Hut climate impacts piglet survival

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High temperatures & hyperthermia

Sows are most challenged

- Physical thermoregulation
- Behavioural thermoregulation

Upper critical temperature 25-27°C (Prunier et al., 1997; Quiniou and Noblet, 1999

Stress affects oxytocin levels during parturition & lactation (e.g. Lau, 1991; Lawrence et al., 1992; Oliviero et al., 2008)

Thereby stress may result in:

- ↑Parturition duration
- ↓Milk ejection & lactation performance

Low temperatures & hypothermia

Neonatal piglets are most challenged

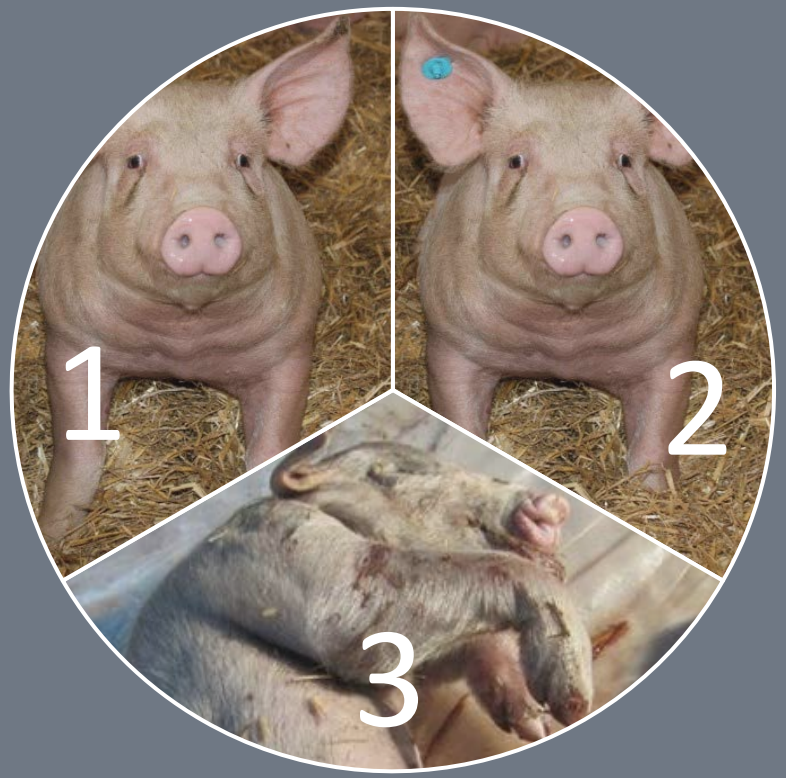
- Physical thermoregulation
- Behavioural thermoregulation

Lower critical temperature at birth ~34°C (Mount, 1959)

Hypothermia occurs naturally at birth

- Duration and severity affects risk of dying

Piglet mortality outdoors



- Main causes of mortality (Rangstrup-Christensen et al., 2018)
  - Stillbirth, crushing, starvation & infection
- Mortality varies across the year (Berger et al., 1997; Randolph et al., 2005; Rangstrup-Christensen et al., 2016)

Aim

To quantify the effects of yearly variation in farrowing hut climate on piglet mortality in organic sow herds with outdoor farrowing

Study design

Results & discussion

Stillbirth: 646 parturitions

Early liveborn death: 568 parturitions

Litter size = 18 (5-29), stillbirth = 1 (0-20), early liveborn death = 2 (0-21)

Mortality risk varied across the year

- Stillbirth lowest in winter
- Early liveborn death lowest in spring

Results & discussion

Stillbirth

- No effect of humidity & effect of temperature depended on time of year

Warmer part of year (March – November)

Temperature ≥27°C → ↑ Stillbirth

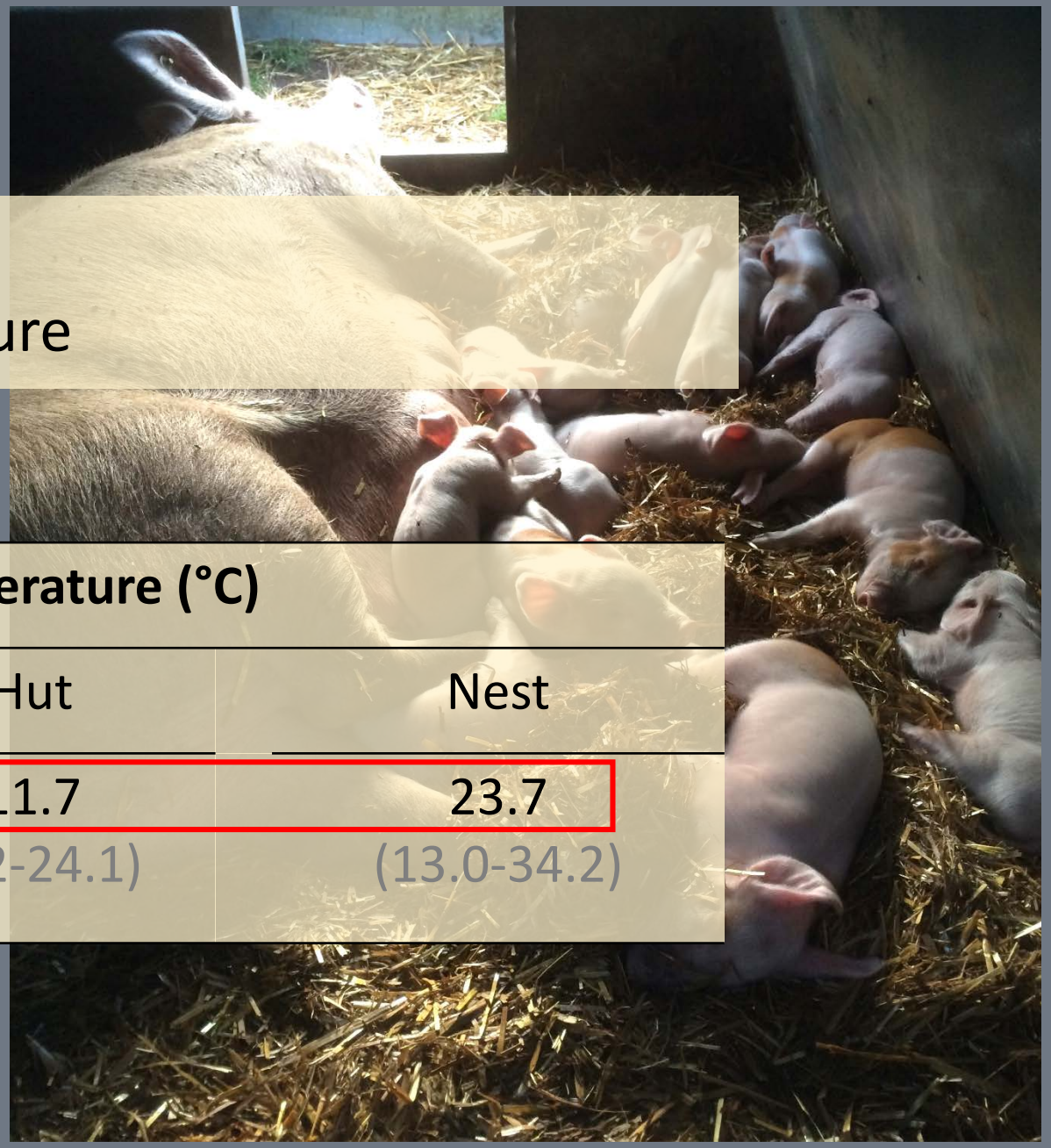
Cold part of year (December-February)

Temperature variation between days → ↑ Stillbirth

Results & discussion

Liveborn mortality

- No effect of humidity or temperature



Temperature (°C)		
Outdoors	Hut	Nest
3.9 (-3.0-11.2)	11.7 (2.2-24.1)	23.7 (13.0-34.2)

Conclusions

High temperature may challenge sows giving birth outdoors thereby increasing the risk of stillbirth

Insulated farrowing huts & proper management routines may be sufficient to maintain a good micro-climate and avoid early liveborn death

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Thank you

Animal (2019), **13:4**, pp 826–834 © The Animal Consortium 2018
doi:10.1017/S1751731111800201X

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Does hut climate matter for piglet survival in organic production?

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