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Emissions from animal husbandry in Austria: assessment and reporting

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Department of Sustainable Agricultural Systems
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Cooperation: Swiss College of Agriculture, Austrian Chamber of Agriculture, Austrian Environment Agency, Federal Research Centre for Agriculture in Alpine Regions, Statistics Austria

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Background

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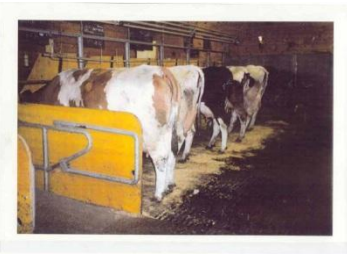
- Countries must annually report emissions.
- Emission inventories must be transparent, consistent, comparable, complete and accurate.
- It is therefore necessary to estimate emissions by applying models that link activity data to emission factors to calculate net emissions. Those models should offer the possibility of showing the effect of mitigation measures.
- The knowledge on activity data is still insufficient in many countries.



Improvement of the Austrian Air Emission Inventory

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- Measure emissions from typical Austrian housing systems
- Survey farm management techniques and practices
- Detailed overview of Austrian animal husbandry
- Set up of the Austrian emission inventory with country specific data
- Proposal of feasible mitigation measures

Emission measurements in Austria

- Emissions from cattle husbandry:
  - dairy cattle – tied stall – slurry
  - dairy cattle – tied stall – solid
  - beef cattle – sloped floor system

- Emissions during farmyard manure storage:
  - composting
  - anaerobic stacking

Emission measurements in Austria

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- Emissions during slurry storage:
  - untreated slurry
  - biogas slurry
  - slurry separation
  - slurry aeration
  - EM-additive
  - diverse covers

Emission factors dairy cattle

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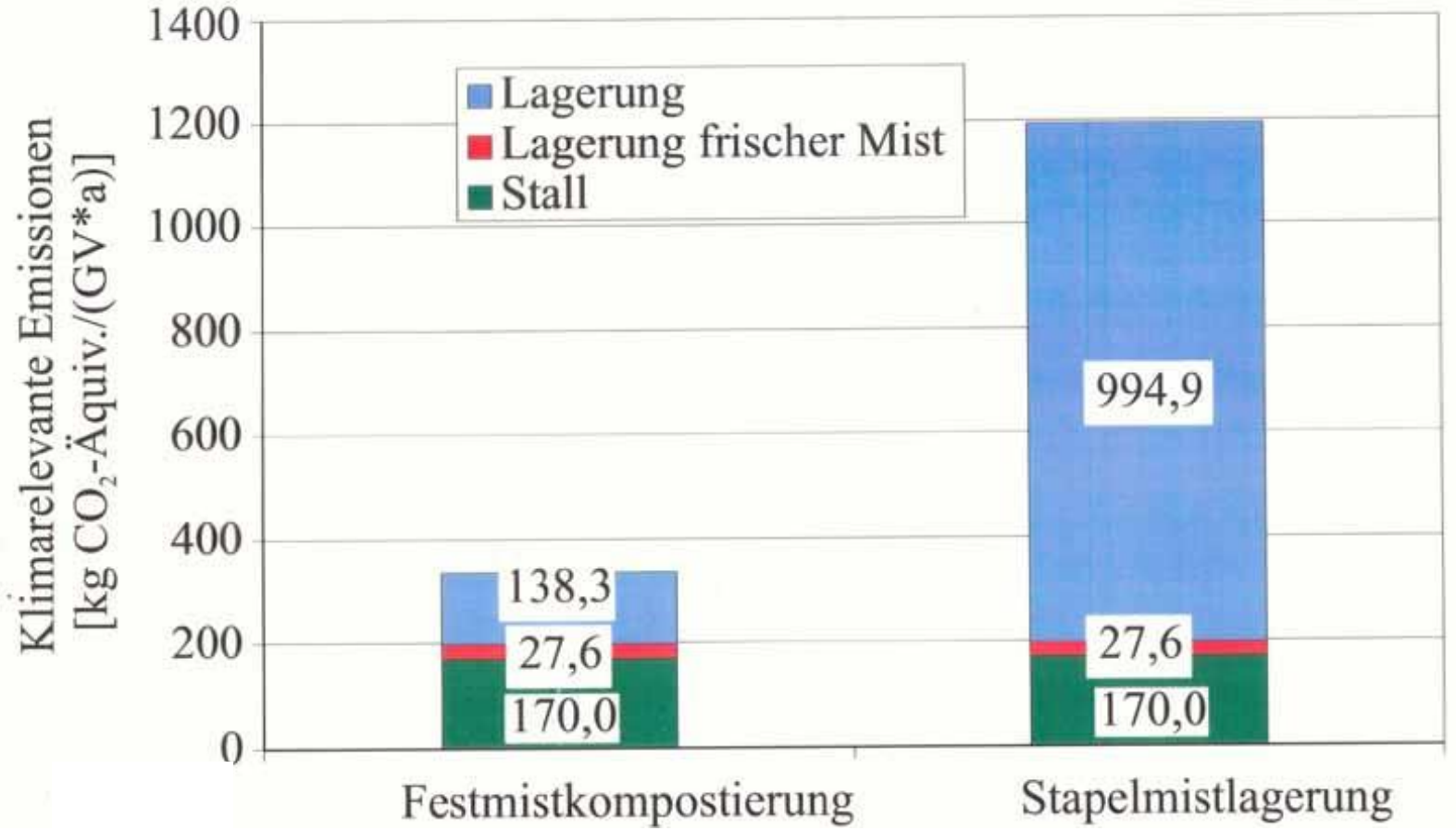
- *loose housing system:*
  - 118 g NH_3 per kg N excretion
- *tied stall:*
  - 40 g NH_3 per kg N excretion

Greenhouse gas emissions from dairy cattle: FYM composting and anaerobic stacking



Assessment of manure management systems in Austria

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- Questionnaire assesses relevant parameters in all stages of animal husbandry systems.
- A representative sample of 5,000 Austrian farms was selected with the help of Statistics Austria.
- The survey differentiates three Austrian regions
  - Eastern Austria
  - Southern Austria
  - Western Austria

Distribution of housing systems for cattle

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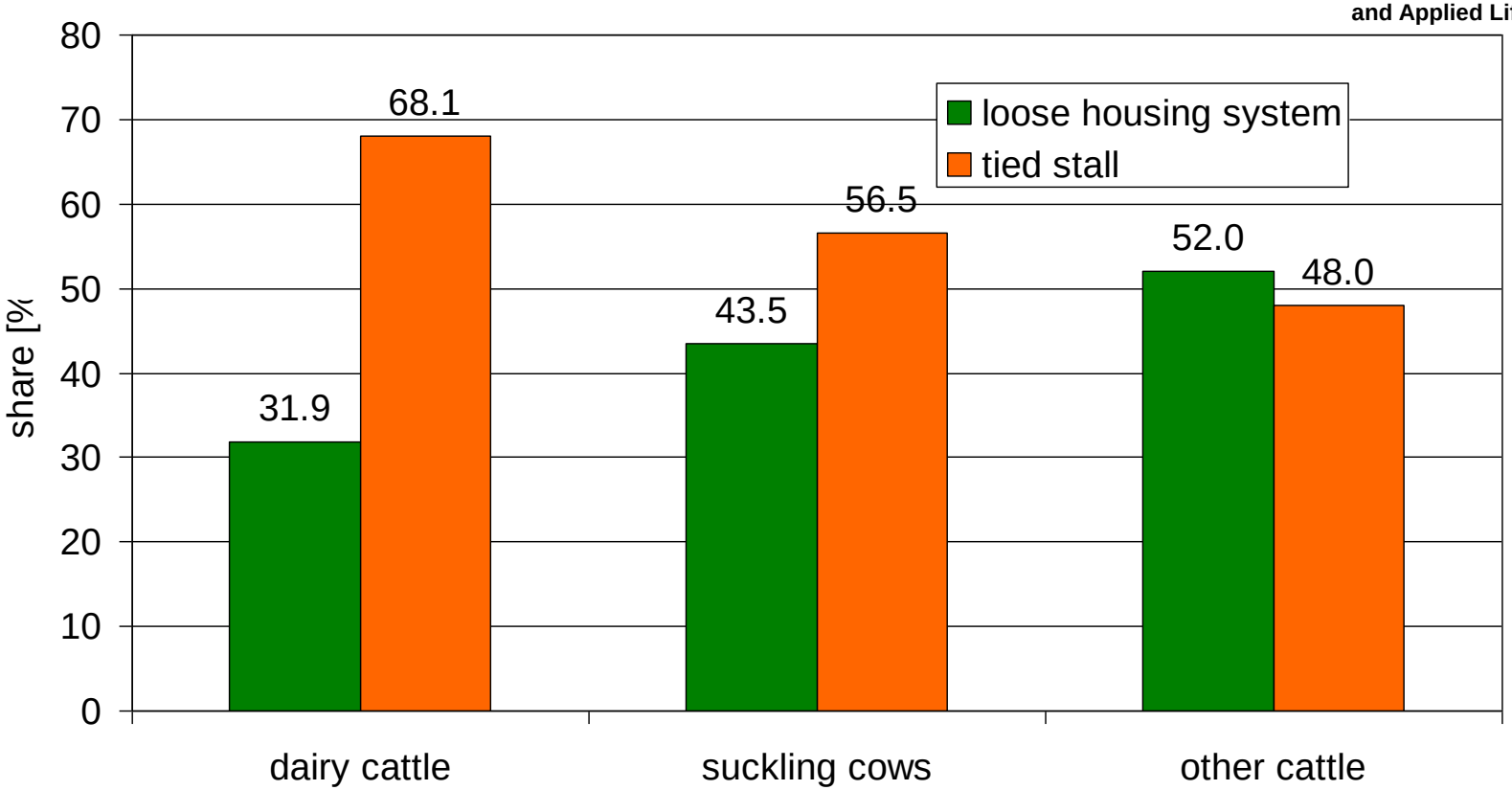

Distribution of manure systems for cattle

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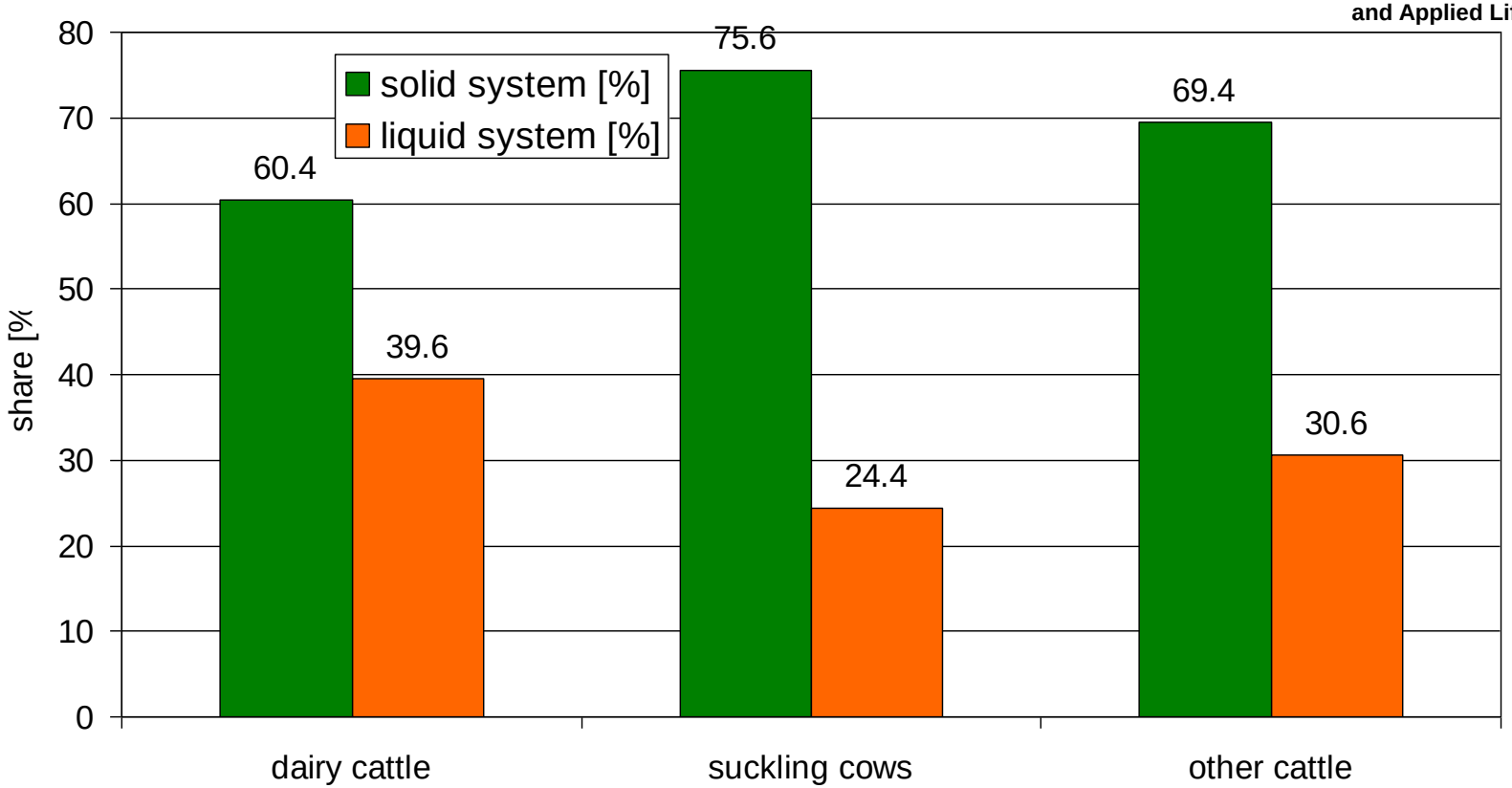

Distribution of manure systems for pigs

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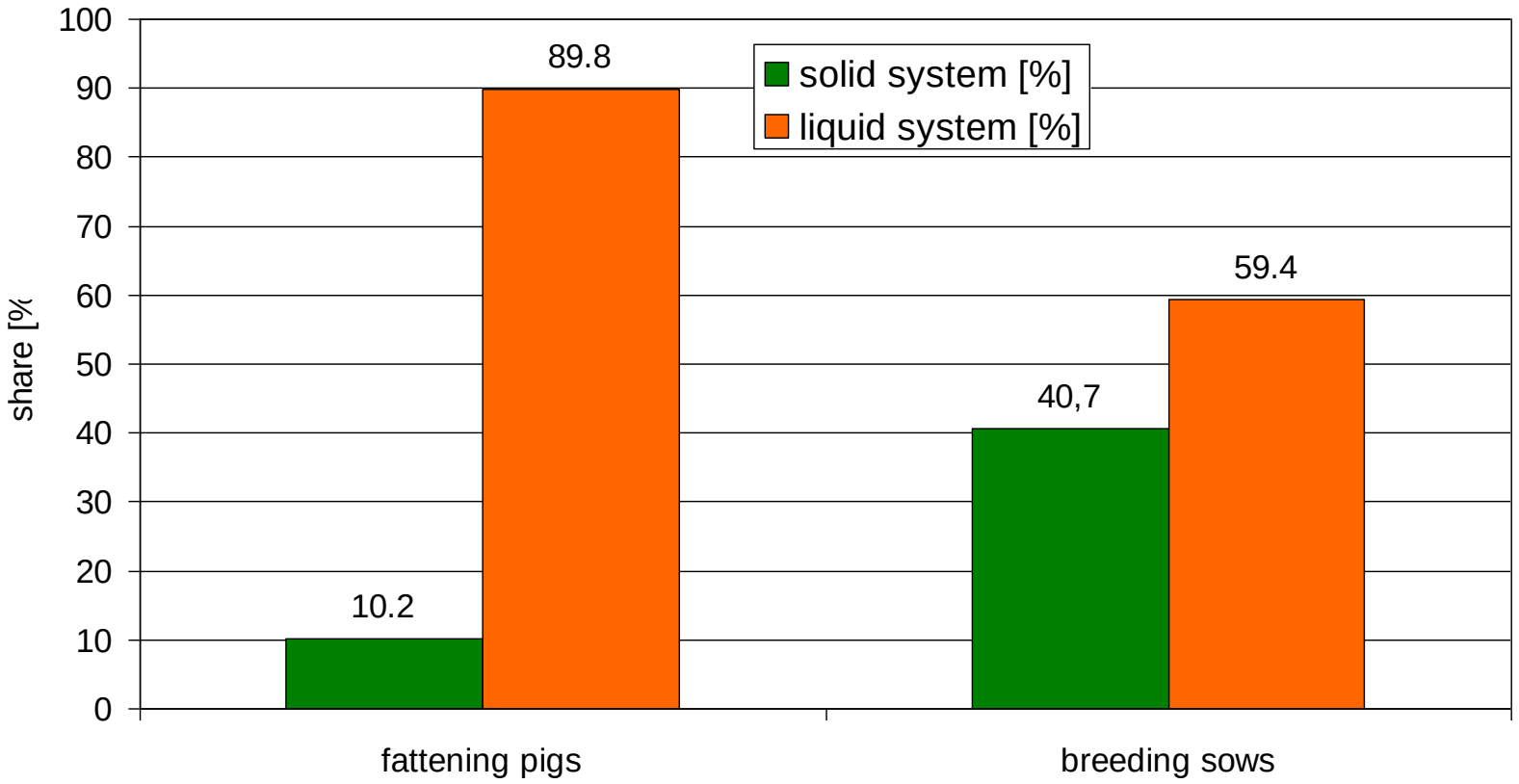

Slurry application

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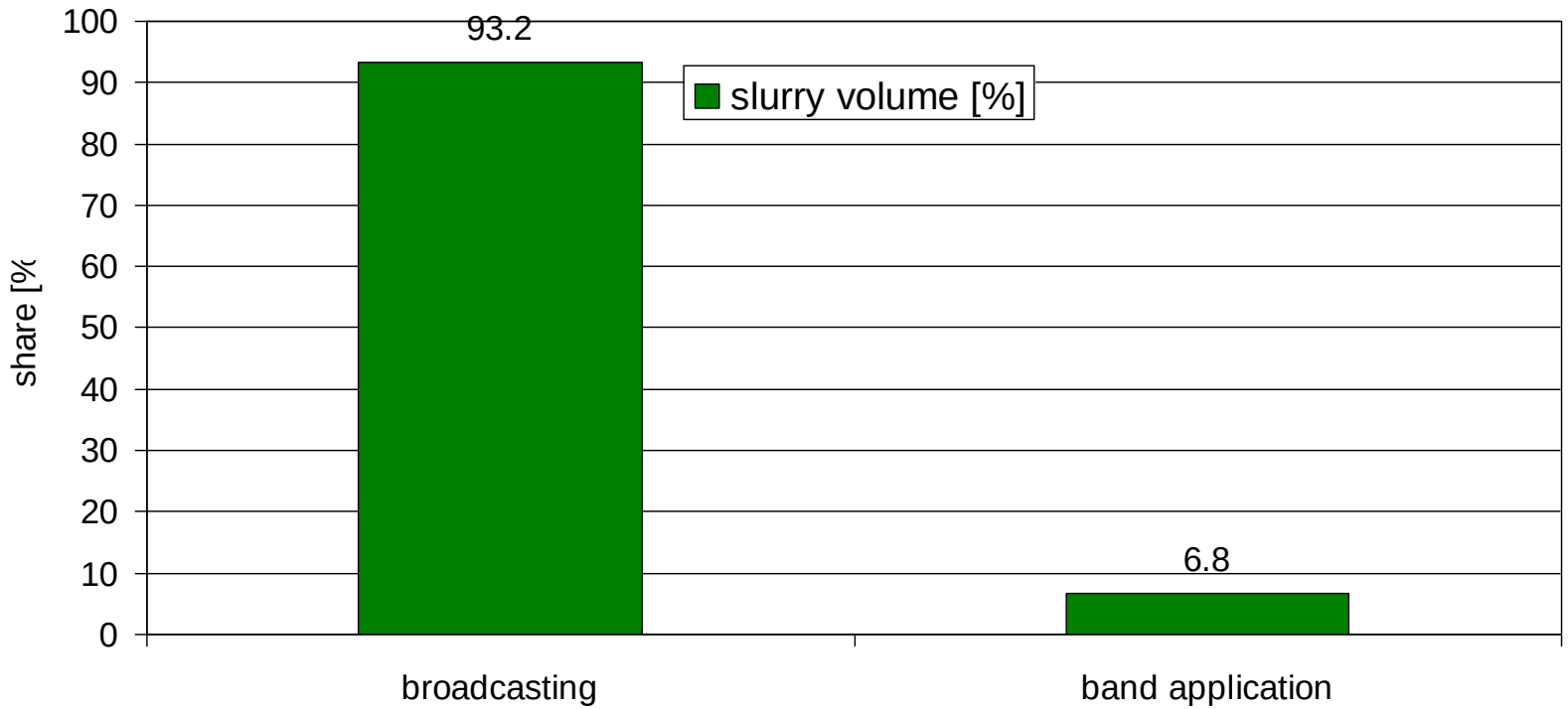

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Integration of manure management system distribution into the Austrian NH_3 emission inventory

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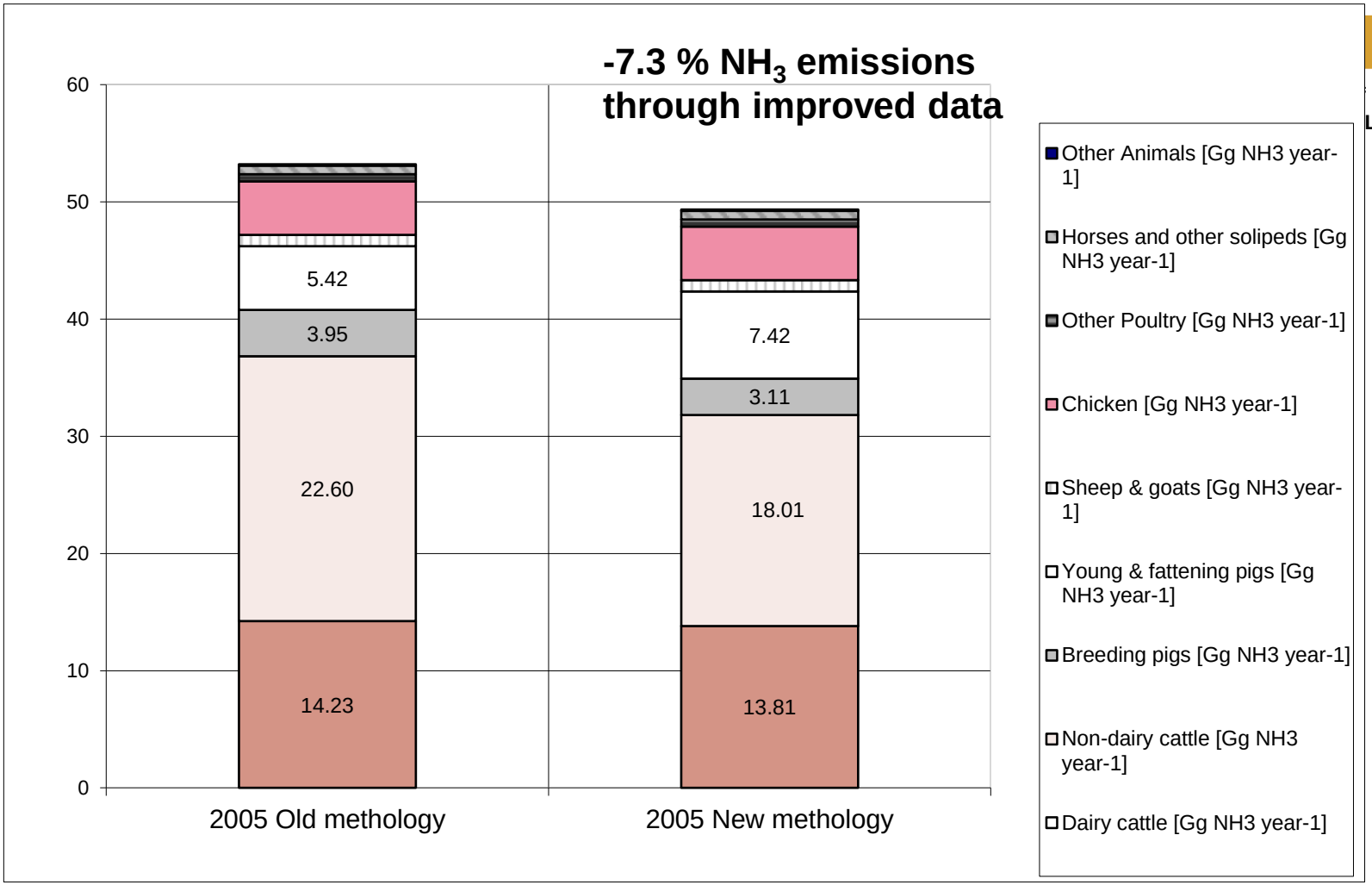
NH_3 emissions: with and without Austrian manure management system data



Contribution of manure management stages to total NH_3-N-Emissions

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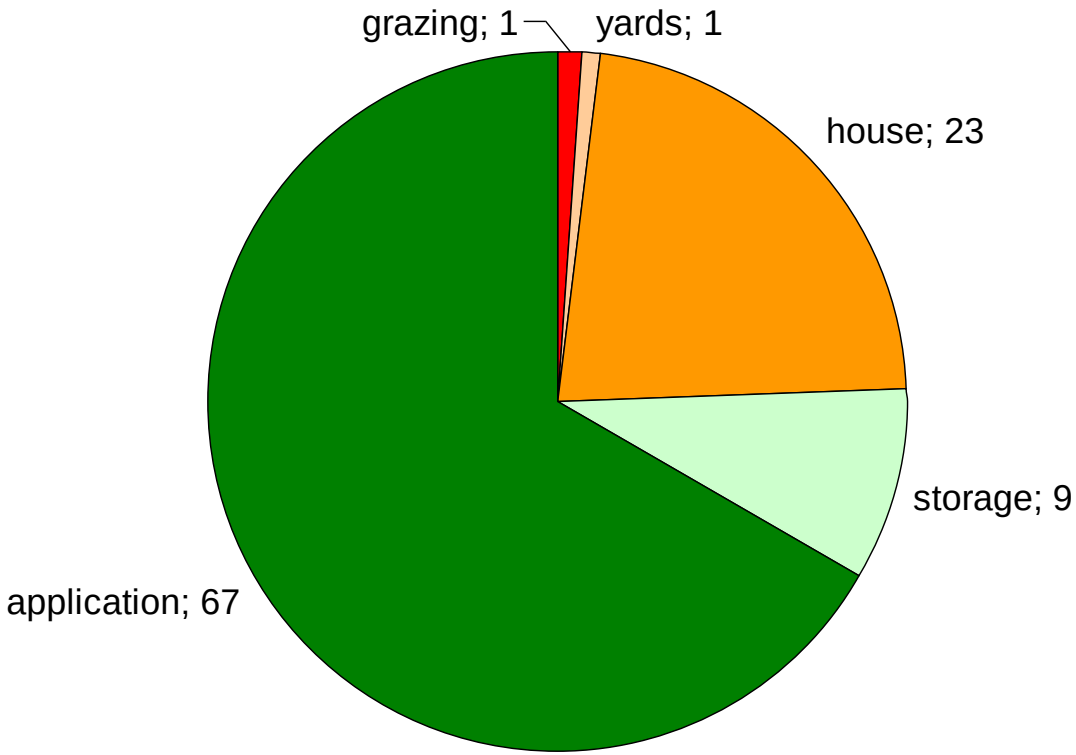

Conclusions

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- Emission inventories need to be set up with country specific data on
  - Emission factors
  - Manure management system distribution.
- Activity data on farm management practices should be collected at farm level every five years.
- The targeted assessment of country specific activity data is a mandatory pre-requisite for the assessment of cost effective mitigation measures.

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