Access to bedding and an outdoor run for growing-finishing pigs and their impact on the environment

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MEHR TIERWOHL
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Bedding

Outdoor run

Global warming

Trade-offs between AW and ENV

→ Ammonia (NH_3) ↑
→ Nitrous oxide (N_2O) ↑
→ Methane (CH_4) ↓

Worse feed conversion ratio?

Increased activity/thermoregulation

More space/different climatic areas

Manure management

Solid manure

Eutrophication

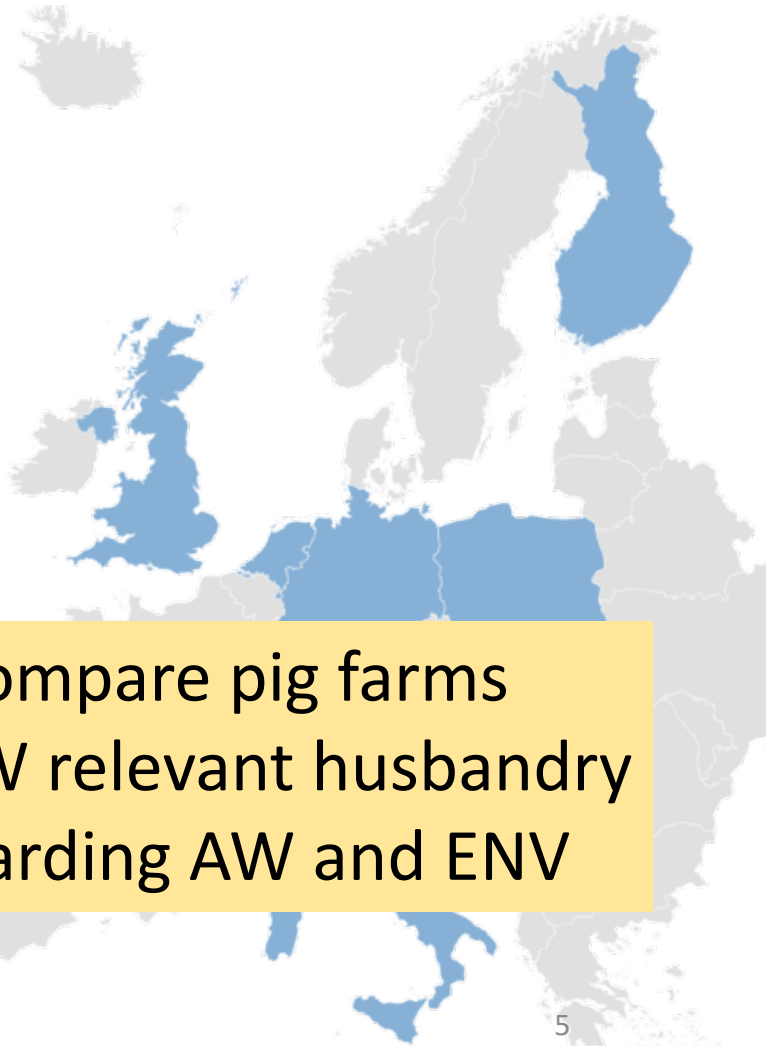
Acidification

Sustainable Pig Production Systems

- 3 years (2017-2020)

- 7 countries
  - Austria
  - Germany
  - Finland
  - Italy
  - Netherlands
  - Poland
  - United Kingdom

- 50 farms with finishing pigs



Aim: to compare pig farms differing in AW relevant husbandry aspects regarding AW and ENV

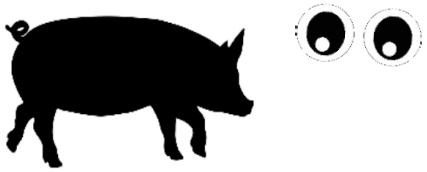
Characteristics of farm groups

	NOBED		
	Q1	M	Q3
Farms (n)		31	
Sold finisher pigs/year	2581	5000	7000
Bedded area (% of pens)	0	0	0
Outdoor run (% of pens)	0	0	0
k-value	0.05	0.06	0.07
Slatted floor (%)	49	90	100

Material & Methods

Animal welfare

→ 10 animal based indicators



Principle component analysis

3 principle components

- Stereo&ShortTail
- Mort&ManEnrich
- Lame&Hospital

Environment

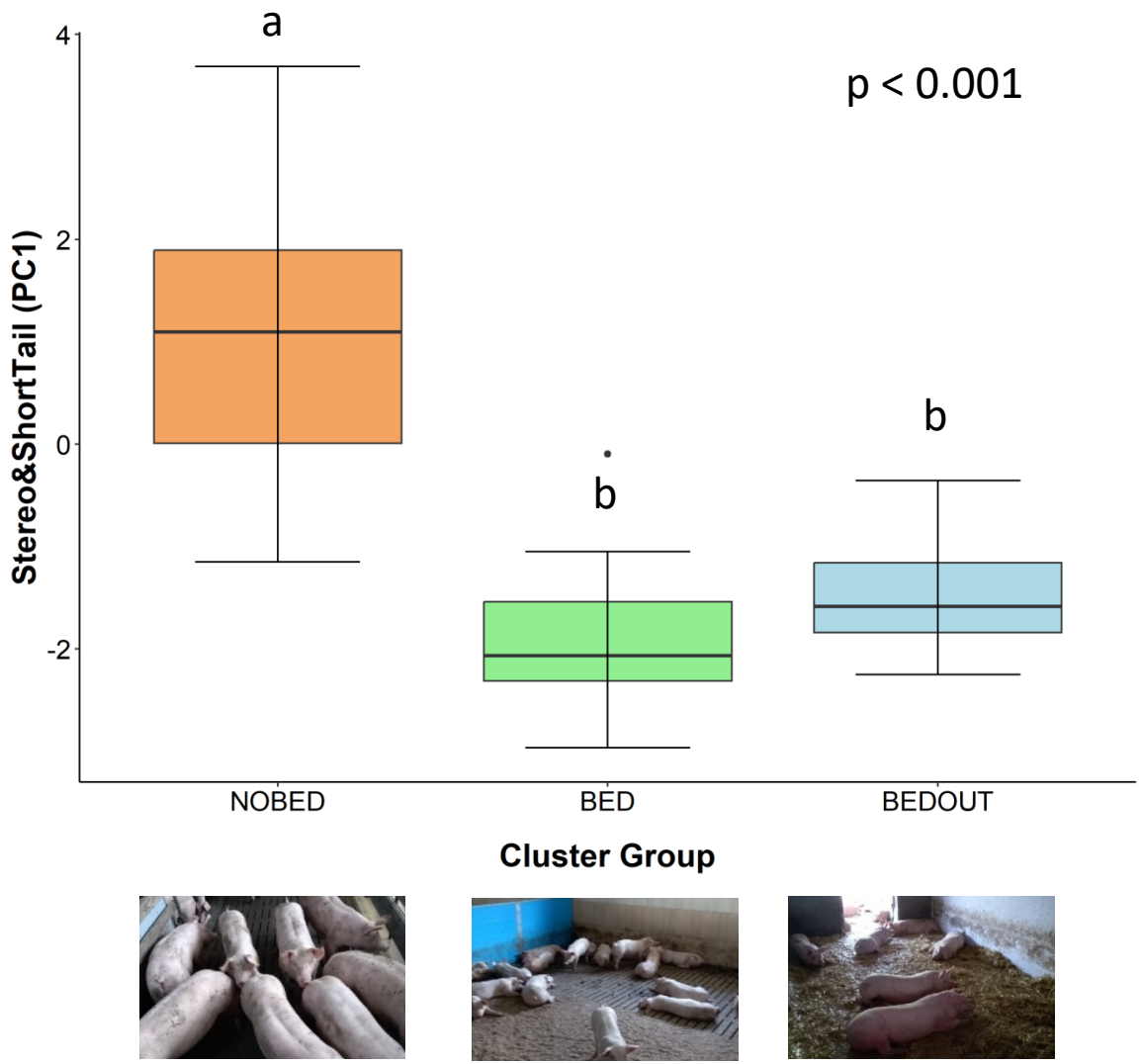
→ 4 LCA impact categories

\+ background data

Life cycle assessment

- Global warming (GWP)
- Acidification (AP)
- Eutrophication (MEP + FEP)

Animal welfare: PC1



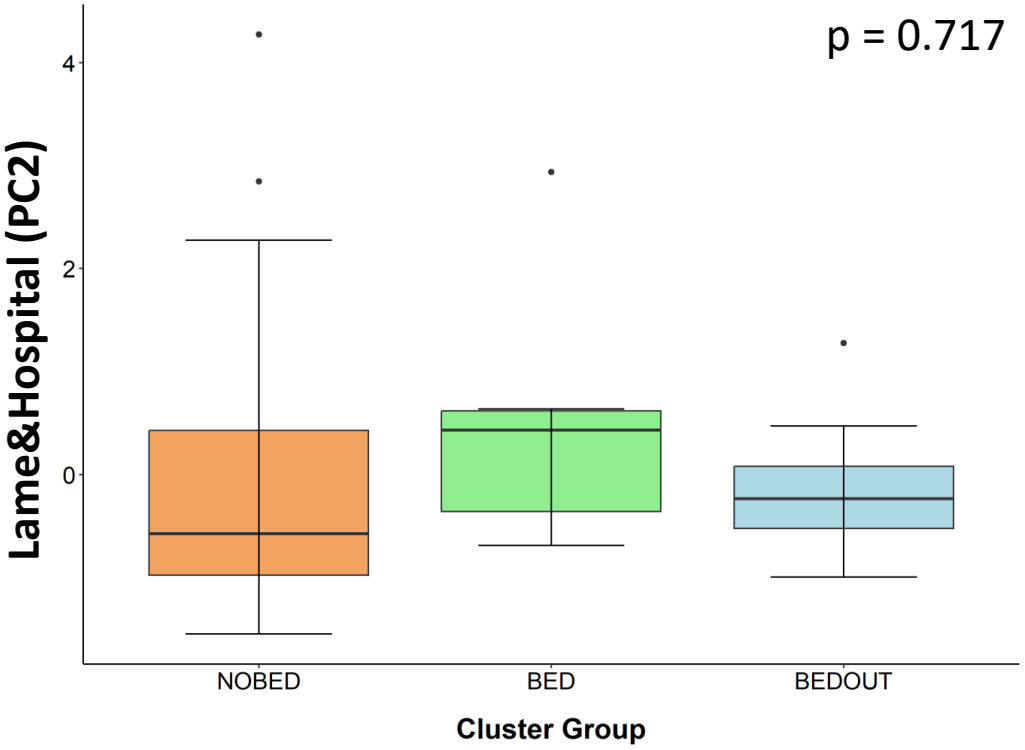
Bedding important to fulfil exploratory behaviour
(Tuyttens, 2005)

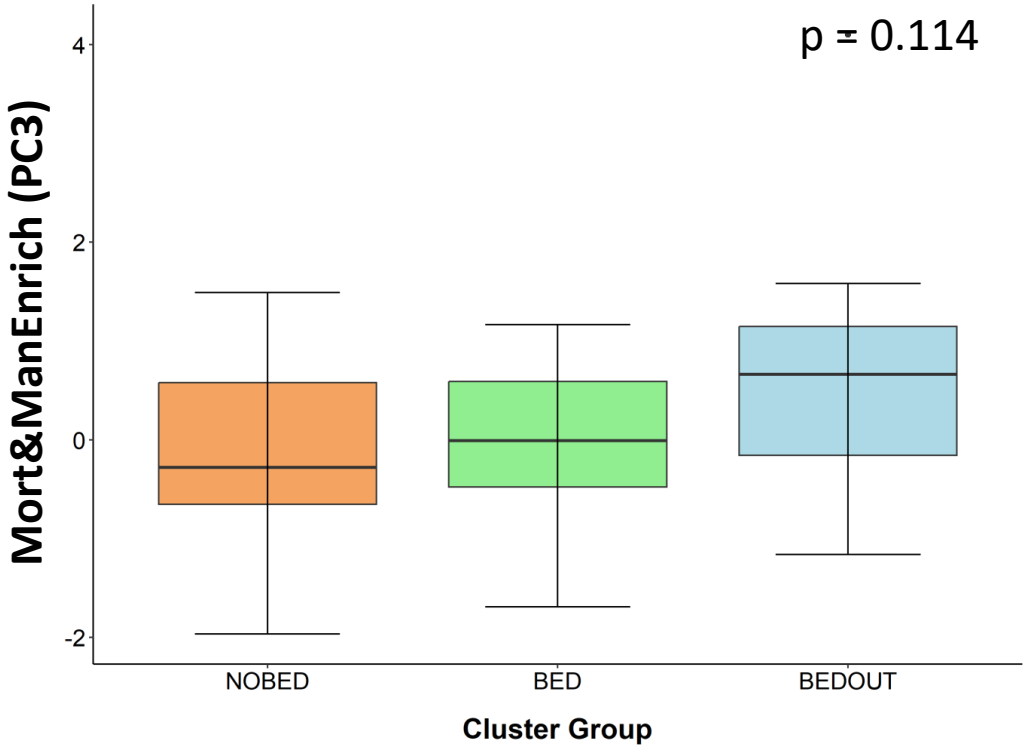
→less exploratory behaviour towards pen mates and pen fixtures
(Pedersen et al., 2014)

→less stereotypies
(Lawrence and Terlouw, 1993)

Tail docking still a predominant measure
(De Briyne et al, 2018)

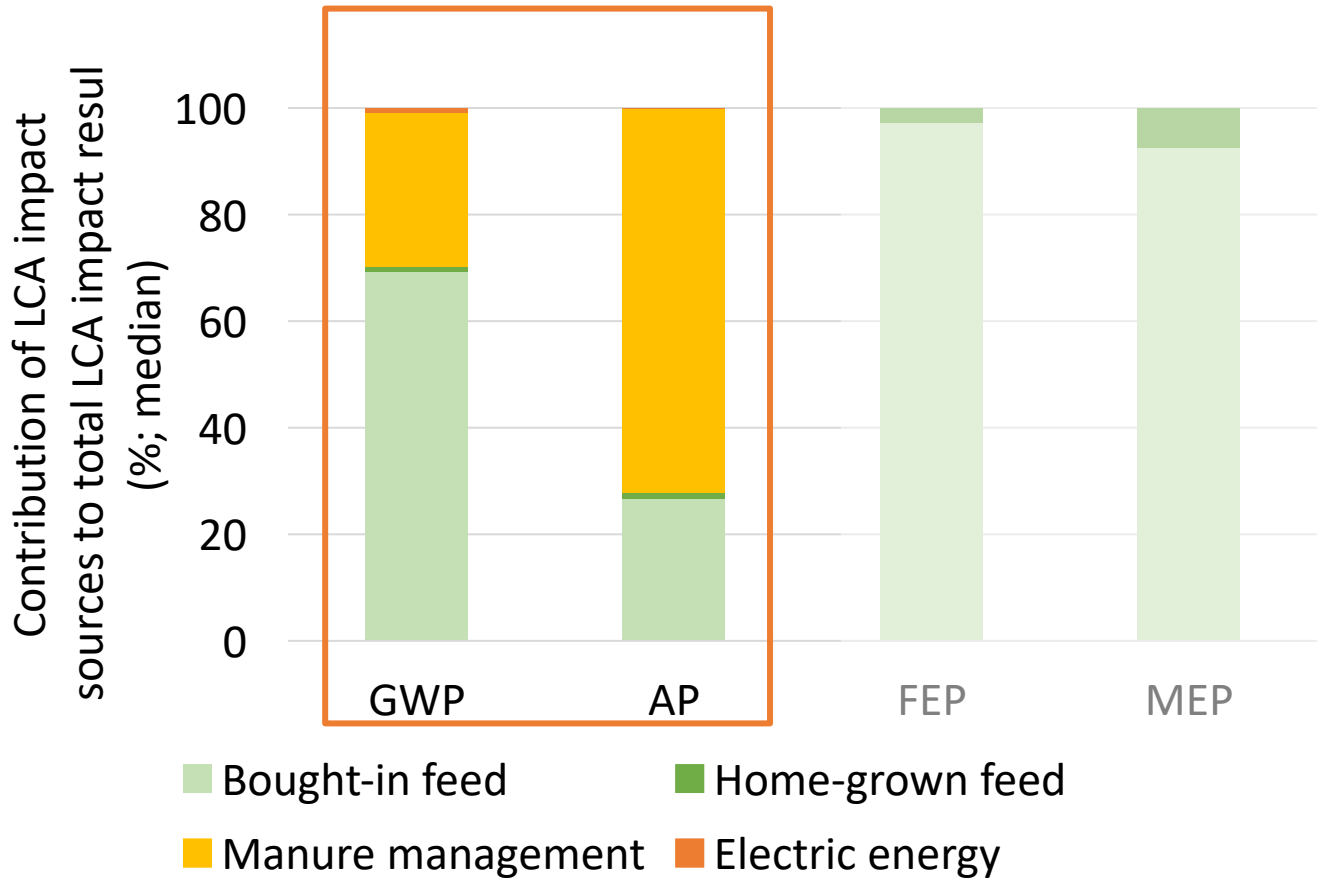
Animal welfare: PC2 + PC3





General low prevalence
Management important

Contribution of sources on total LCA impacts

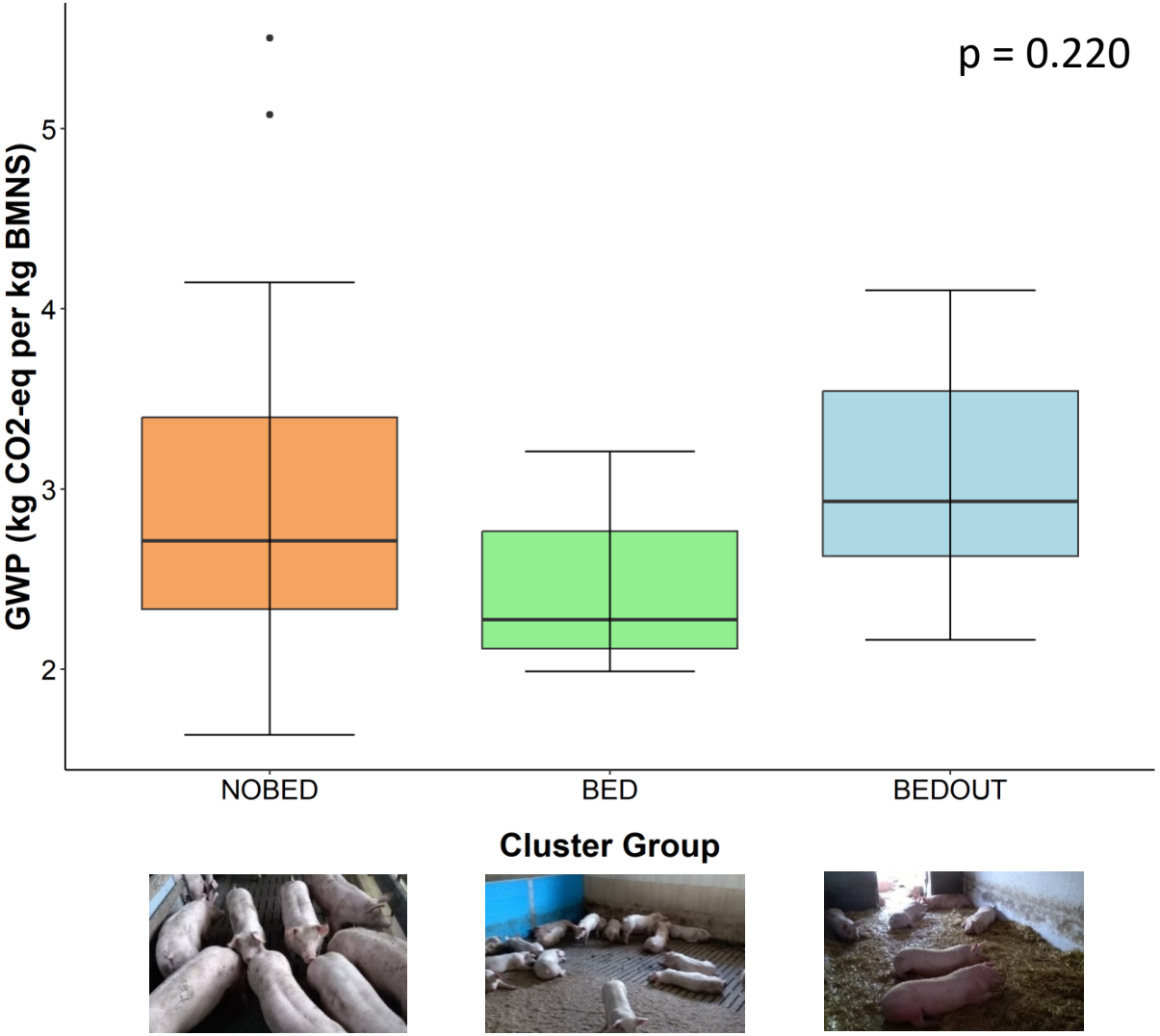


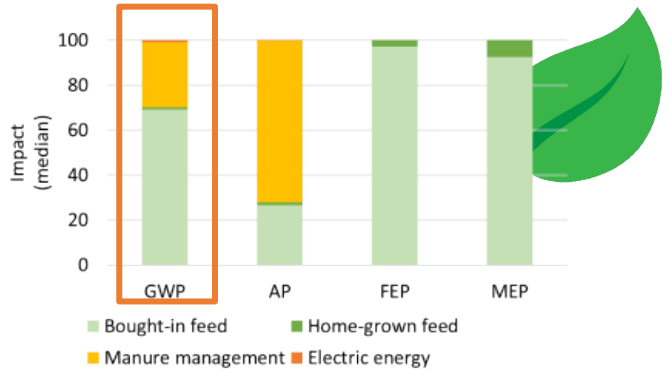
Comparable with other studies
(Reckmann et al, 2015, Rudolph et al, 2018)

Global warming potential (GWP)
→ feeding & manure management

Acidification potential (AP)
→ manure management

Global warming potential

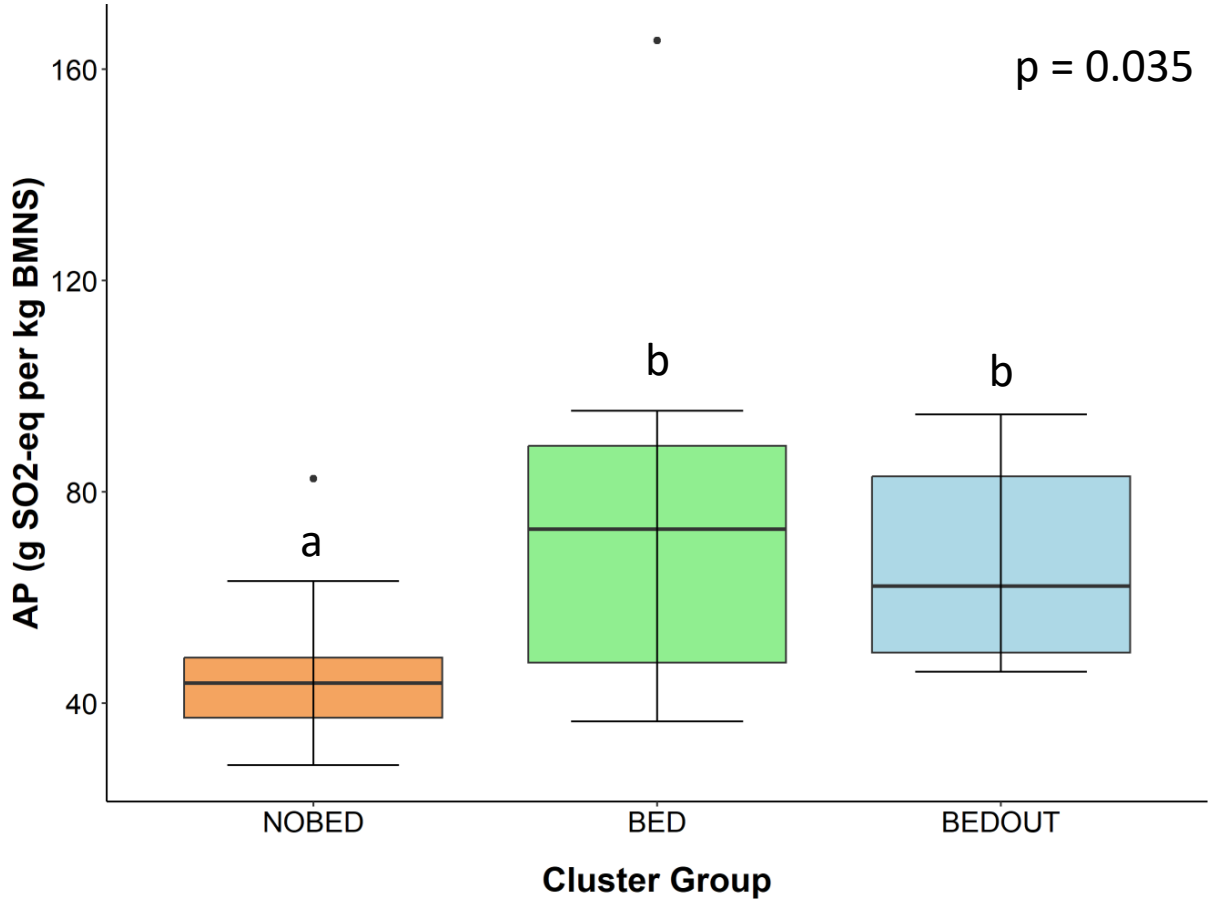


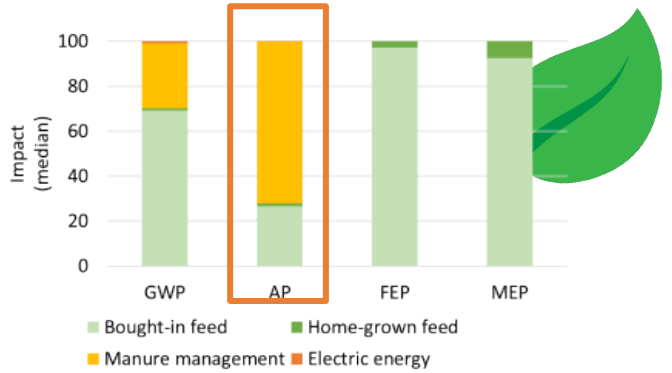


Comparable with other studies:
→ 2.2 to 4.4 kg CO_2-eq per kg live weight
(de Vries and de Boer, 2010)

Feed conversion and composition has high impact
(Reckmann and Krieter, 2015)

Acidification potential



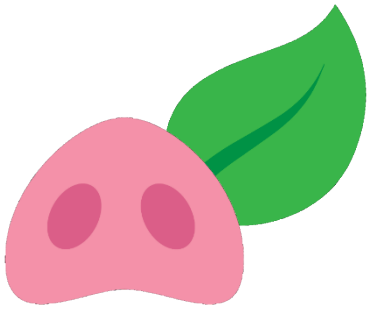


Comparable with other studies:
→23 to 186 g SO_2-eq. per kg live weight
(de Vries and de Boer, 2010)

Standard values for emissions
Manure → more ammonia?

Size of soiled area so far not considered

Conclusion



Farm system with bedding (BEDOUT, BED)

- Farm specific values instead of standard values (e.g. soiled area)
- High variability → Farm individual solutions needed

Farm systems with an outdoor run (BEDOUT)

- No effect on AW based on our study
- Relatively low sample size, large variation of outdoor run design, other AW indicators?

Overall:

- Trade-offs between sustainability dimensions can occur but not necessarily
- More research needed based on on-farm data

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Thank you for your attention!