

# Relationships between sow conformation and crushing events in commercial piglet production

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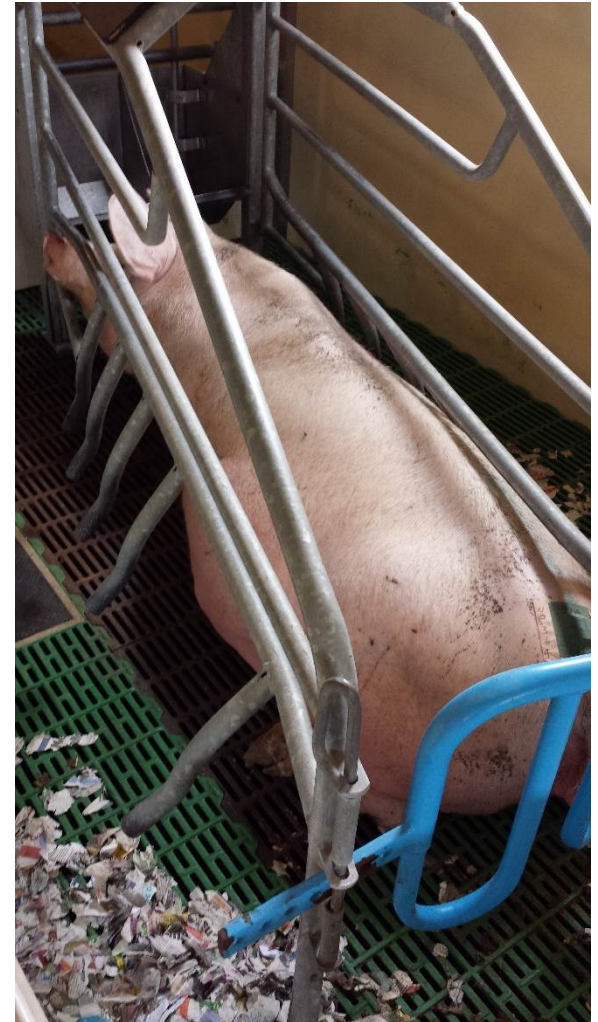
2 JSR Genetics, Ltd

## Background

- Farrowing crates introduced to reduce piglet mortality
  - Reduces sow movement, potentially reducing crushing
- Genetic selection to maximise back length and lean muscle growth rate for meat production
  - Resulting in change of sow body shape
  - Increased difficulty in the control of posture changes
- Potential for increased piglet mortality due to crushing by the dam
- However, confinement in a crate may also have an impact on sow movement control

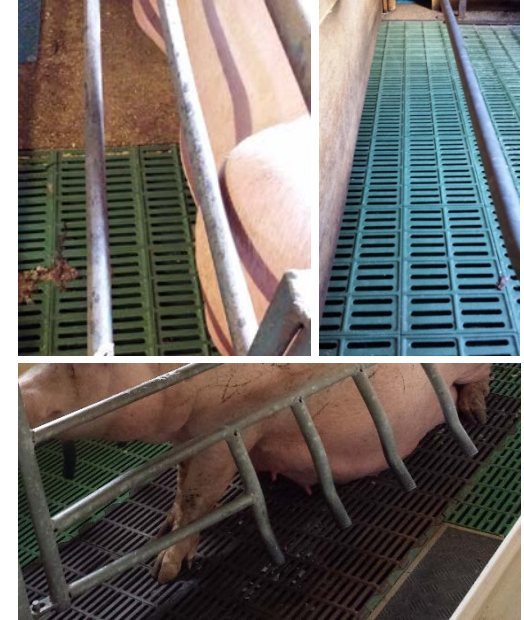
## Aim:

- To look at the relationship between:
  - Sow front and hind leg conformation
  - Sow leg defects
  - Farrowing floor type
- On piglet crushing events
  - Sow level
  - Piglet level



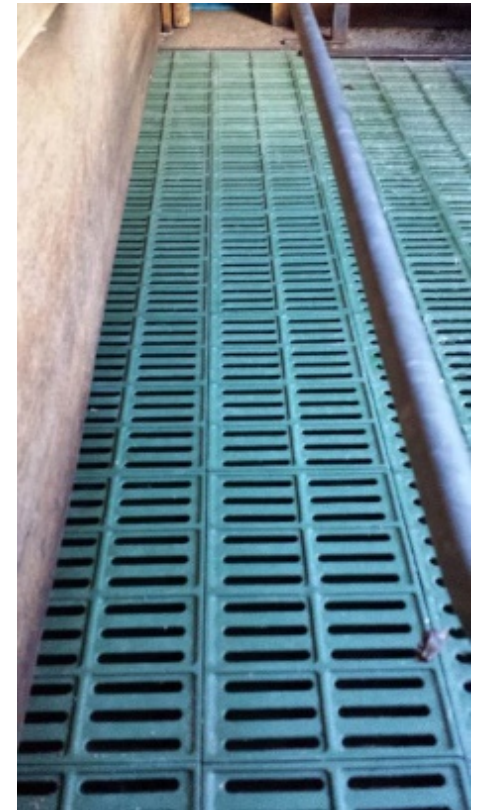
## Data collection

- Data collection carried out on JSR multiplier herd
- 750 Landrace sow herd producing hybrid gilts
- 28-35 sows farrowing weekly
  - Regumate used to delay farrowing (approx. 50%)
- Farrowing floor surface
- Parity
- Administration of regumate
- Leg conformation (fore and hind)
- Leg defects – e.g. bursitis, long claws

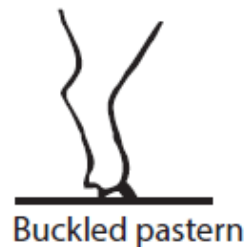
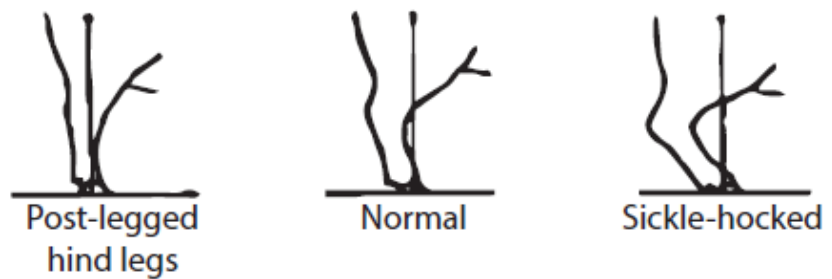
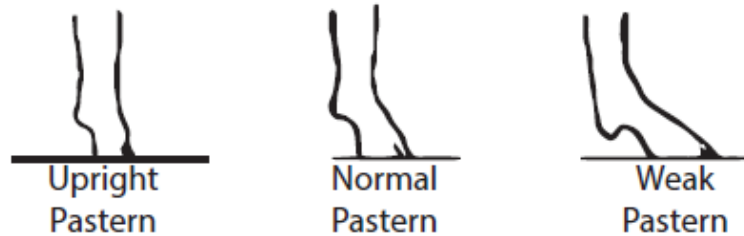
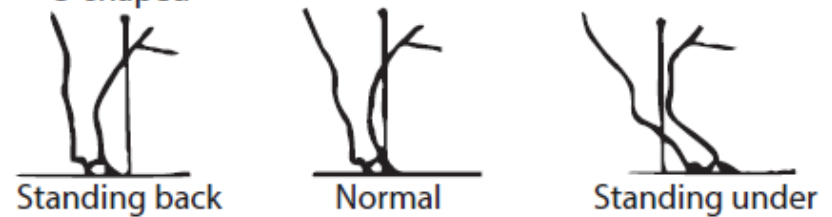
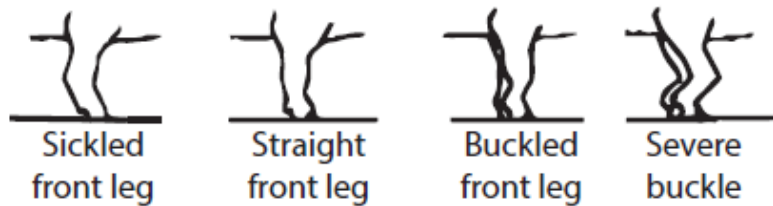
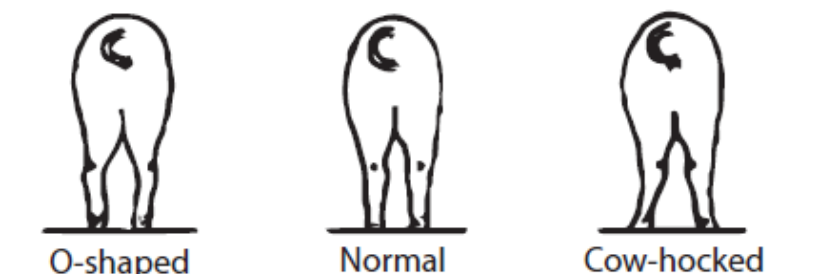
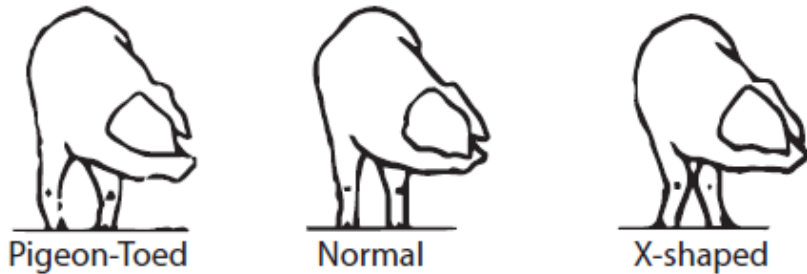




## Farrowing floor types



## Leg conformation



## Data collection

### Piglet data

- Weight at processing (18-24 hours after birth)
- Piglet sex
- IUGR- status – defined by head morphology
- Reason and time of death
  
- Time span = 52 weeks
- Total of 21,159 piglets born
- 1,577 individual litters

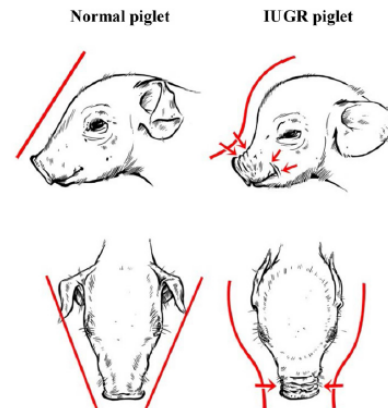


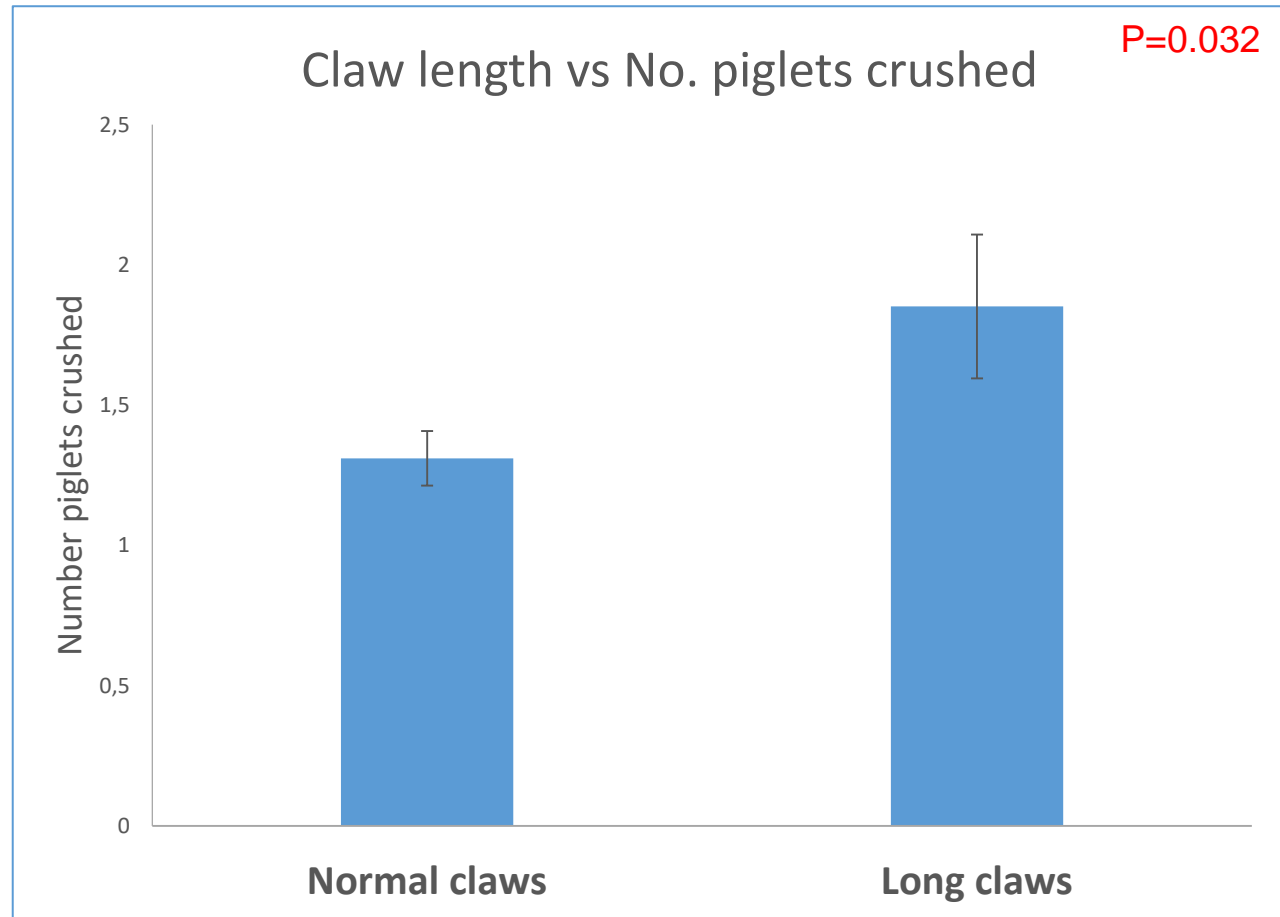
Figure 2. Illustrations of a normal (left) and a growth-restricted piglet (right). Criteria for growth restriction were 1) steep, dolphin-like forehead, 2) bulging eyes, and 3) wrinkles perpendicular to the mouth. IUGR = intrauterine growth restriction. See online version for figure in color.

Figure 1: Dorso-ventral characteristics of normal (left), intermediate (middle) and IUGR (right) piglets



## Sow level – Total number of piglets crushed

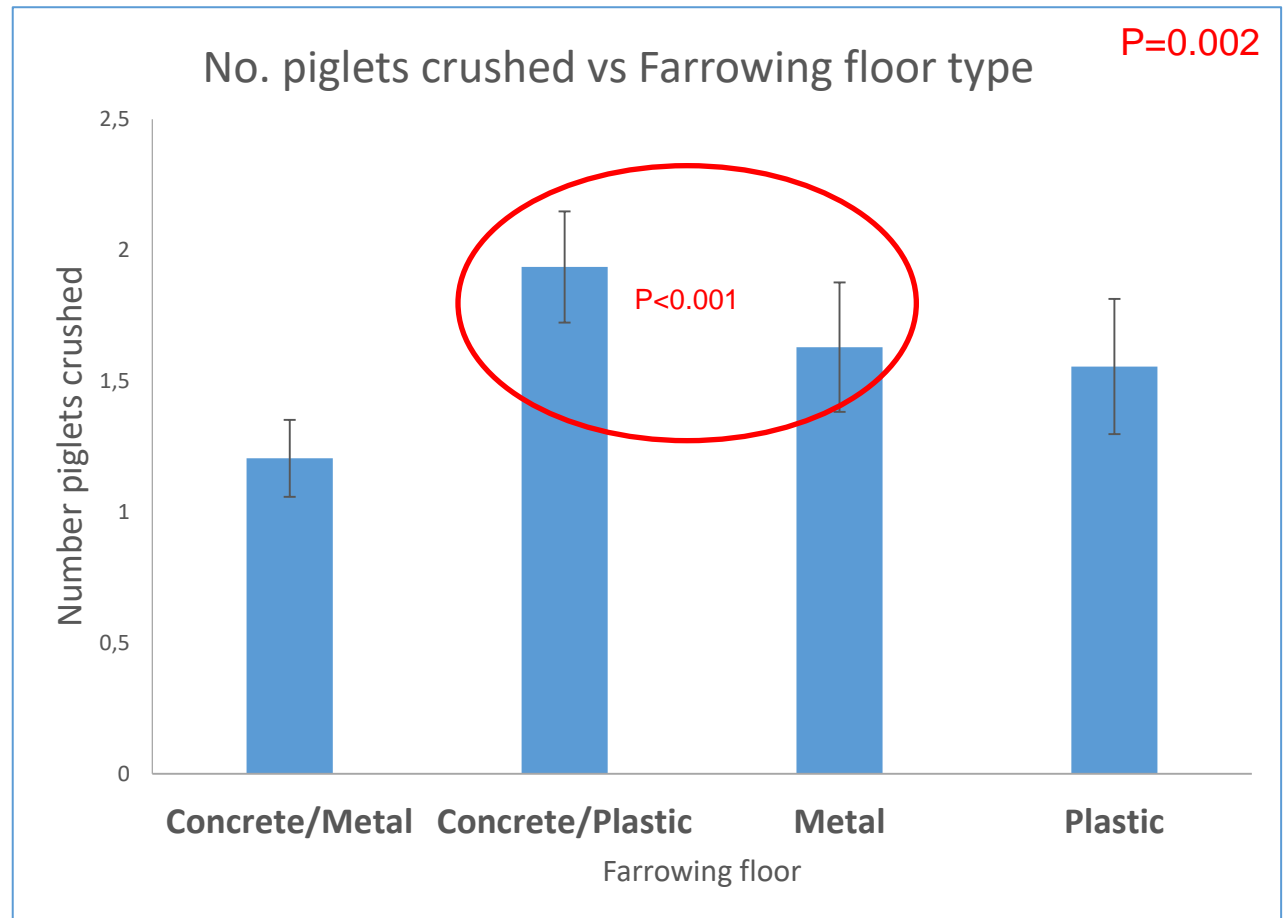
- Claw length
- Longer clawed sows crush more piglets





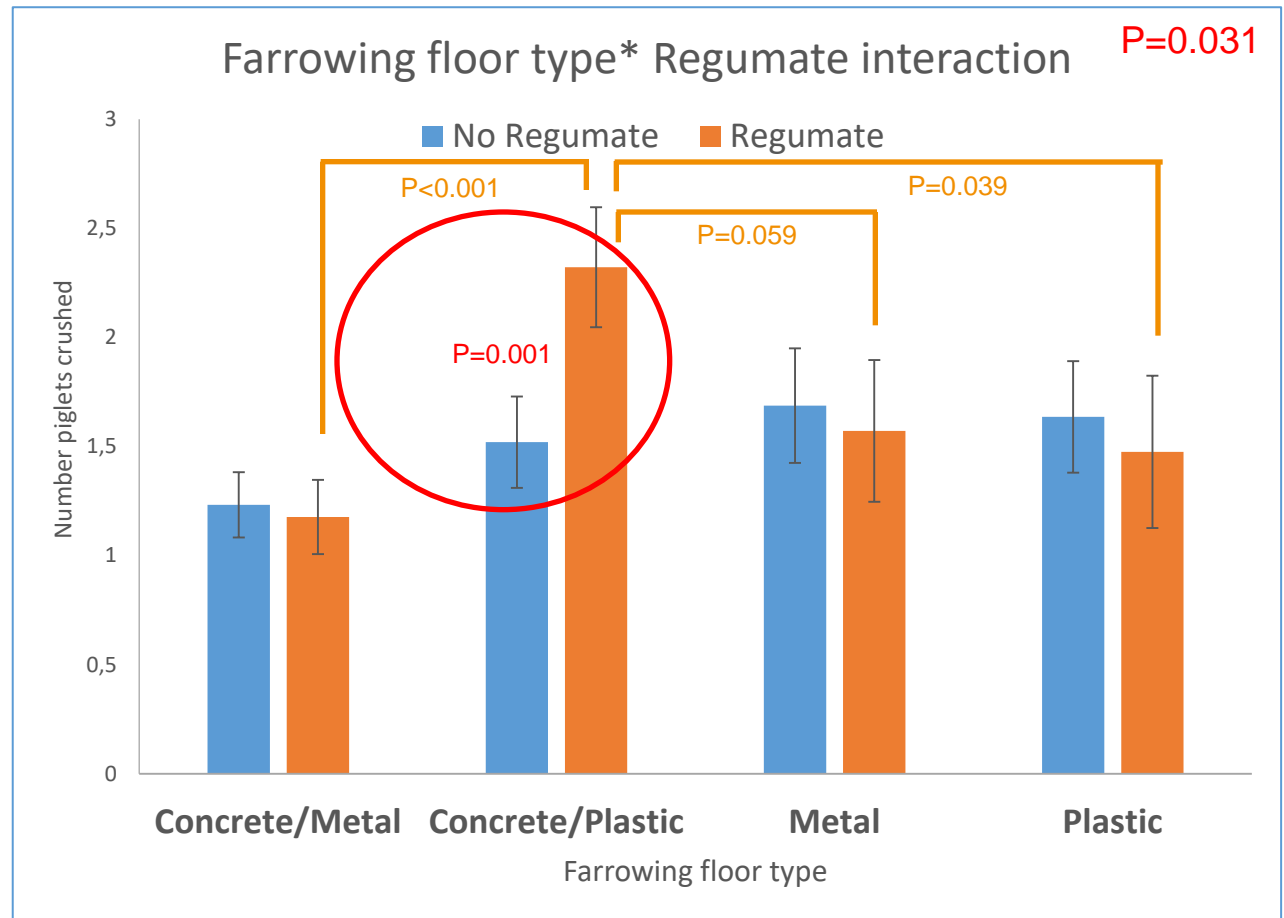
## Sow level – Total number of piglets crushed

- Farrowing floor type
- Difference between concrete/metal floor and concrete/plastic floor



## Sow level – Total number of piglets crushed

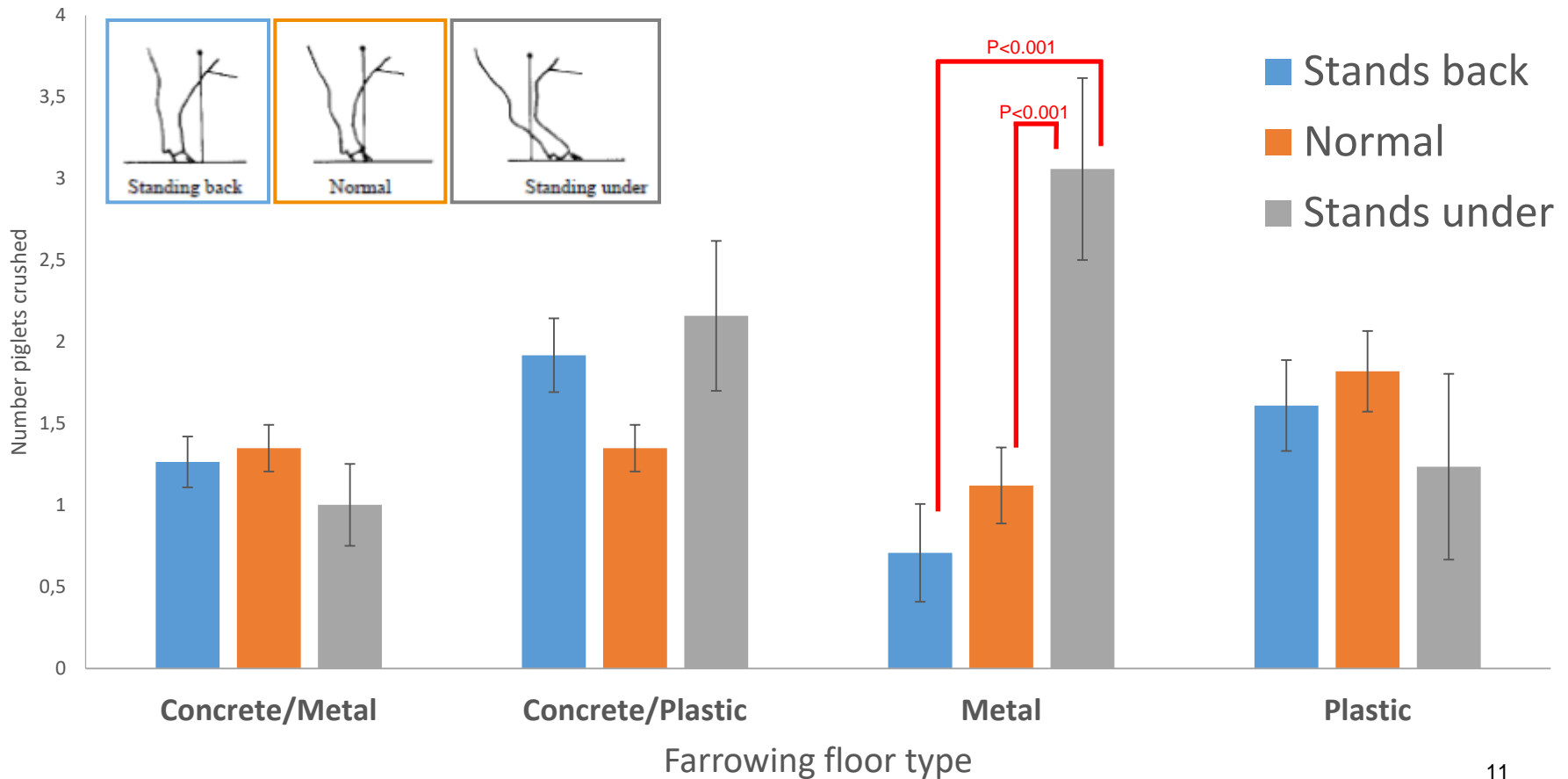
- Floor type x Regumate interaction
- No regumate (blue bars)
- no difference between floor types
- Regumate (orange bars)
- Concrete/plastic has more crushed piglets



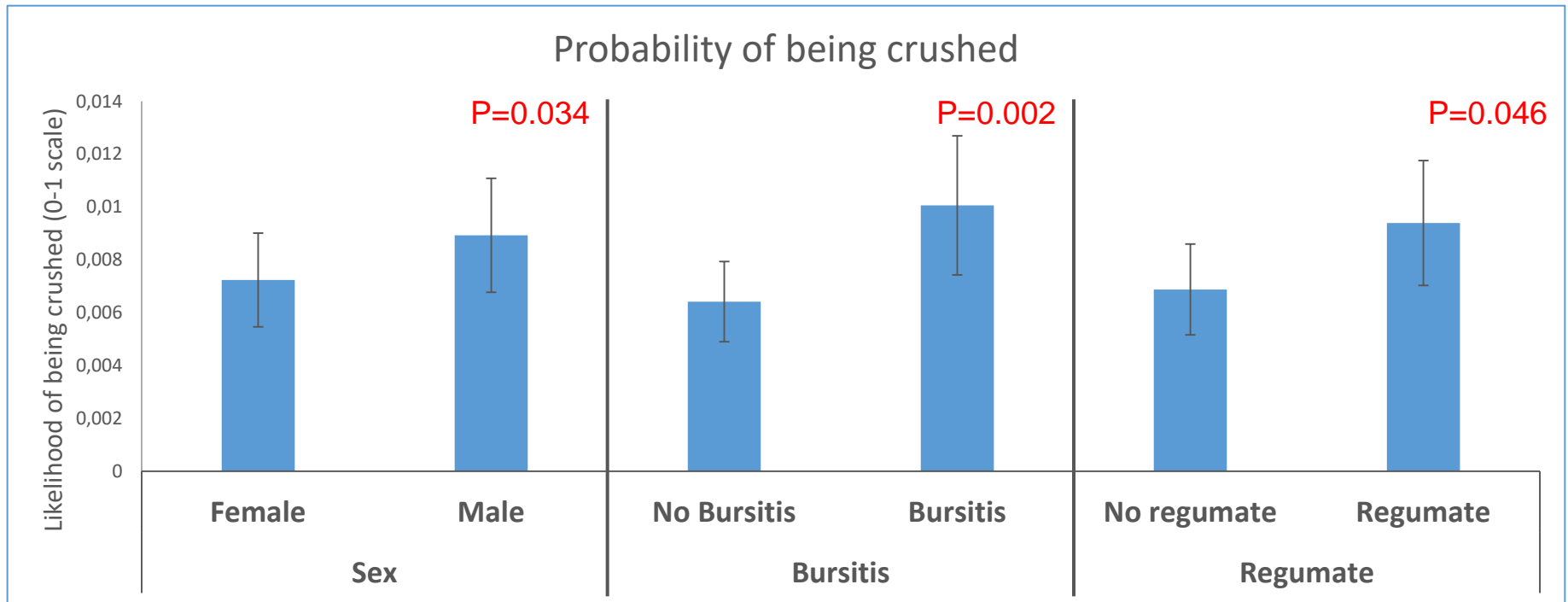
## Sow level – Total number of piglets crushed

Hind leg placement\* farrowing floor interaction

P=0.011



## Piglet level – Probability of being crushed



- Females
- No Bursitis
- No Regumate given
- Lower log likelihood of being crushed
- Lower log likelihood of being crushed
- Lower log likelihood of being crushed

## Piglet level – Farrowing floor type comparisons

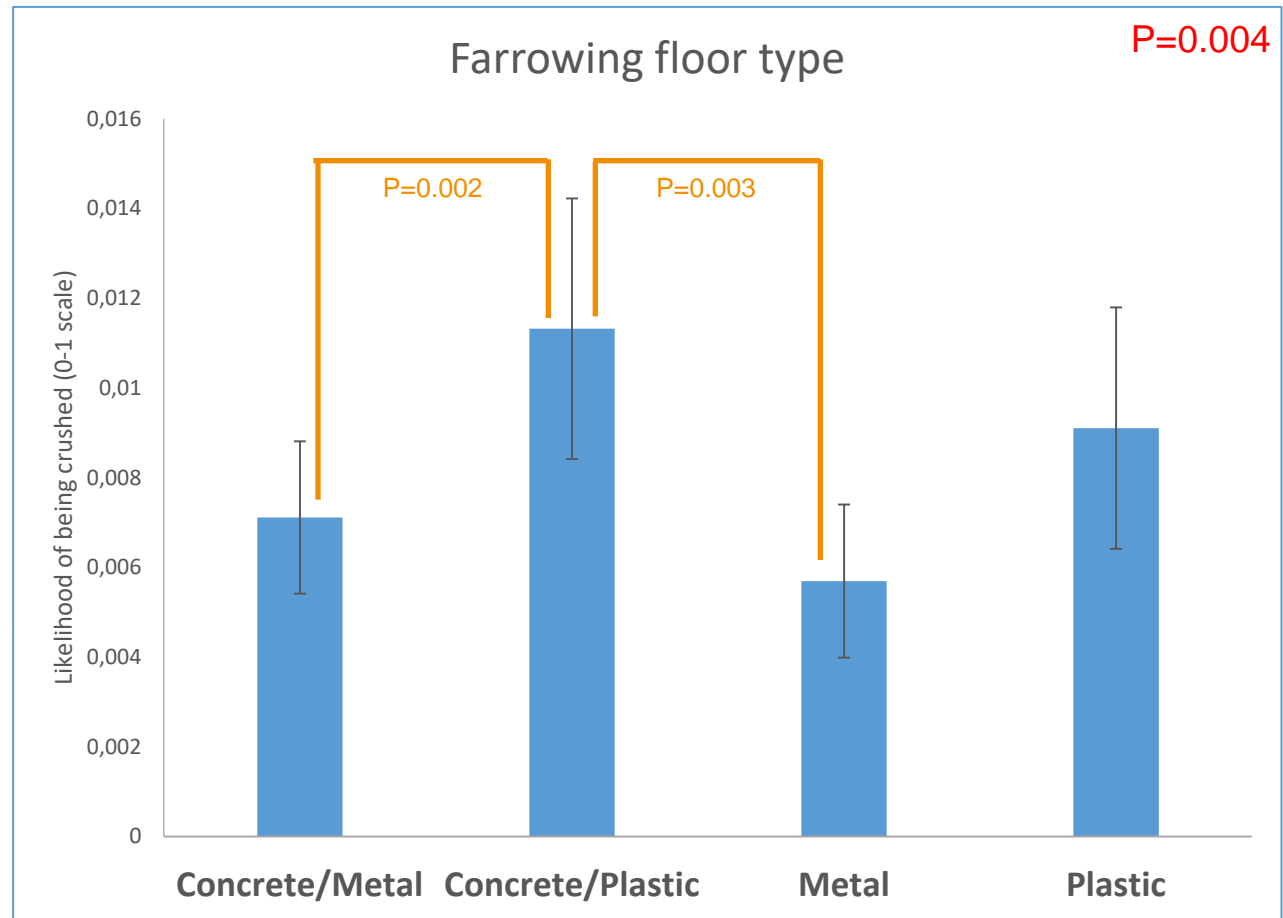
- Concrete/Plastic floor

Higher log likelihood of crushing compared to

- Concrete/Metal slatted floor

And

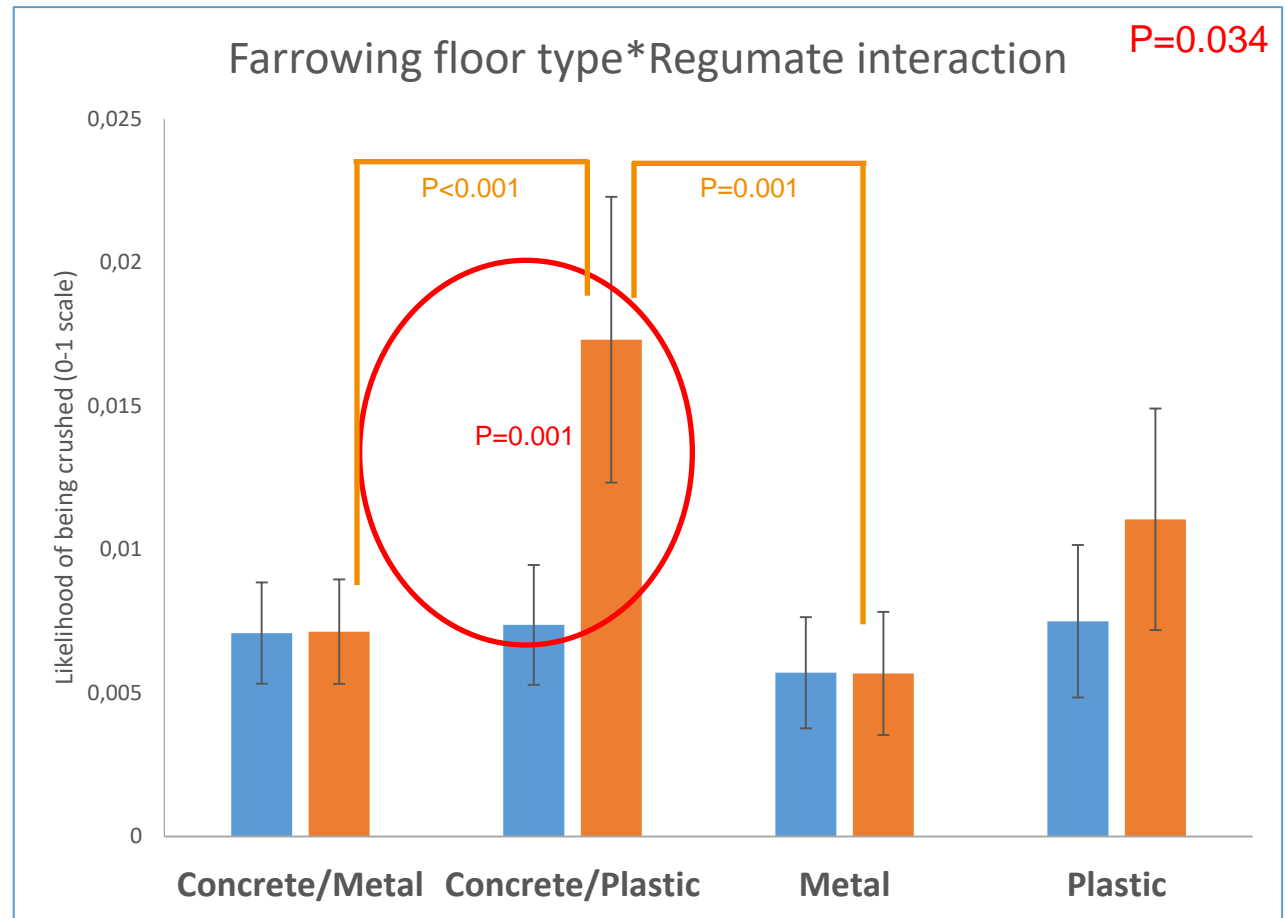
- Fully Metal slatted floor





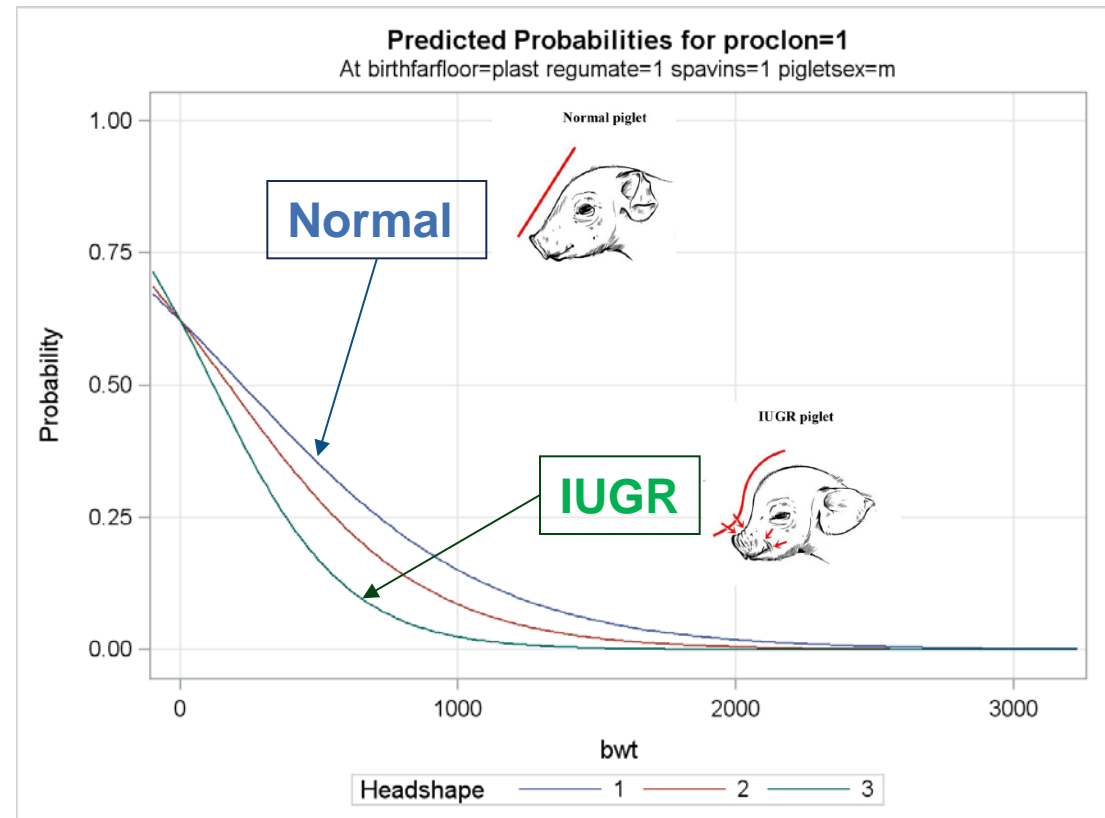
## Piglet level – Regumate within farrowing floor type

- Concrete/Plastic slatted floor
- Higher log likelihood of being crushed when the sow has been given regumate



## Probability of being crushed by processing

- Weight  $P < 0.0001$
- Weight x head shape ( $P < 0.0001$ )
- Effect of head shape differs as weight increases
- Difference in the interactive effect between IUGR (green) head shape and normal (blue) head shape ( $P < 0.0001$ )



## Conclusions so far ...

- Sow level:
  - Sow leg conformation and claw length interact with the type of farrowing floor on the total number of piglets crushed
  - Total number of piglets crushed is affected by the use of regumate to prevent farrowing and the farrowing floor type
- Piglet level:
  - Probability of being crushed increases in the presence of sow hock bursitis, being born male and with the use of regumate
  - Probability of being crushed is affected by the use of regumate to prevent farrowing and the farrowing floor type

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