

Improving udder quality traits in sows to aid survival, health and lifetime performance of piglets



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**Pre weaning mortality in the UK is 11.5%
of which 70% occurs during the first 4 days**

Quality Colostrum intake is the key solution:

- Passive immunity
- Energy for thermoregulation and body growth
- Gut Growth factors
- Colostrum production decreases after 12 hours



A good udder reduces the time to suckle

Experiment 1

Udder morphology study

OBJECTIVES

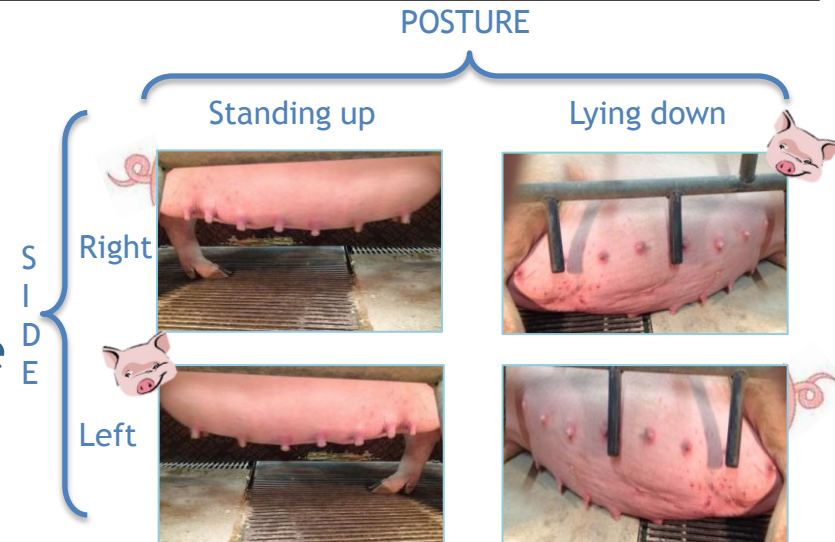
Define udder conformation traits measurable in a reliable way

METHODS

24 sows of different parity: measured every day until farrowing (1-4 days later); twice a day; in a Standing up & Lying down posture; from both rows.

RESULTS

- Do not change in the days shortly prior to farrowing
- Repeatable within sow
- Do not differ between side and posture
- High variability between sows



Experiment 2

Udder morphology variation

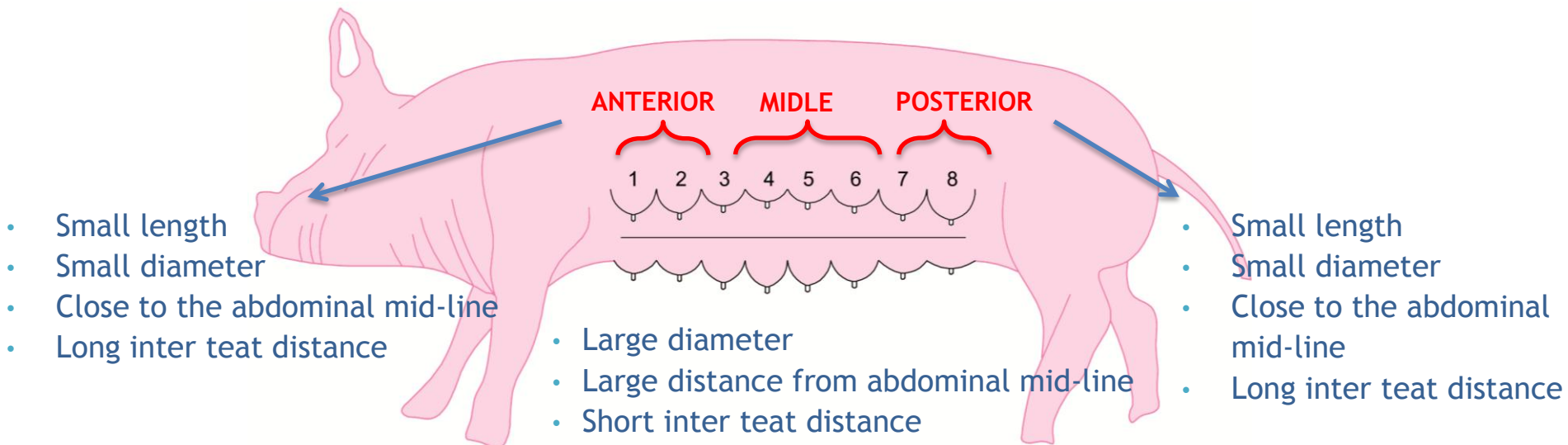
OBJECTIVES

Define udder conformation traits main variation between SOWS

METHODS

124 sows (Large White X Landrace) of different parity measured: once shortly prior to farrowing; in a Lying down posture; from one row.

RESULTS



Sow parity number had a significant effect on teat length and diameter.

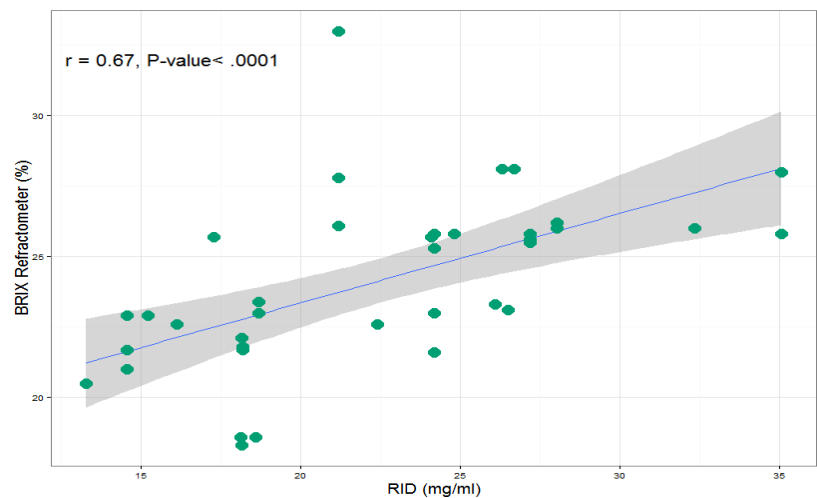
Experiment 3

On-Farm colostrum IgG methodology

OBJECTIVES	Evaluation of Brix refractometer to assess colostrum quality		
METHODS	Colostrum sample of sows of different parity, collected when freely available.		
Hypothesis	Analytical method	Tested hypothesis	P-value
BRIX repeatability	BRIX	High repeatability $r = 0.99$	$< .0001$
Refrigerated at 24-48-72h	BRIX	No differences	$> .05$
Storage temperature	BRIX	No differences	$> .05$
Brix-RID correlation	BRIX & RID	Positive correlation $r = 0.67$	$< .001$
Sampling time	BRIX & RID	4h after farrowing lower IgG	$< .05$



BRIX Refractometer



Agar plate Radial immunodiffusion RID

Experiment 4

Variation of litter performance

OBJECTIVES

Study the effect of maternal and birth characteristics on litter weight and serum IgG at 24h.

METHODS

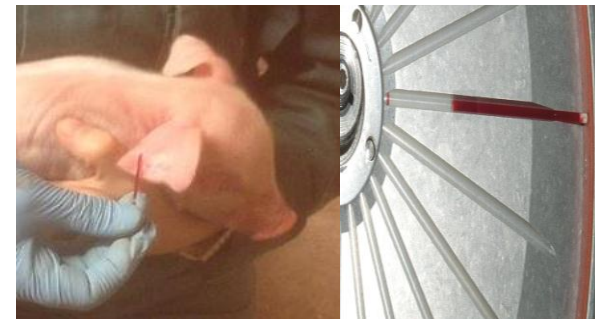
120 litters & 1426 piglets alive. 38 litter serum samples.

MATERIAL

Piglet birth weight, 24h weight, 24h serum sample from 4 piglets per sow.

RESULTS

- Immunocrit offers a simple on-farm test for piglet Ig intake.
- Variation in litter serum immunoglobulin concentration was not explained by any maternal and birth characteristics.



Experiment 5

Relationship between piglets and udder traits

OBJECTIVES

Study the link between udder morphology and piglet suckling behaviour

METHODS

75 sows of different parity & 377 piglets

MATERIAL

Udder data (exp.1). Piglet birth weight, vitality score, birth interval, time elapsed from birth to the udder & from the udder to suckle.

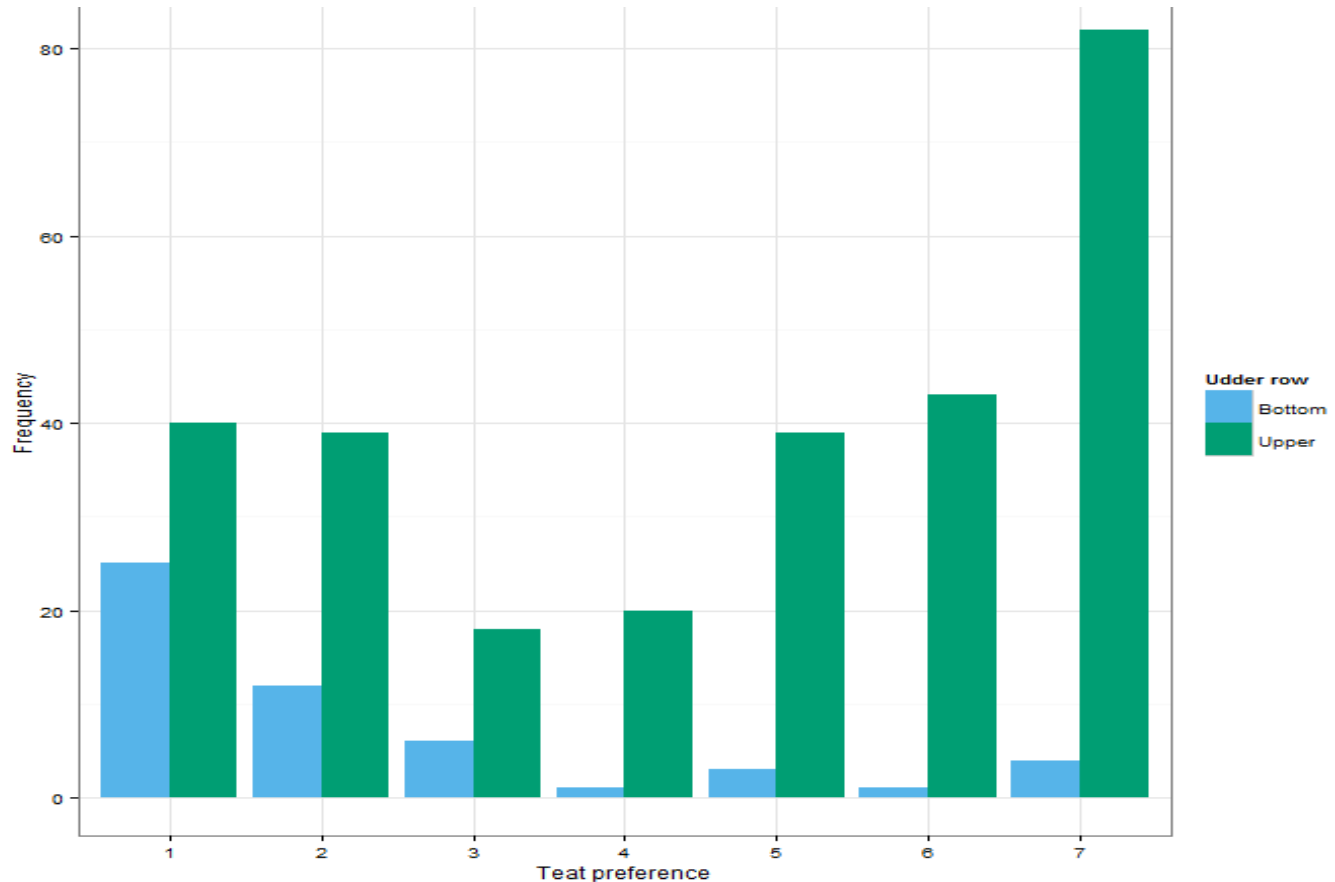
RESULTS

The latency to suckle from birth was significantly less on the posterior teats compared with the middle ones.

Vitality and birth weight did not have any effect on the time elapsed from birth to suckle.

Experiment 5

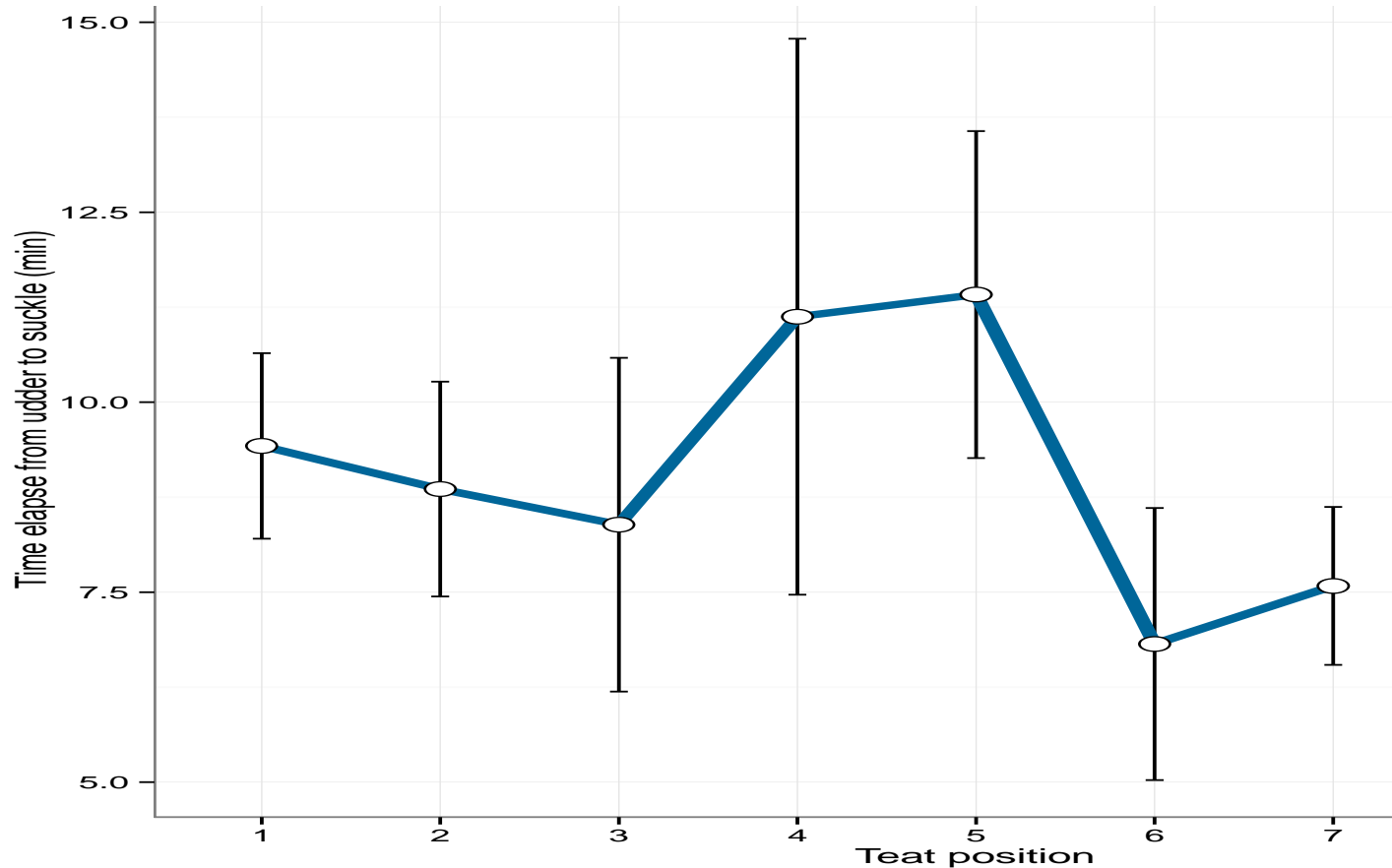
Piglets teat preference



- Teat preference greater for front and rear teats
- 72% of sibling choose the same teat

Experiment 5

Piglets teat preference

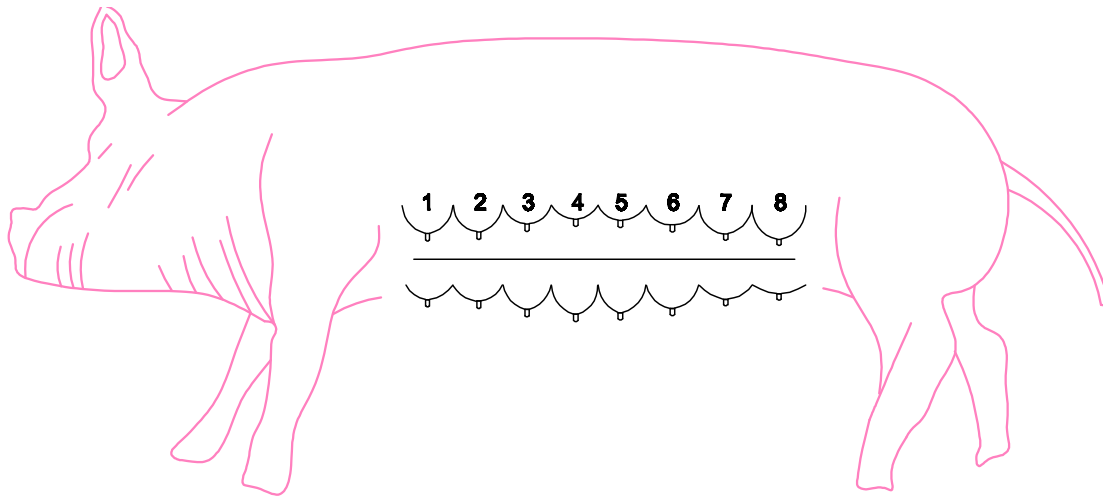


- Time elapsed from Udder to suckle shorter for front and rear teats
- Time elapsed from birth to suckle: average 27:48 minutes (00:02 to 02:51)
- From udder to suckle: average 09:29 minutes (00:00 to 01:34)

Experiment 5

Piglets teat preference

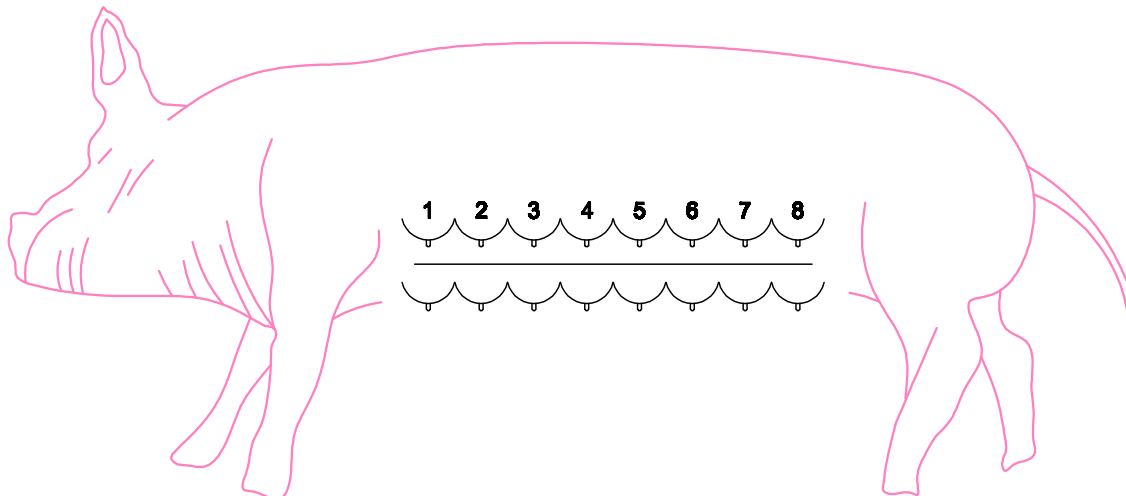
Udder morphology mean values



ANTERIOR & POSTERIOR

- Small length
- Small diameter
- Close to the abdominal mid-line
- Long inter teat distance

Perfect udder following piglet teat preference



AN IDEAL UDDER:

- Least 12 functional teat
- Placed equal distance the one from the other
- Small length and diameter
- Close to the abdominal mid-line

Study in progress

- Assess how udder conformation changes in consecutive parities of the sow
- Genetic study on selected traits and colostrum quality
 - heritability will be estimated for key udder traits
 - genetic correlations with other maternal selection criteria

Industry focus

- Allow a breeding company to take udder conformation and colostrum quality into account
 - Repeatable and reliable methods for **gilt selection**
- Increase number of weaned piglets
 - Allowing the selection of sows with **better nursing capacity**
 - **Improving colostrum accessibility and quality**

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Thanks for your attention



Questions?