

IMPACT OF EM ON AMMONIA AND GREENHOUSE GAS EMISSIONS FROM A STRAW FLOW SYSTEM



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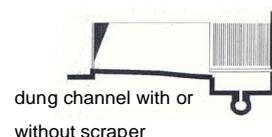


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INTRODUCTION:

- contradiction between animal welfare and environmental protection?
- limited knowledge on emissions from straw based pig houses
- UN / ECE document on control techniques for preventing and abating emissions of ammonia:
 - 19 slurry based housing systems
 - 2 straw based system
 - no mitigation options for straw based systems
- more data needed on straw based housing systems for pigs



EXPERIMENTAL DESIGN:

- forced ventilated compartments separated in 16 pens that held 10 – 12 pigs each
- CH₄, NH₃ and N₂O measurements with high resolution FTIR spectrometry
- air flow in the central exhaust fan
- emission measurements with an without daily spraying of EM in the pig house

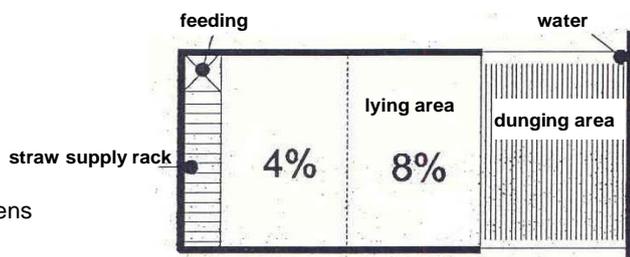


FIGURE 1: Straw Flow System for Fattening Pigs

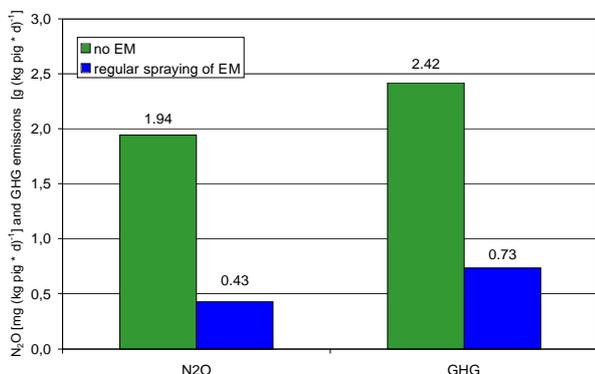


FIGURE 3: N₂O and greenhouse gas emissions and impact of EM

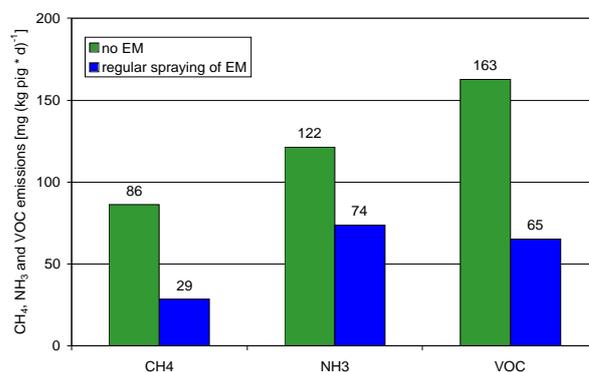


FIGURE 2: CH₄, NH₃ and VOC emissions and impact of EM

CONCLUSIONS:

- The straw flow system for fattening pigs is an animal friendly system.
- It can be operated economically efficient on commercial farms.
- EM application resulted in a reduction of CH₄, NH₃, N₂O, and greenhouse gas emissions (Fig. 2 and 3).
- VOC emissions were measured as an indicator for the potential for odour emissions from a straw flow system. Regular spraying of EM resulted in a marked reduction of VOC emissions (Fig. 2).

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