Ammonia emission from a fattening pig house with partly slatted floor during warm thermal conditions

BACKGROUND
Fouling of the pens cause bad hygiene and high ammonia emission. During warm thermal conditions sprinkling on the slatted area or improved climate in the pens can prevent fouling.

OBJECTIVE
Test technical solutions to improve pen hygien and decrease ammonia emission. Two techniques are investigated;
- sprinkling on the slatted floor
- increased air velocity on the lying area

MATERIAL AND METHODS
Commercial pig farm:
10 identical rooms with 16 pens (160 pigs)
10 pigs per pen, total area 1.0 m² per pig
30% slatted area

Measurements:
- NH₃- and CO₂-concentration with photo-acoustic multi-gas analyser
- Ventilation rate with indirect tracer gas method
- Pen hygiene by ocular scoring
- Pig behaviour from image analysis
- Performance of the pigs

PRELIMINARY RESULTS
During the first half of 2018 we have measured during 3 complete batches comparing with and without sprinklers above slatted area. Sprinkling between 08:00-21:00 with increased sprinkling rate between 0.5-3.0°C above setpoint for Tindoor. At maximum sprinkling the water consumption was about 0,2 l per pig and hour.

During warm thermal conditions sprinkling on slatted area change the lying and excretory behaviour, decrease the fouling of the pens and decrease the ammonia emission.

FURTHER RESEARCH
Further research is going on concerning type of sprinklers and sprinkling interval. During summer 2019 we will test with increased air velocity in the lying area.