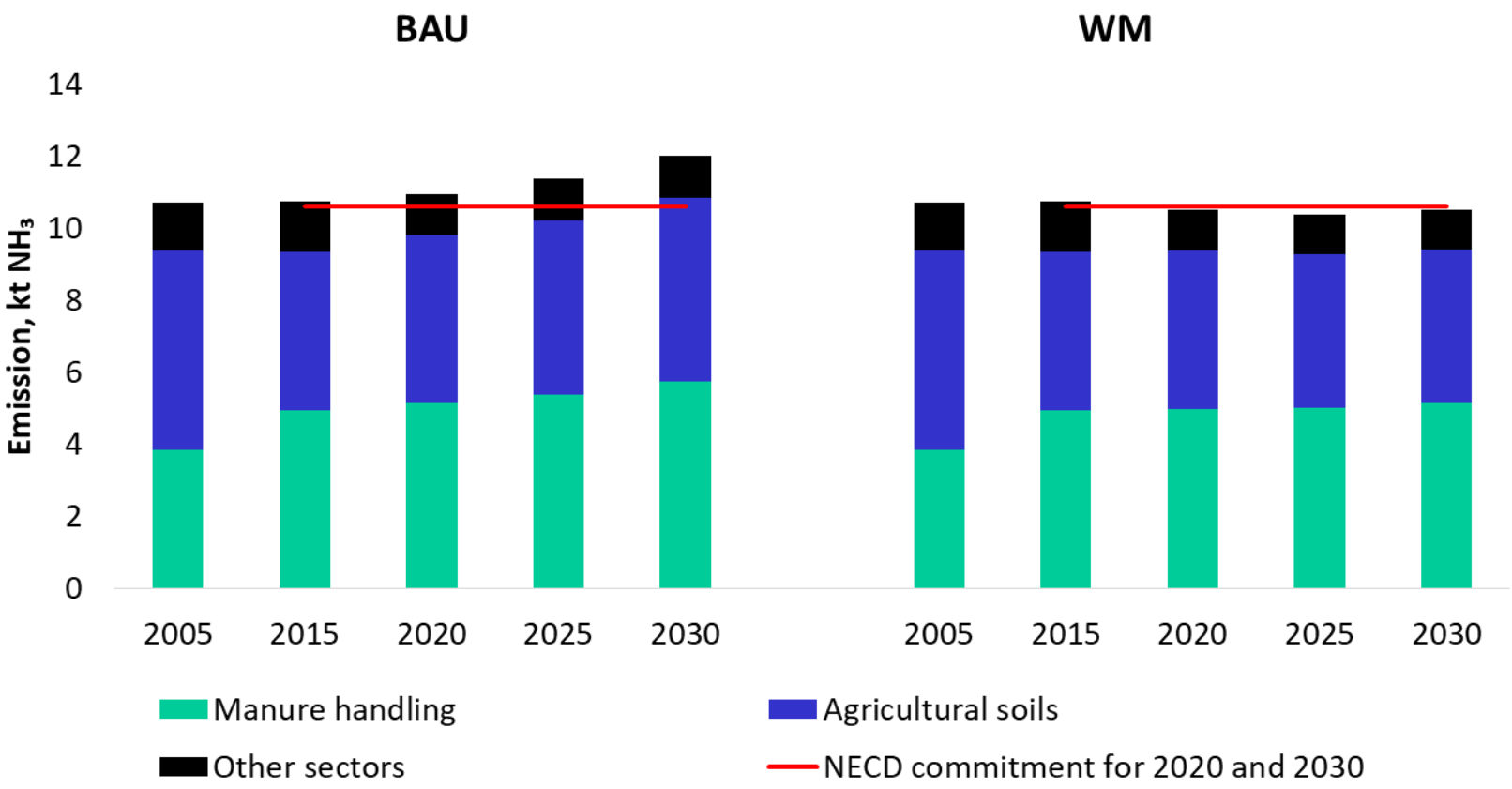
Agricultural legislation (2)

- Rural Development Plan 2014–2020
  - Subsidies for manure storages under measure 4.1

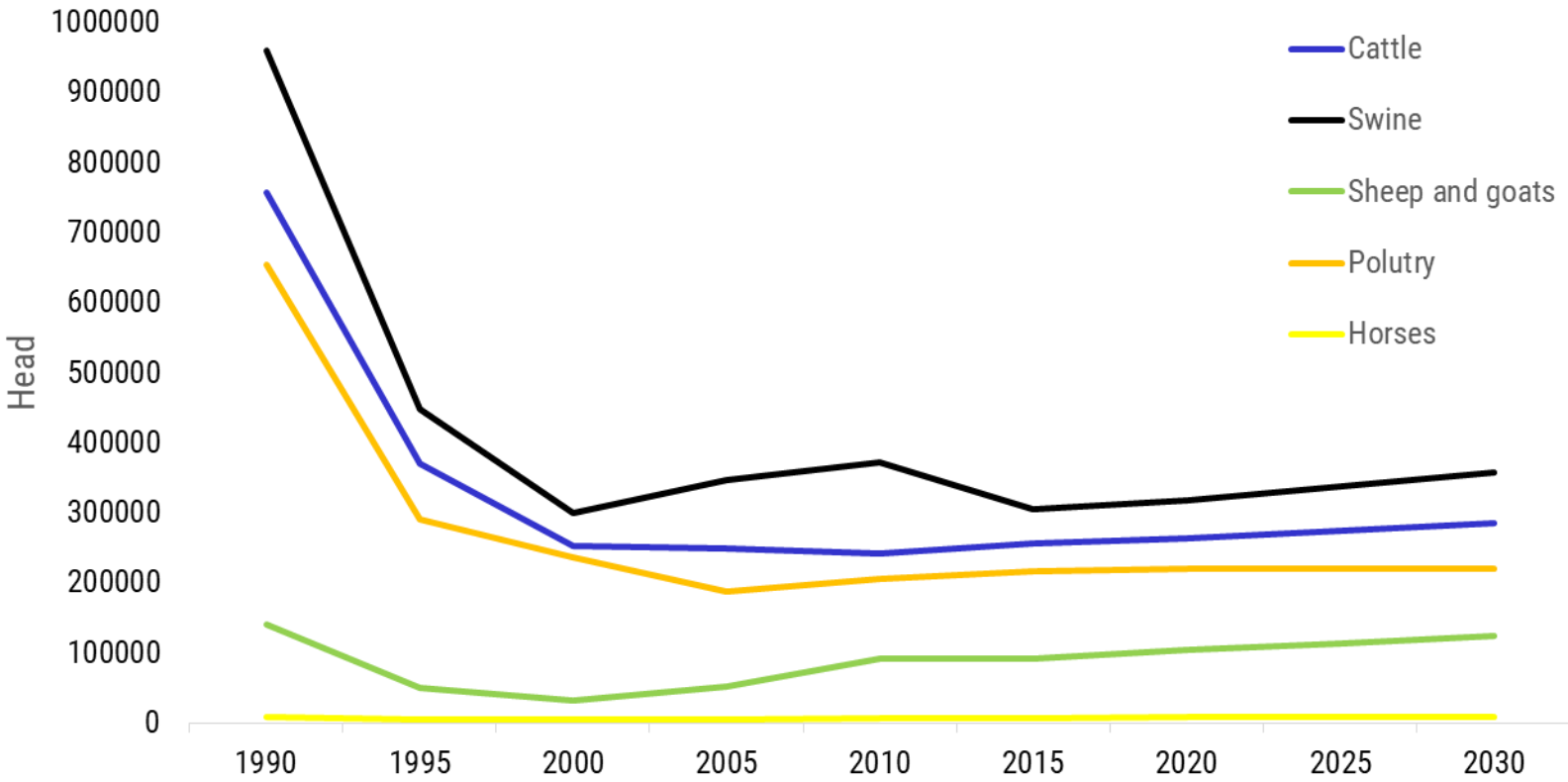
I-IV rounds		VI round		I-VI rounds	
Eligible cost (eur)	**Assigned subsidy (eur)**	**Eligible cost (eur)**	**Assigned subsidy (eur)***	**Eligible cost (eur)**	**Assigned subsidy (eur)**
20 373 267	**8 189 776**	**4 219 665**	***1 706 179***	**24 592 933**	***9 895 955***

** As currently the VI round is still ongoing, the value is estimated based on the data of previous rounds*

BAU and WM scenarios



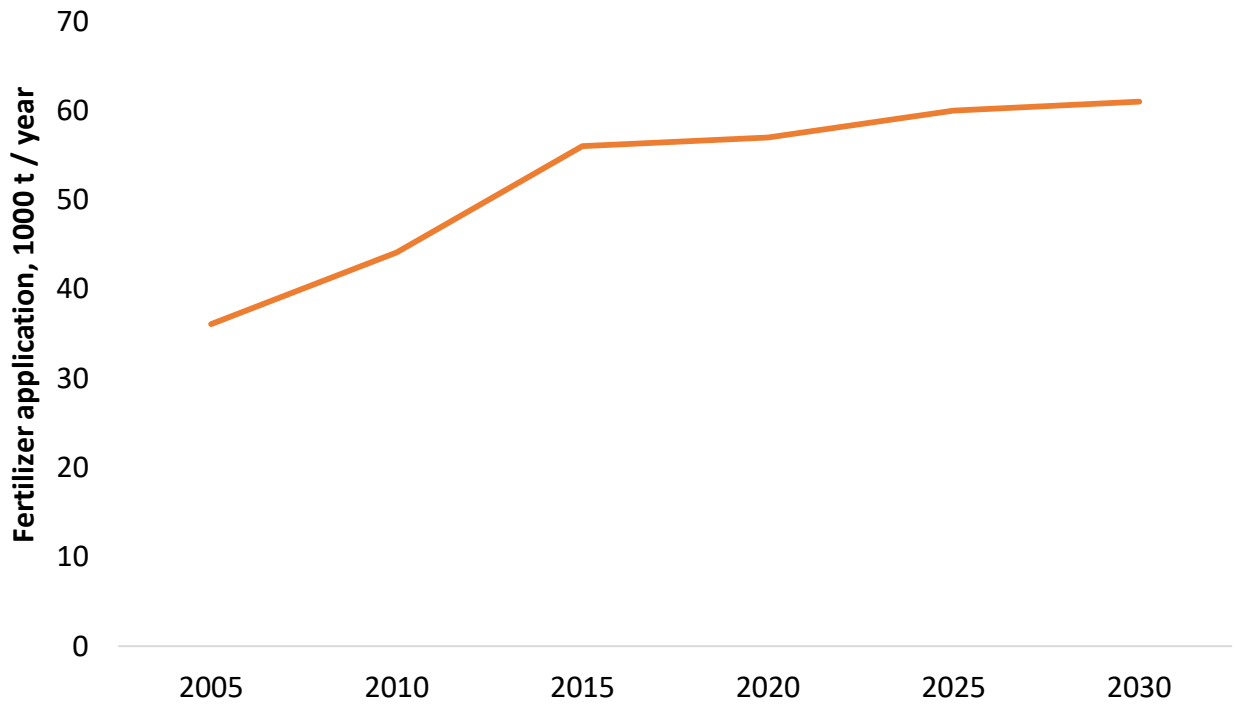
The number of livestock in 1990–2015 and projection for 2020–2030



** Polutry x 10*

Source: Statistics Estonia, Estonian Ministry of Rular Affairs 2018

Mineral fertilizer application in 1990–2015 and projection for 2020–2030

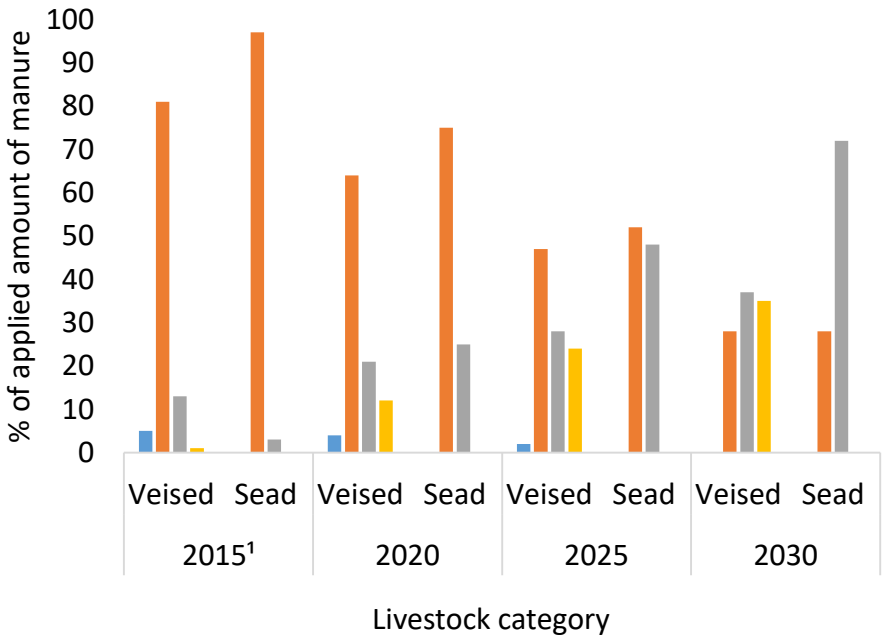


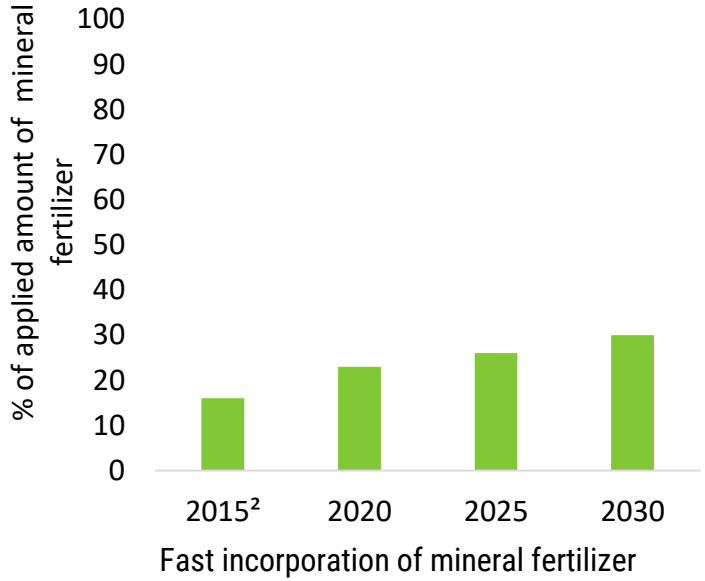
Source: Statistics Estonia, Estonian Ministry of Rular Affairs 2018

Measures for ammonia reduction

Measure	Reduction of ammonia emissions 2020-2030 (ton)	Accumulated net cost 2020-2030 (mln eur)
Covered liquid manure storages („tight“ lid, tent or roof structure)	2795	92,1
Spreading liquid manure via injection		19,8
Fast incorporation of mineral fertilizer spread to the arable land		-19,7
SUM		**92,4**

Manure and fertilizer spreading technologies: share for NH_3 reduction, %





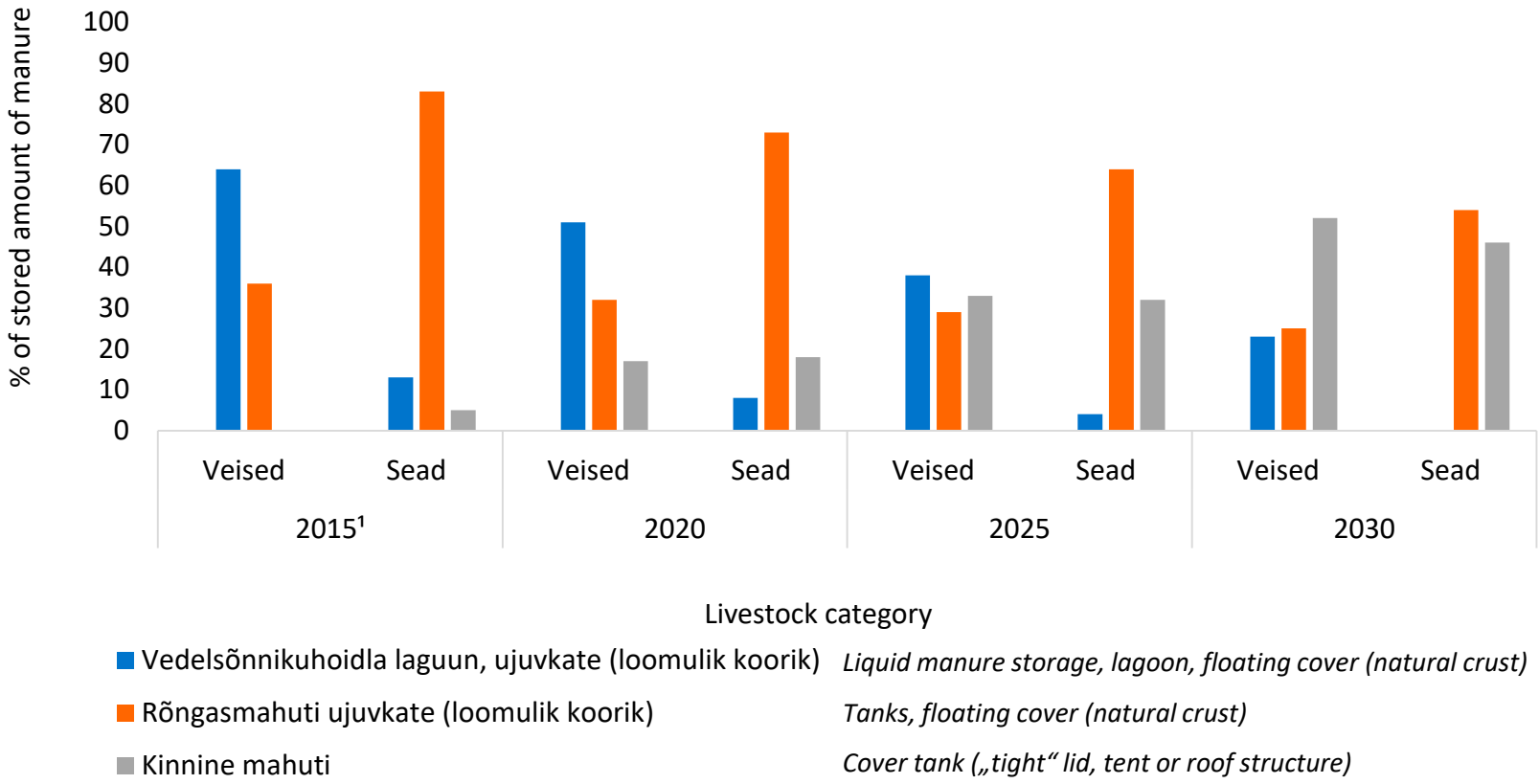
Paisklaotus, vedelsõnnik, muldaviimine < 12 h — *Broadcast spreading, liquid manure, incorporation into soil <12 h*

Lohisvooliklaotus, muldaviimine < 12 h — *Trailing shoe spreading, incorporation into soil <12 h*

Avatud lõhega injektorlaotus — *Injection – open slot*

Suletud lõhega injektorlaotus — *Injection – closed slot*

Manure storage technologies: share for NH3 reduction, %



NAPCP

- Initiation of NAPCP and Strategic Environmental Assessment – *March 2018*
- Workgroup meetings – *May–November 2018*
- NAPCP finished– *February 2019*
- Public consultations – *June 2018,* ***February–March 2019***
- Public consultation on Strategic Environmental Assessment report – *April 2019*
- Ammonia Guidance Document (NECD annex III part 2) to be compiled in autumn 2019

REPUBLIC OF ESTONIA
MINISTRY OF THE ENVIRONMENT

Thank you!

Riina Maruštšak
riina.marustsak@envir.ee