

New technologies in emissions reduction

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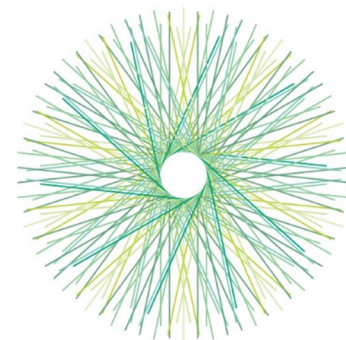
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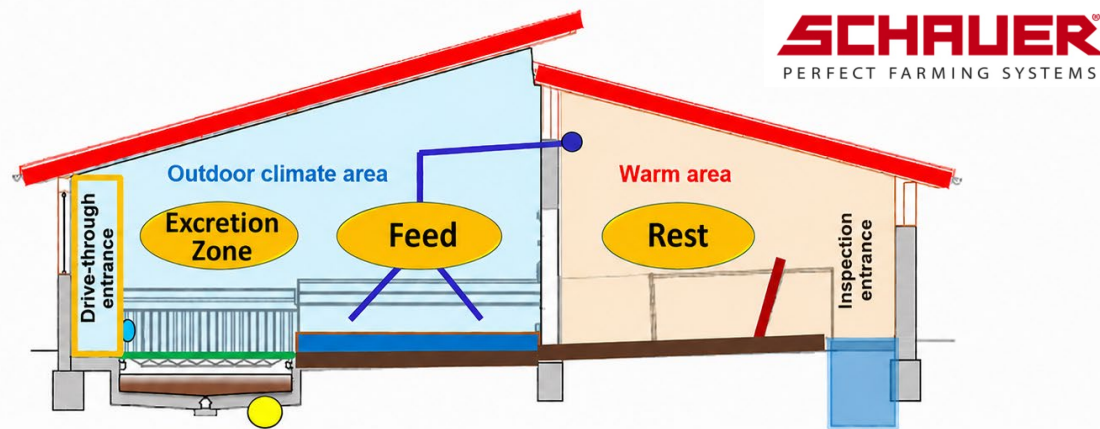


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Low-Emission Animal Welfare Barn



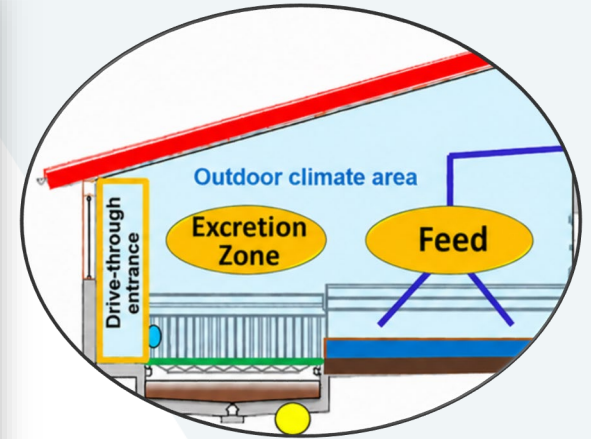
Animal welfare:

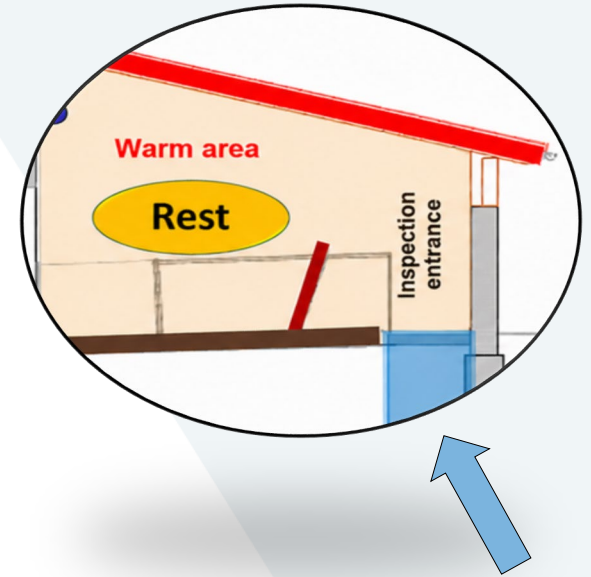
- ✓ **Separate functional areas:**
-> Resting - Feeding - Excretion
- ✓ **Bedding** - Straw dust-free
- ✓ **Lying area** adjustable to animal weight
- ✓ **Outdoor area**
- ✓ **Feeding** 1:1 at 30kg 1:2 at 110kg
- ✓ **Biosecurity** - double fencing

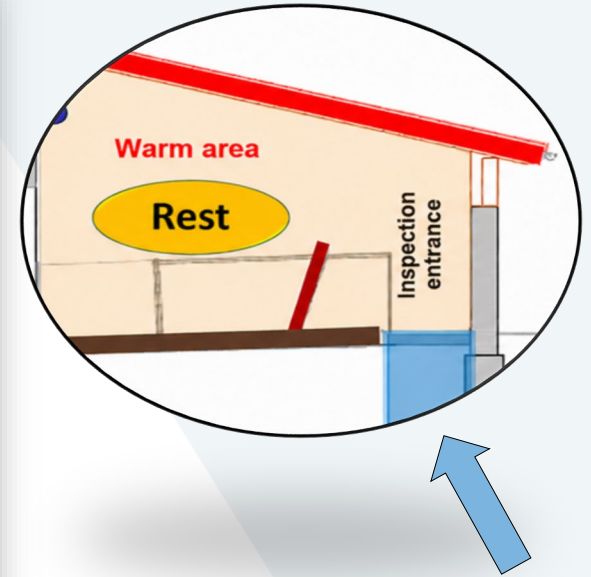
Emission reduction:

- ✓ **Protein-adjusted feeding** - e.g.: SPOTMIX **Potential: up to -40%**
- ✓ **Manure – Urine separation** **up to -56%**
- ✓ **Reduction of the emitting surface** **up to -10%**
- ✓ **Inlet air - Cooling** **up to -10%**
- ✓ **Outdoor area** completely covered and insulated **up to -33%**
- ✓ **Bedding** remains dust-free

Source: VDI - 3894, LWK Bretagne



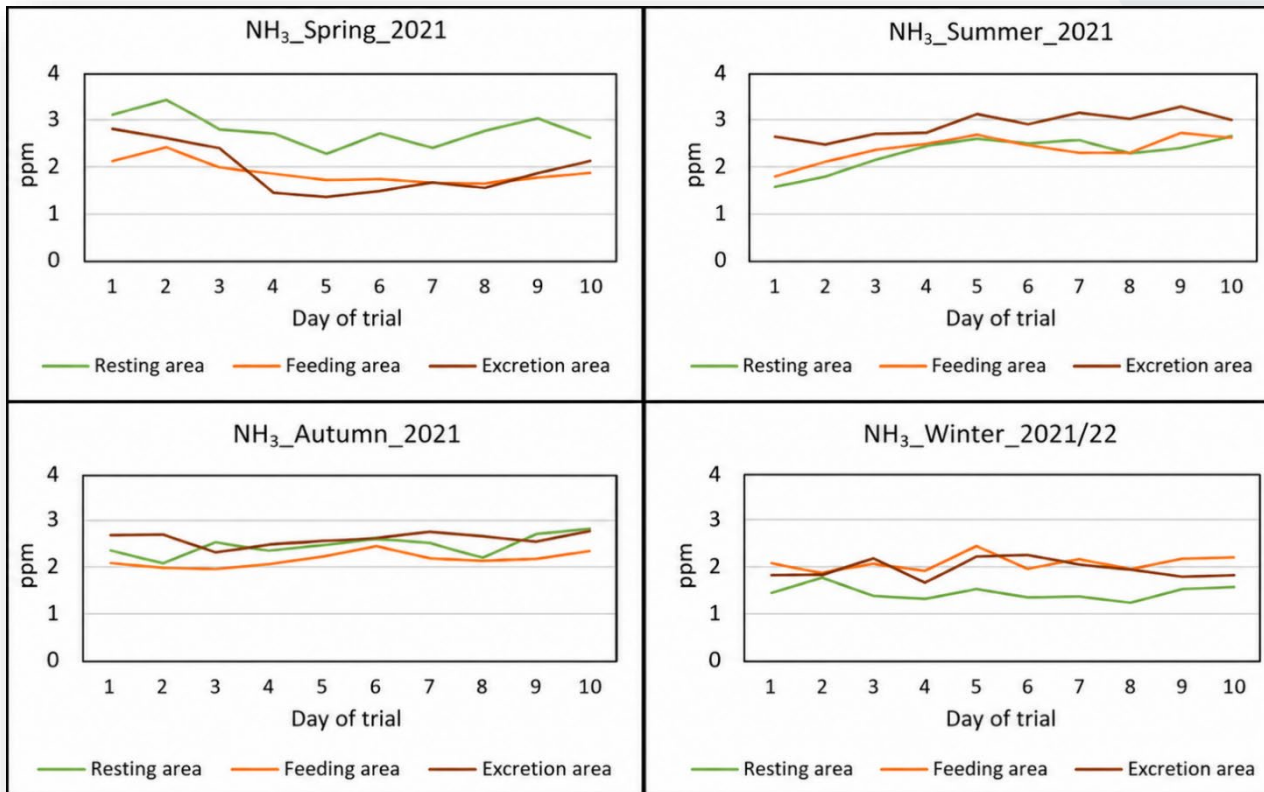




Ammonia-Emissions

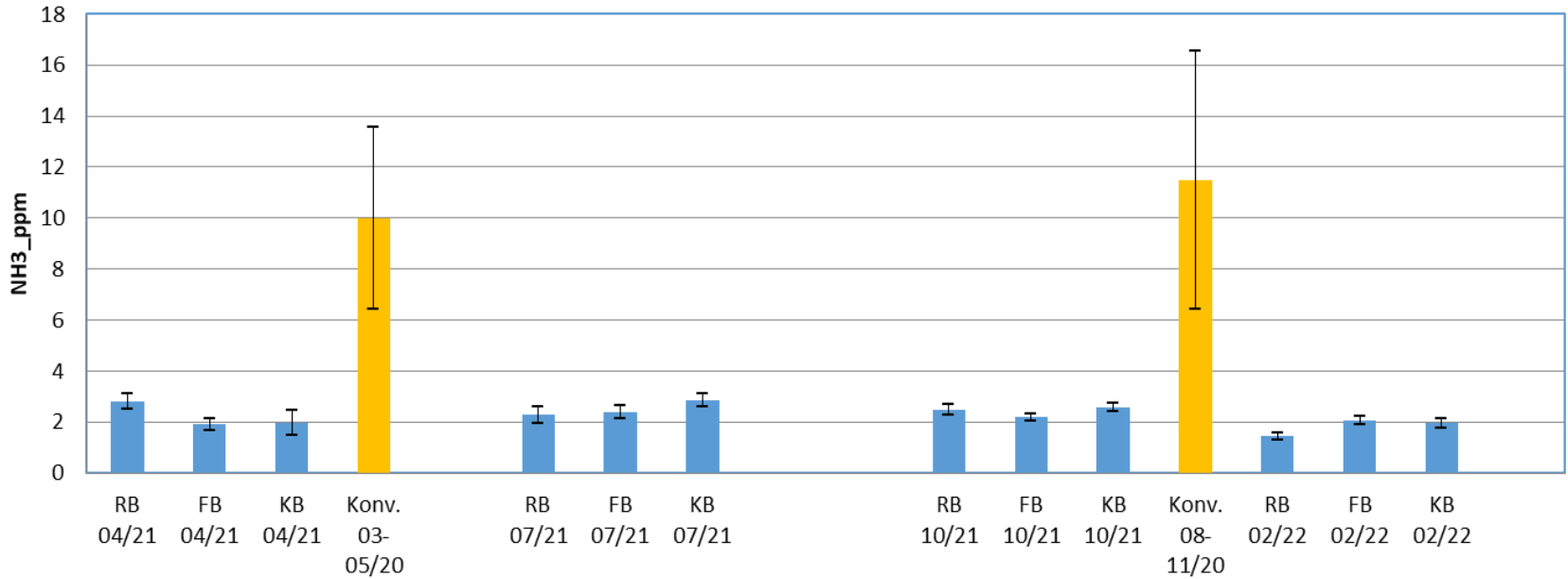


Ammonia-Emissions



Ammonia-Emissions

NH₃ (je Messperiode)_Tierwohlstall vs. konv. Schweinemaststall

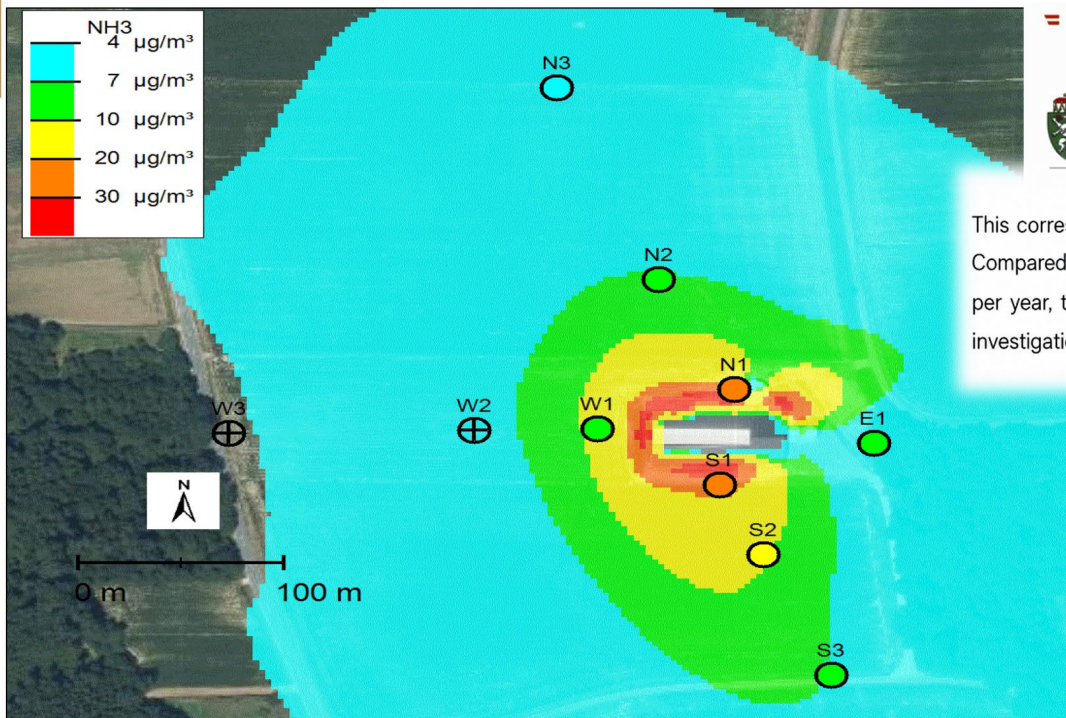


RB = Ruhebereich / FB = Fressbereich / KB = Kotbereich / Konv. = konventioneller Stall

Assessment of Ammonia Emissions



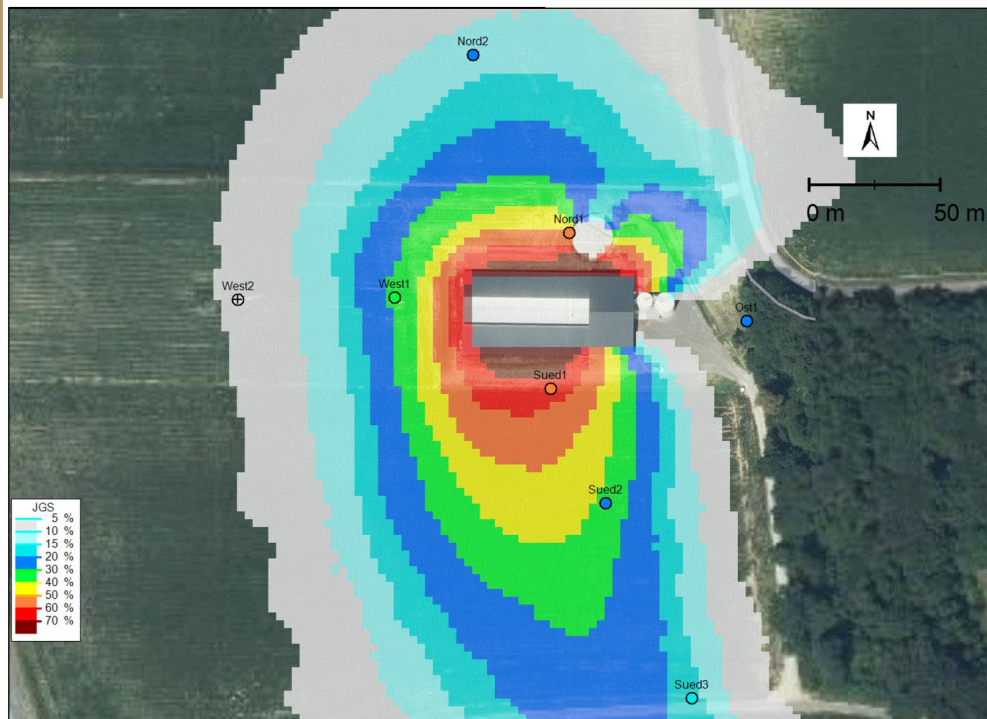
Assessment of Ammonia Emissions



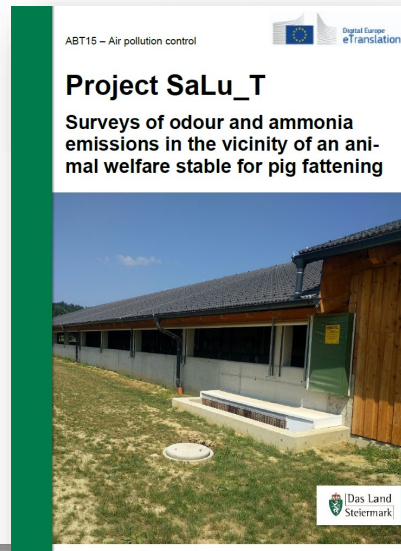
This corresponds to a mean emission factor of 0.73 kg/a per livestock unit (LU). Compared to the corresponding default factor from VDI 3894-1 of 3.64 kg/LU per year, this results in a factor that is approximately 80% lower based on these investigations.

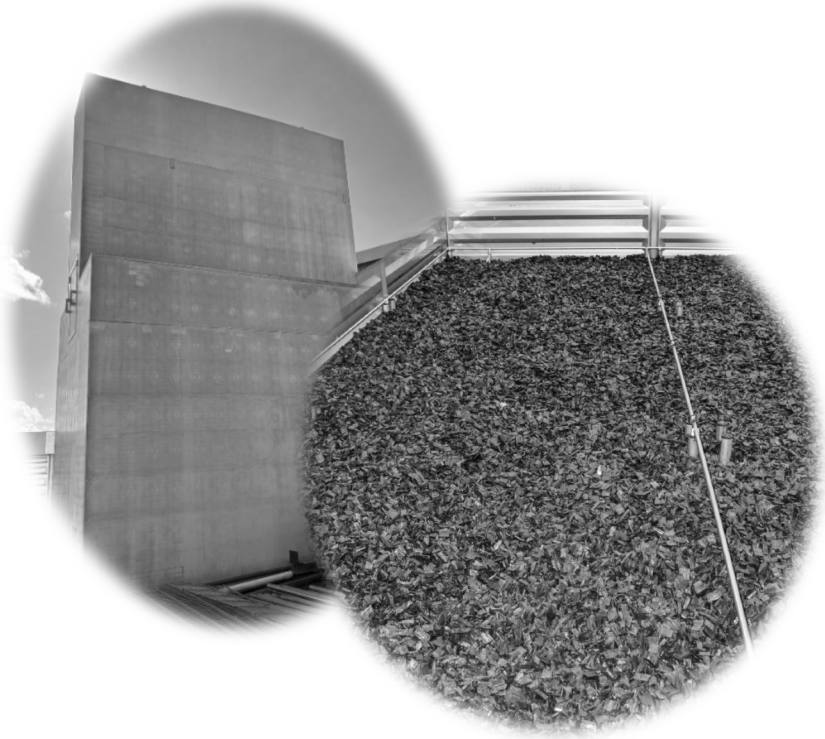


Assessment of Odour Emissions



Based on the odour surveys, an emission factor of approximately 8 OU_E/s was determined for the study period. Compared to the default factor for fattening pigs of 140 OU_E/s , this represents a reduction of nearly 95%





✓ **No need for Air Scrubber / Biofilter**



✓ **Emissions Reduction**

✓ **Animal Welfare**

✓ **Wood as Building Material**

✓ **Observed lower Disease-Susceptibility**