

Comprehensive Emission Inventories as Tools for Policy Advice

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Agriculture and Nature Panel**

Emission Inventories and Nitrogen Species

The Geneva Convention on Long Range Transboundary Air Pollution (CLRTAP)

aims to reduce emissions of air pollutants that effect human health, ecosystems, materials and ground level ozone.

- NO_x , NH_3 , CO , CH_4 , NMVOC , PM (PM_{10} , $\text{PM}_{2.5}$)

The United Nations Framework Convention on Climate Change (UNFCCC)

aims to reduce emissions of greenhouse gases that affect the energy balance of the earth

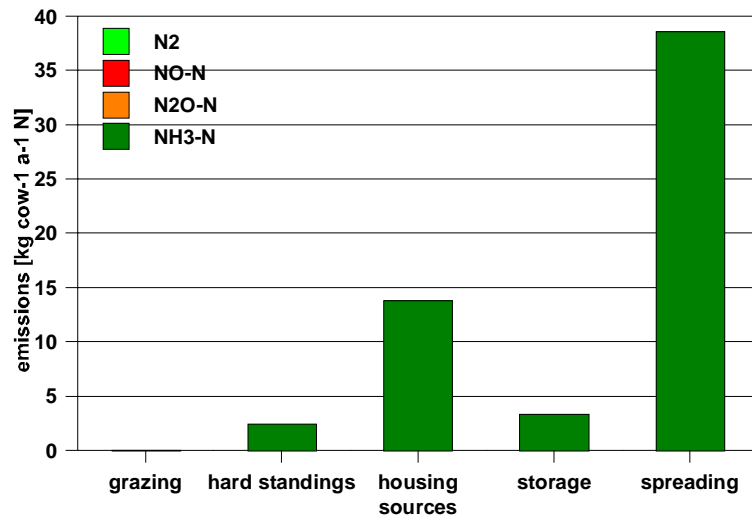
- N_2O , CO_2 , CH_4



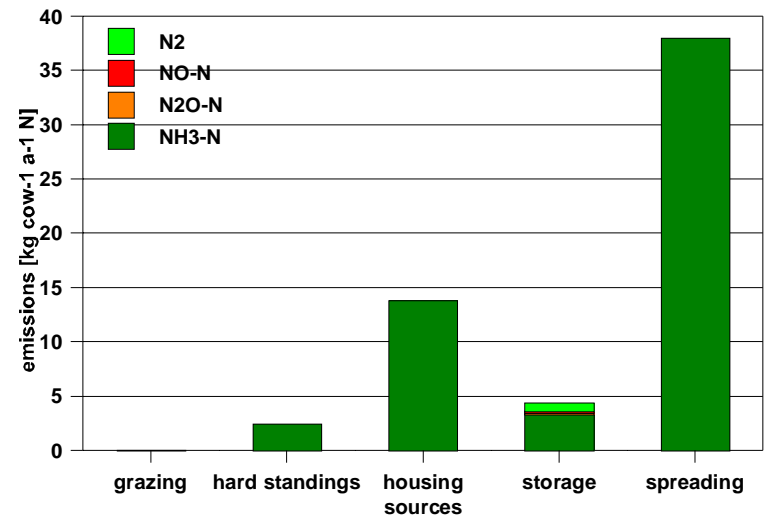
The importance of being complete (1)

dairy cow, 8000 l a⁻¹ milk, cubicle house, slurry based, natural crust, broad cast on short vegetation

NH₃ losses only (1)



losses of all N species (2)



N emitted:

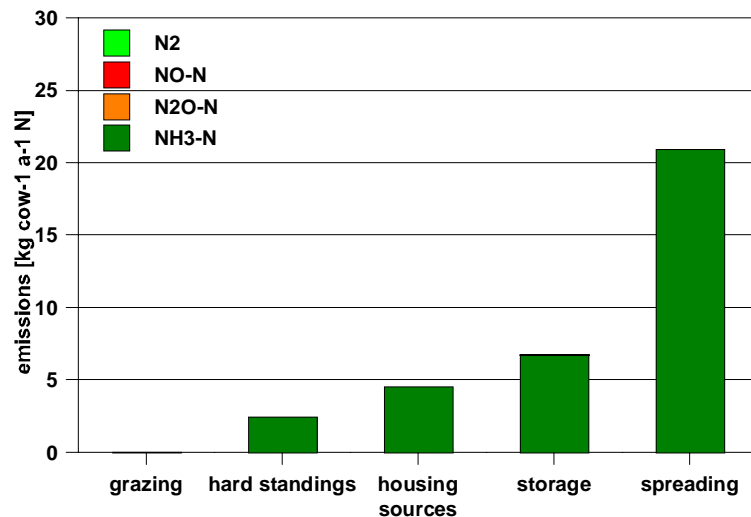
(1) 58.0 kg

(2) 58.3 kg

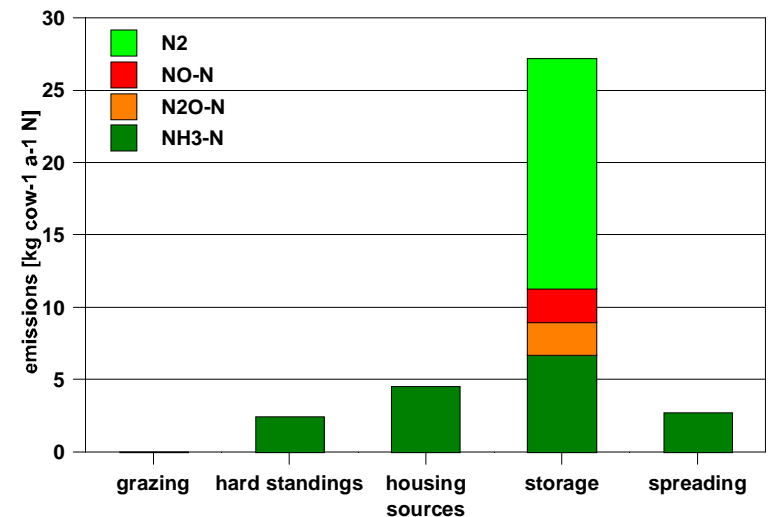
The importance of being complete (2)

dairy cow, 8000 l a⁻¹ milk, tied system, straw based, normal heap, broad cast short vegetation

NH₃ losses only (3)



losses of all N species (4)



N emitted:

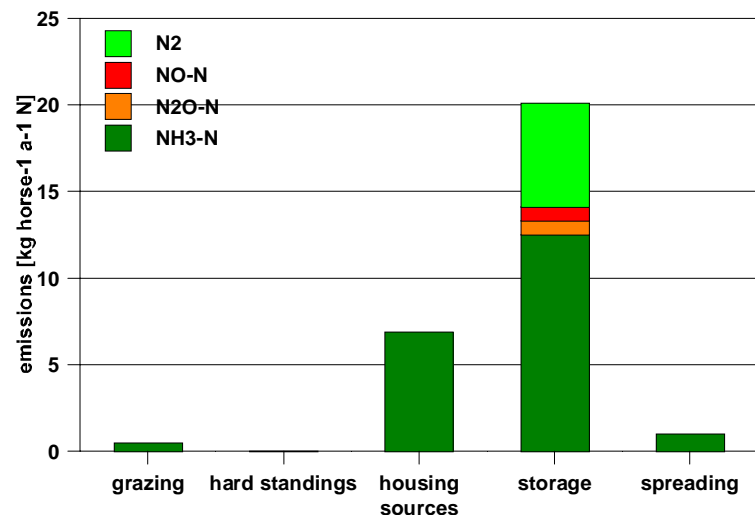
(3) 34.5 kg

(4) 36.8 kg

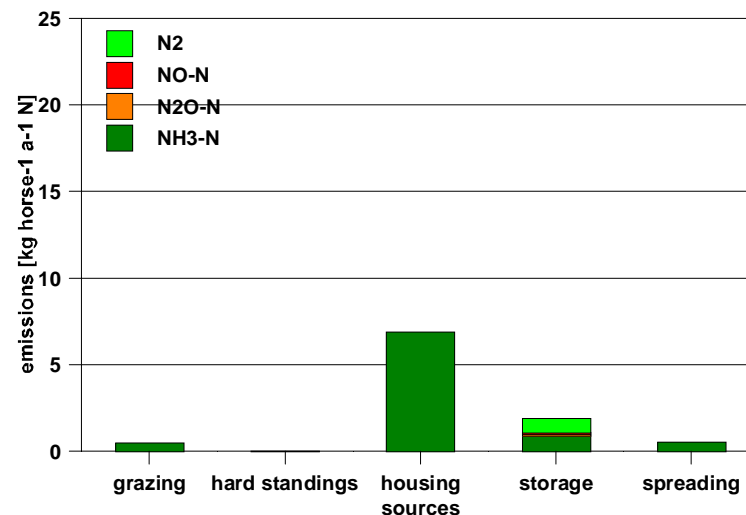
The importance of accounting for ALL processes

Horse, straw based, normal heap, broad cast without incorporation

all N species, no immobilization

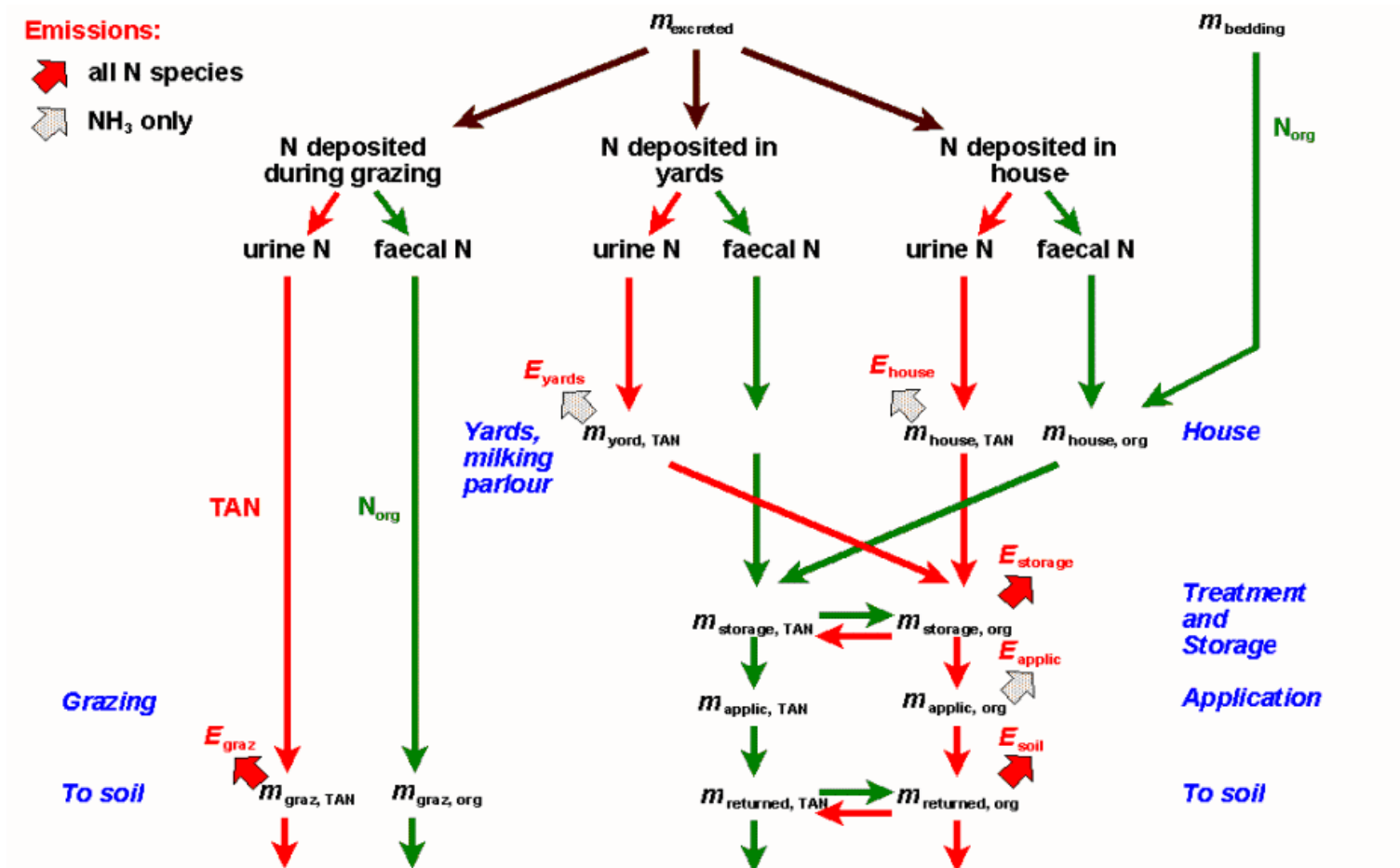


all N species, with immobilization

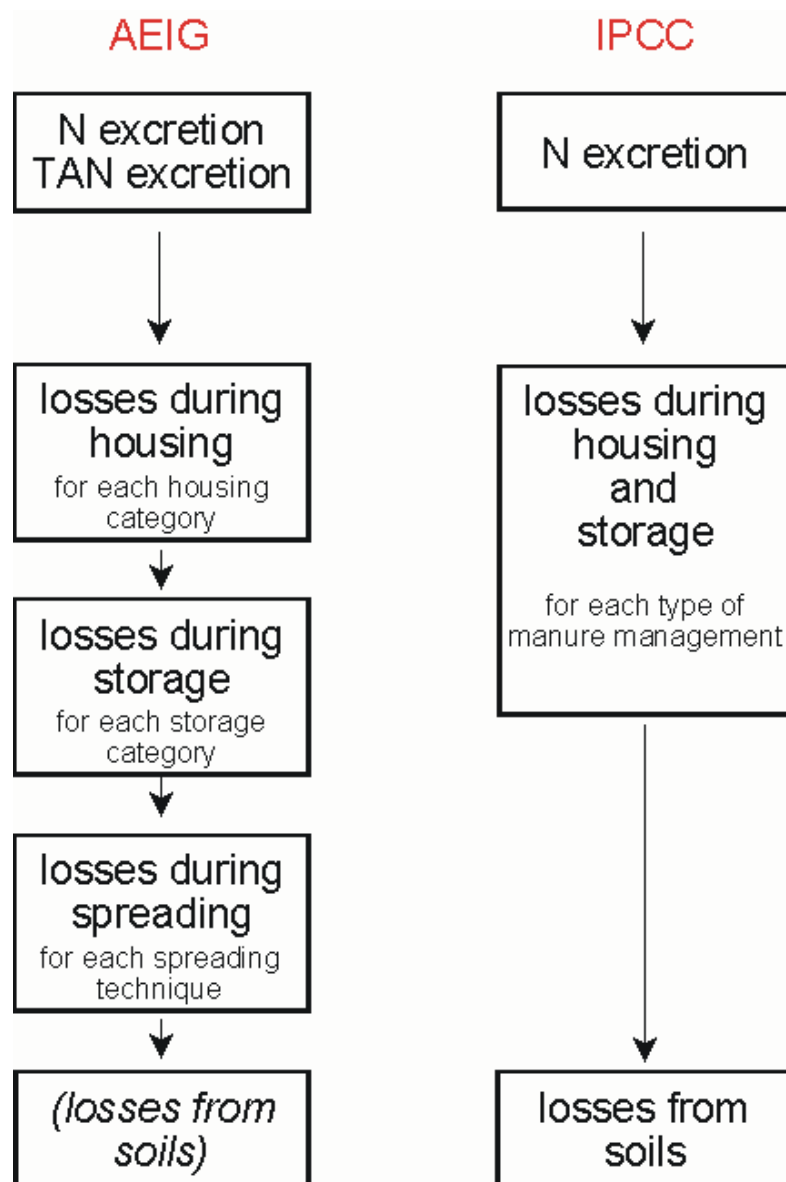


Comprehensive Emission Inventories as Tools for Policy Advice

The mass flow concept recommended



The importance of a common nomenclature



Do we have an instrument to advise policy makers and to improve planning? (1)

The mere statement that emissions exceed a level, is not in itself policy advice.

Policy advice comprises

- identification of reduction potentials
- feasibility analysis of reduction measures
- information about the effects on other emissions (gases, particles)
- information about costs and benefits involved

Do we have an instrument to advise policy makers and to improve planning? (2)

If we have achieved a sound description of all relevant processes, and **if** we have adequate data,

- we have an instrument to answer most questions at the regional level;
- side effects (interactions with other species) can be quantified adequately.

However,

- emission inventories can only deal with typical situations.
- single farms can only be described as far as they are typical. Border-line problems cannot be solved.

What needs to be done?

The Agriculture and Nature Panel will

- write a comprehensive new Guidebook chapter on emissions from manure management of nitrogen species using the mass flow approach;
- improve the readability and comprehensibility of the text;
- provide a user-friendly stepwise “cookbook” rather than a collection of tables, equations and wise words.
(The detailed scientific information can be put into the appendix.)