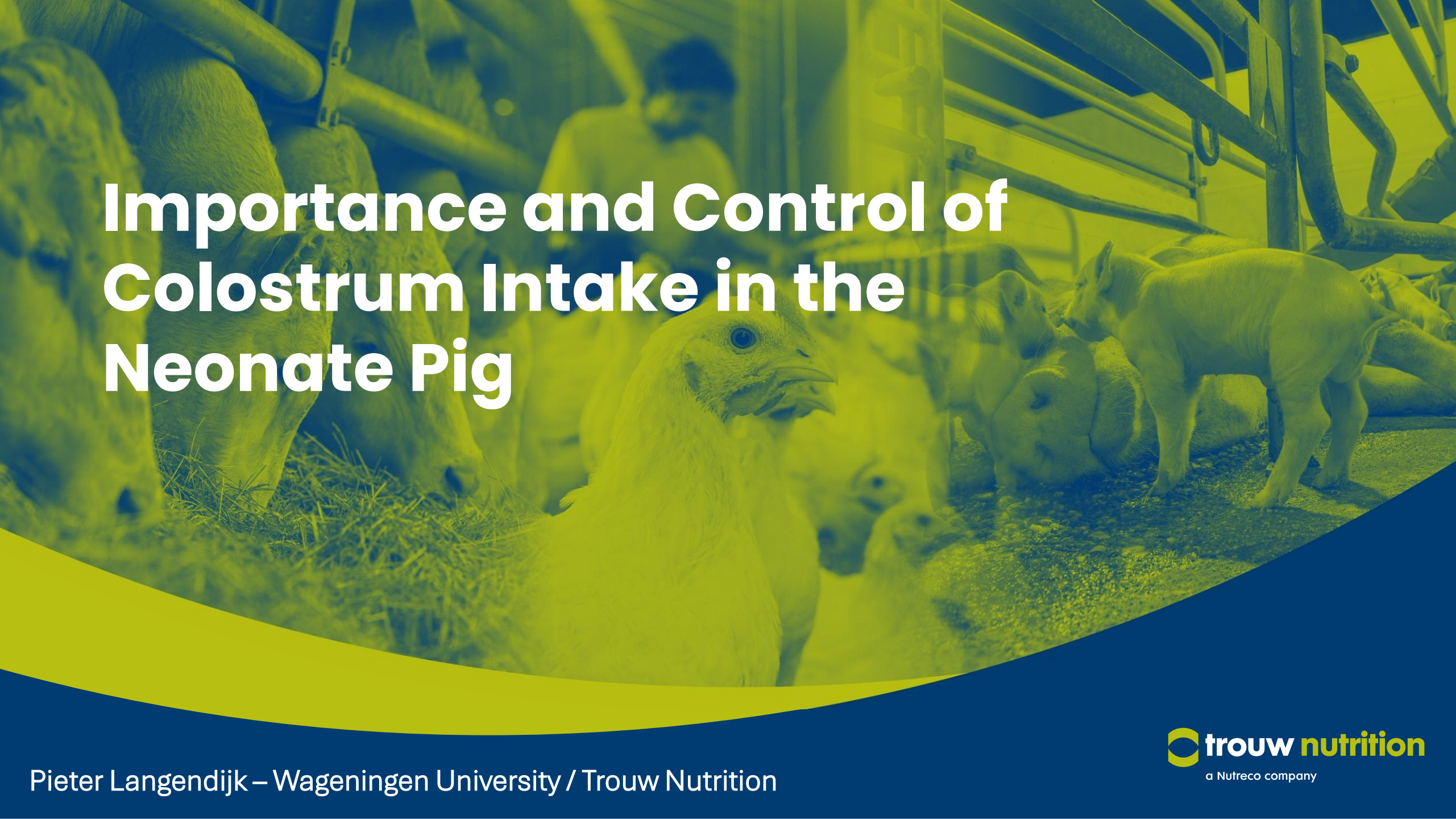
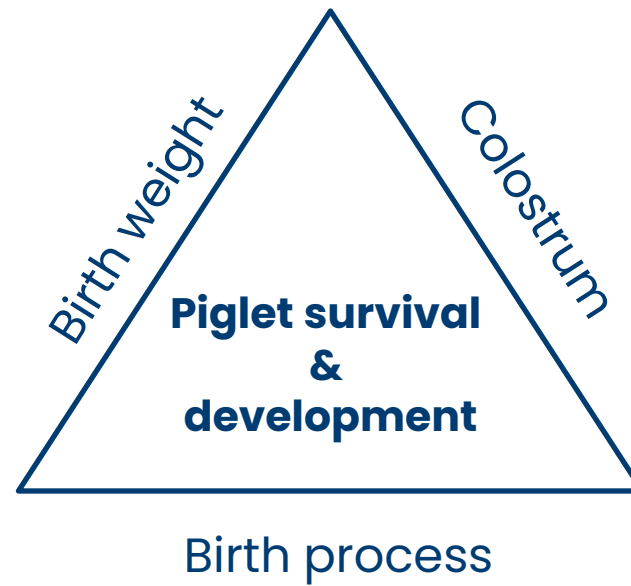




Importance and Control of Colostrum Intake in the Neonate Pig

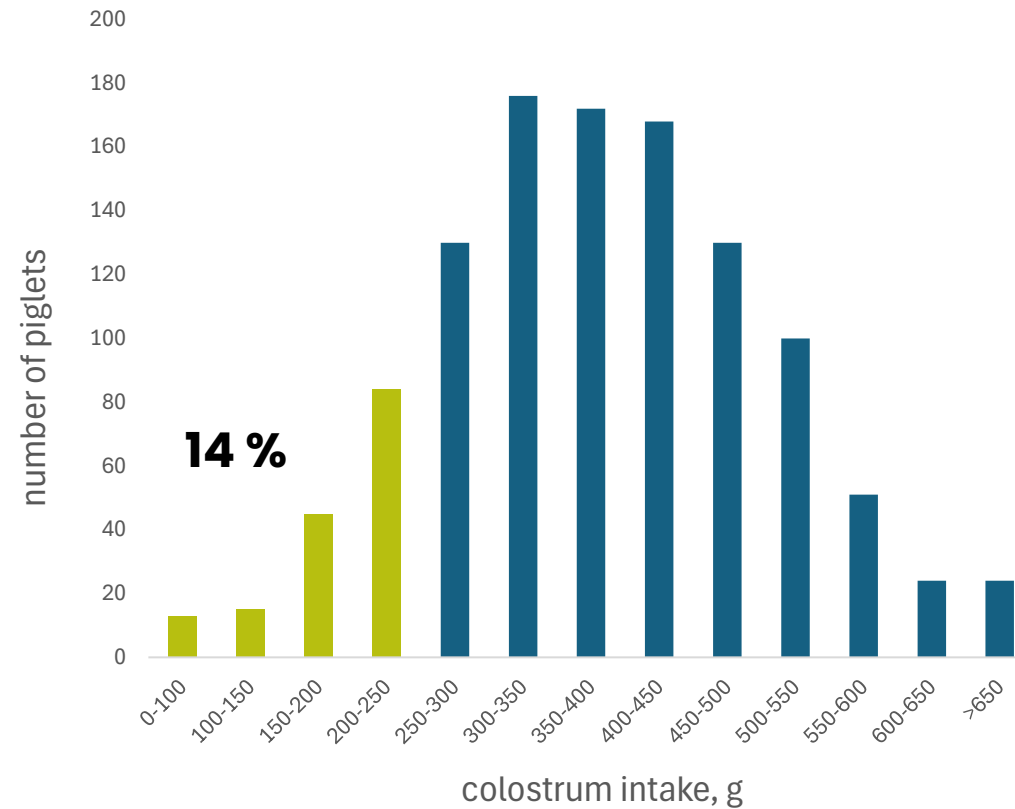


Sow and piglet factors that influence colostrum intake

Variation in colostrum intake

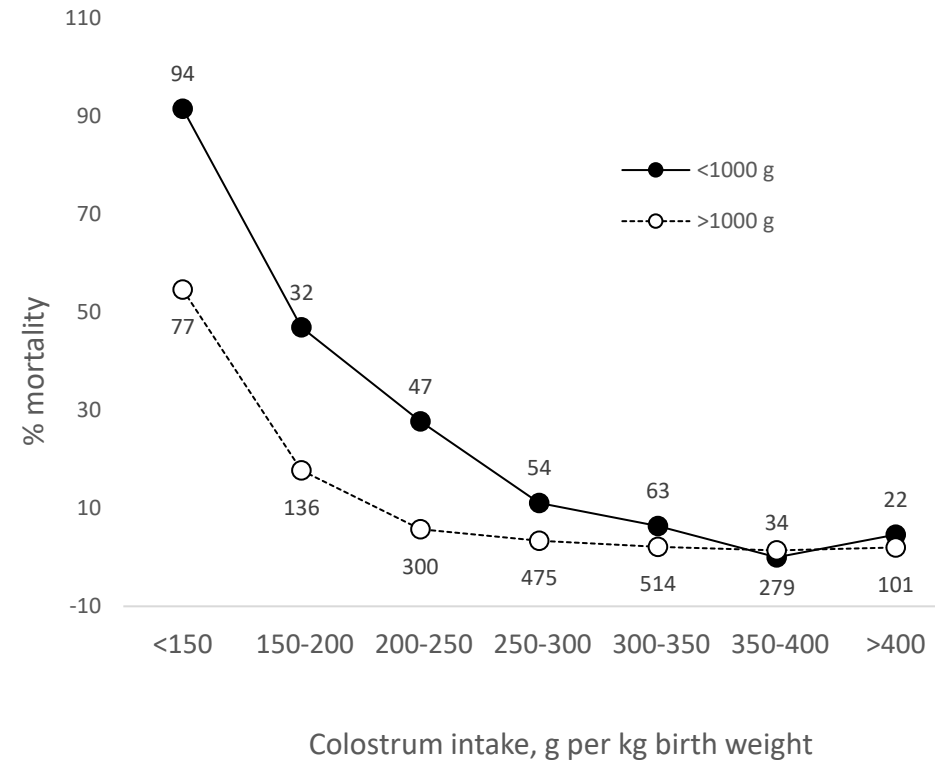
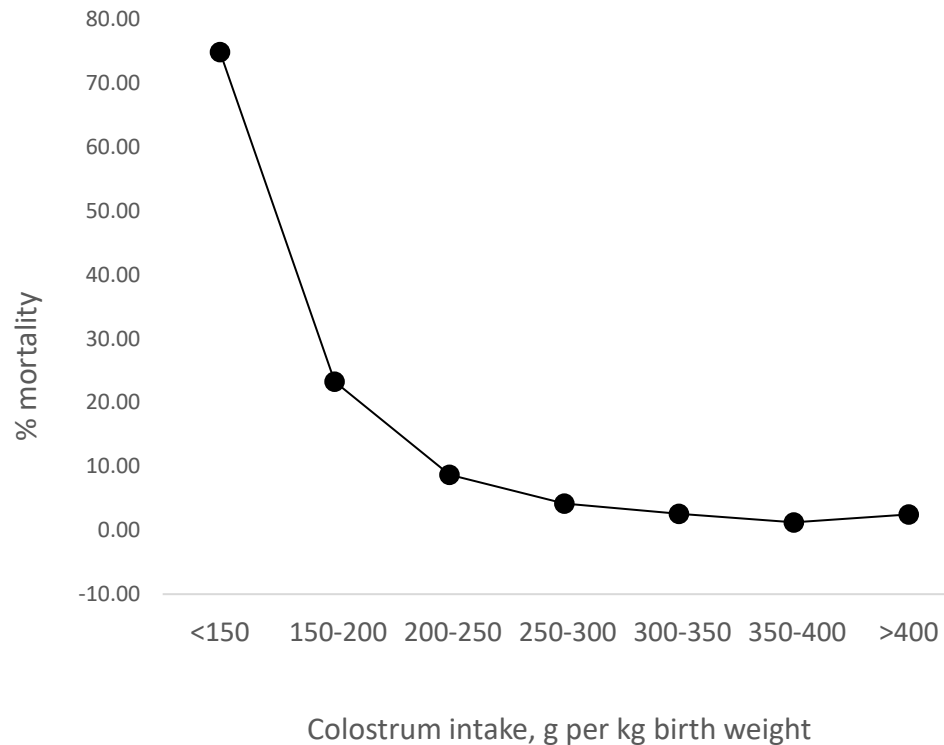
10-30 % of piglets
consume <250 g

Around 60 % of these are
light weight piglets



Significance of colostrum intake

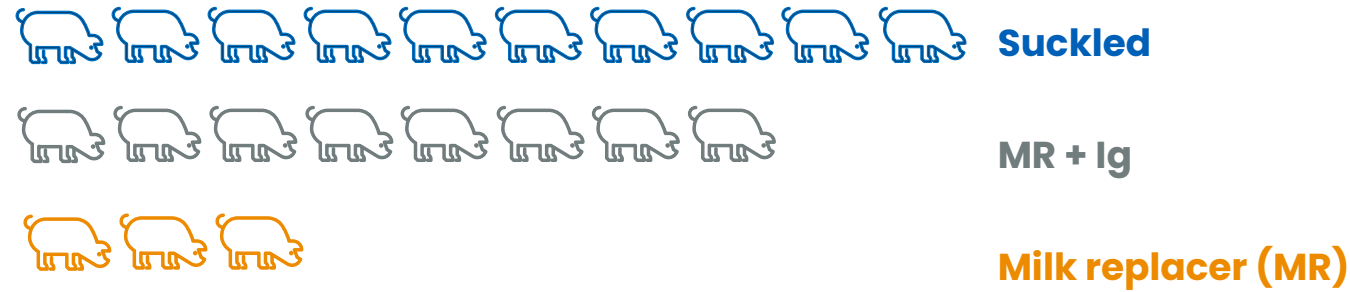
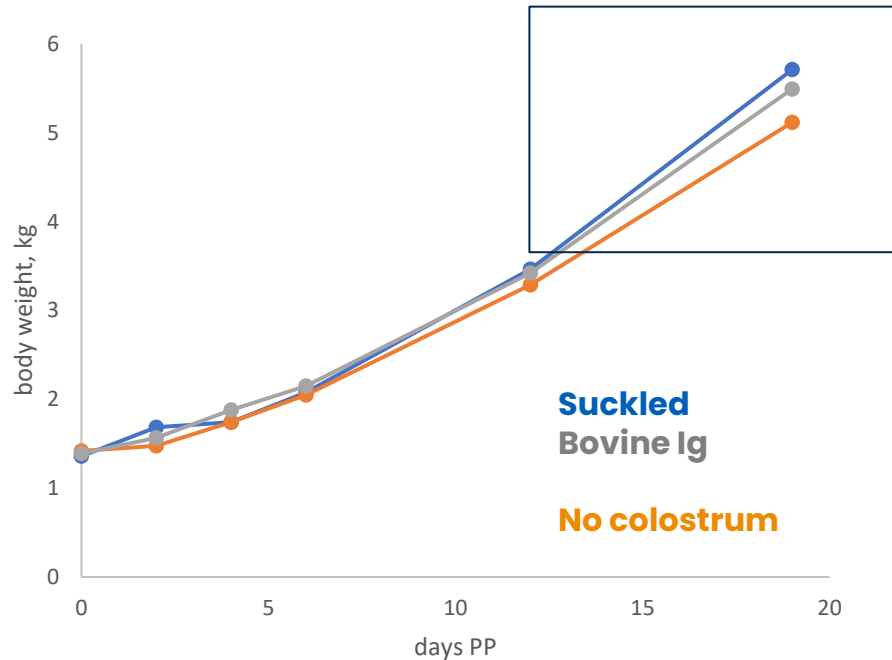
SRC data, 2018



Colostrum intake is related to neonatal mortality: intake below 250 g per piglet associated with higher mortality (SRC data).

Similar findings: Ferrari et al., 2014; Quesnel et al., 2012

Impact of colostrum in artificially reared piglets

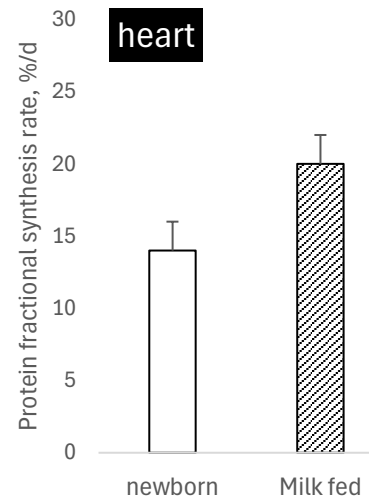
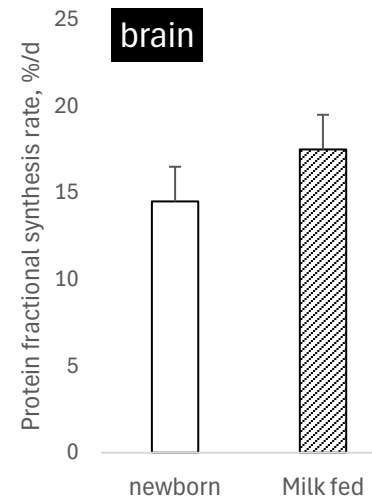
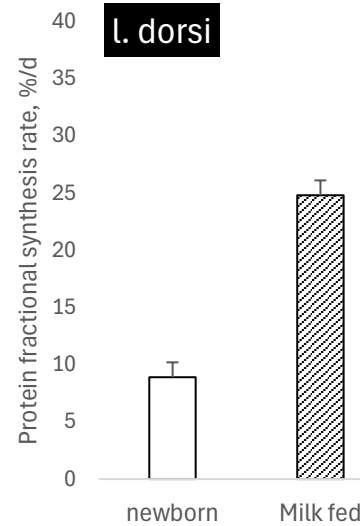
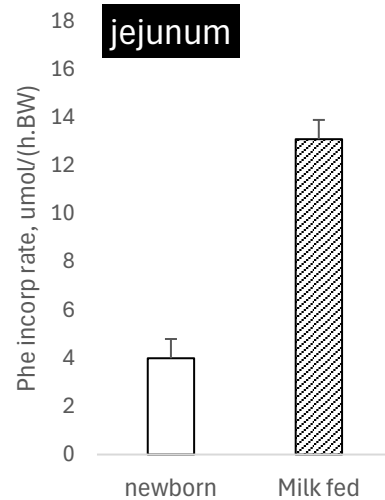


Treatment period

Gomez et al., 1998

Piglets were (unless suckled) separated from sows at birth, and fed a milk replacer without or with some sort of Ig source. From day 2 all piglets received the same milk replacer and were housed individually in **high sanitary** conditions. Milk replacer: 20 % DM, in DM: 28 % CP, 50 % lactose, 20 % EE, 4.1 MJ/kg. Sow colostrum 55 mg/mL pIgG, BC diet 7.4 mg/mL bIgG, Plg diet 16 mg/mL pIgG.

Protein synthesis rate in various tissue



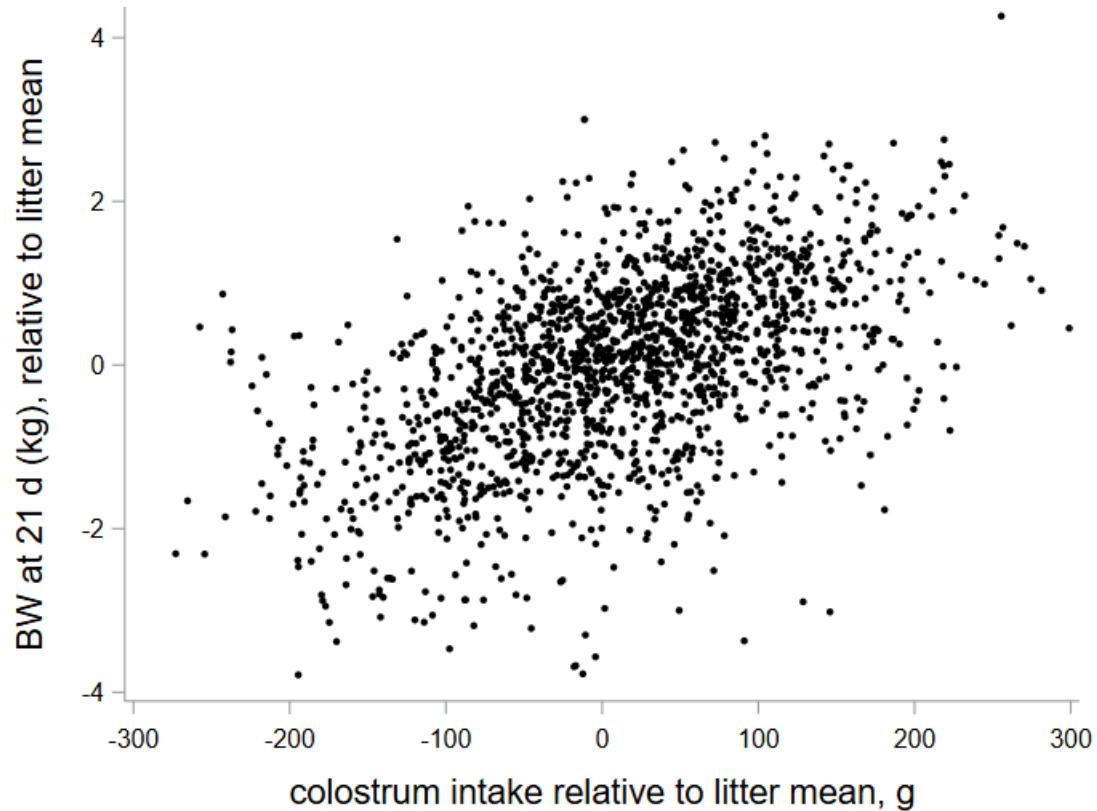
Colostrum contains non-nutritive factors that stimulate development of various tissues.

Data obtained during the first 24 h of life.

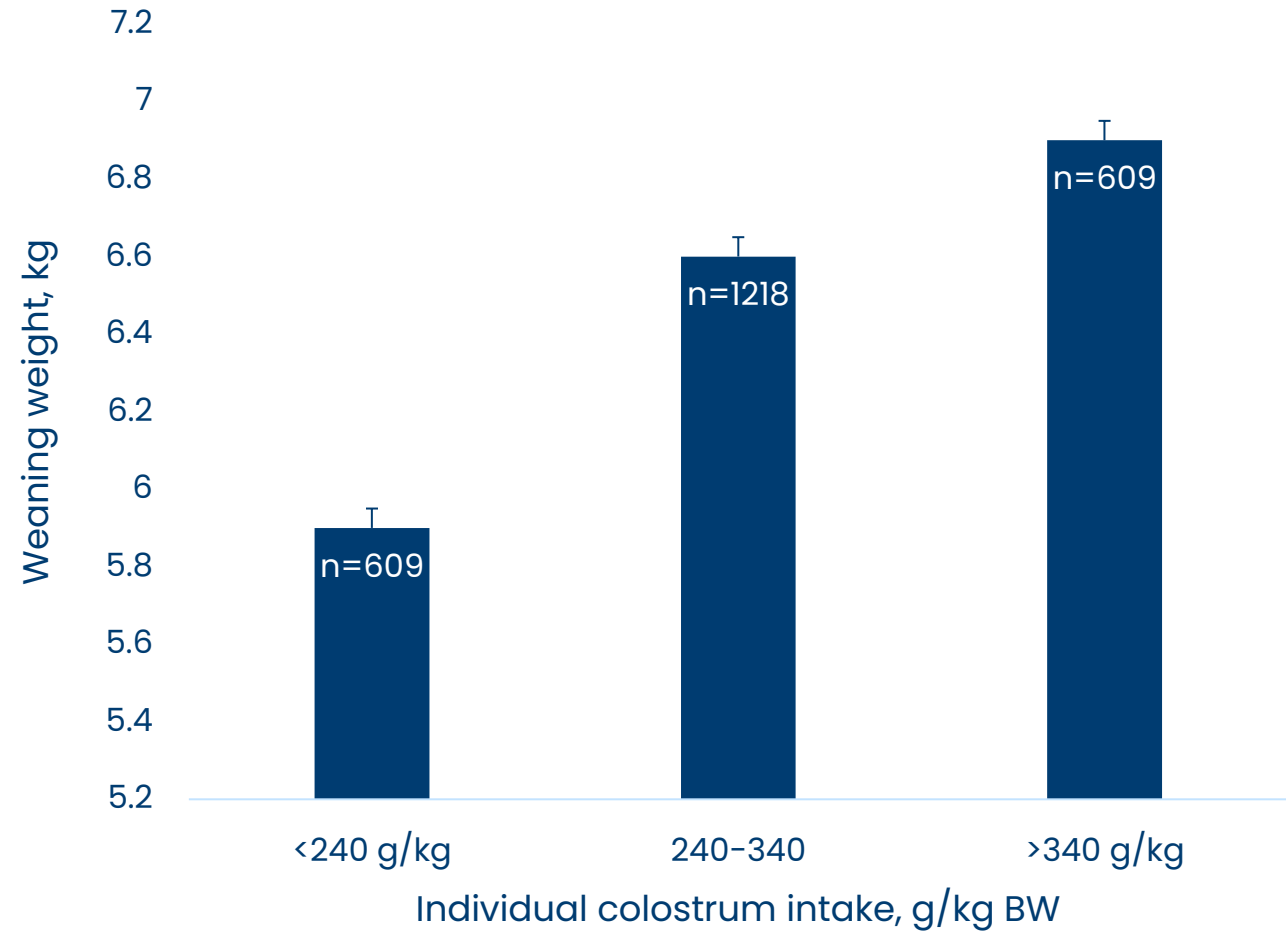
Formula was similar to colostrum in nutrient density.

Burrin et al., 1995, 1997

Colostrum intake affects later growth

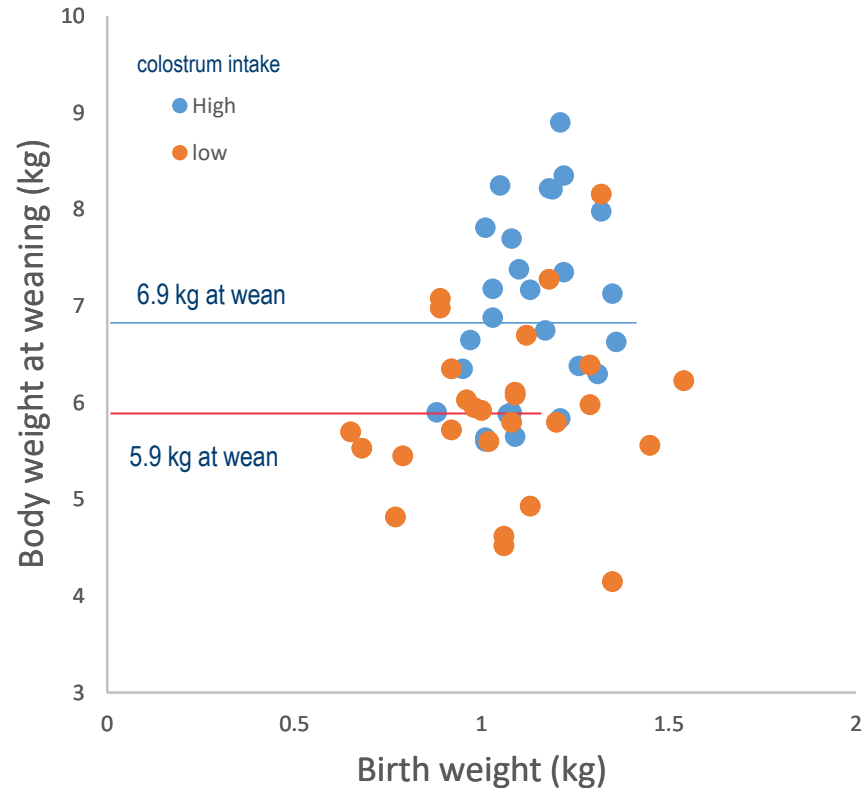


Weaning weights corrected for litter effect and birth weight.



SRC data, FemiGro project

Impact of colostrum intake on piglet development



From each of 30 litters, two piglets of ~1 kg from the same litter were selected at birth, one with low (ave 226 g) and one with high (ave 400 g) colostrum intake.

Cross sections uterine horn at 25 d of age



Low colostrum intake



High colostrum intake

**Sow and piglet factors
that
influence colostrum intake**

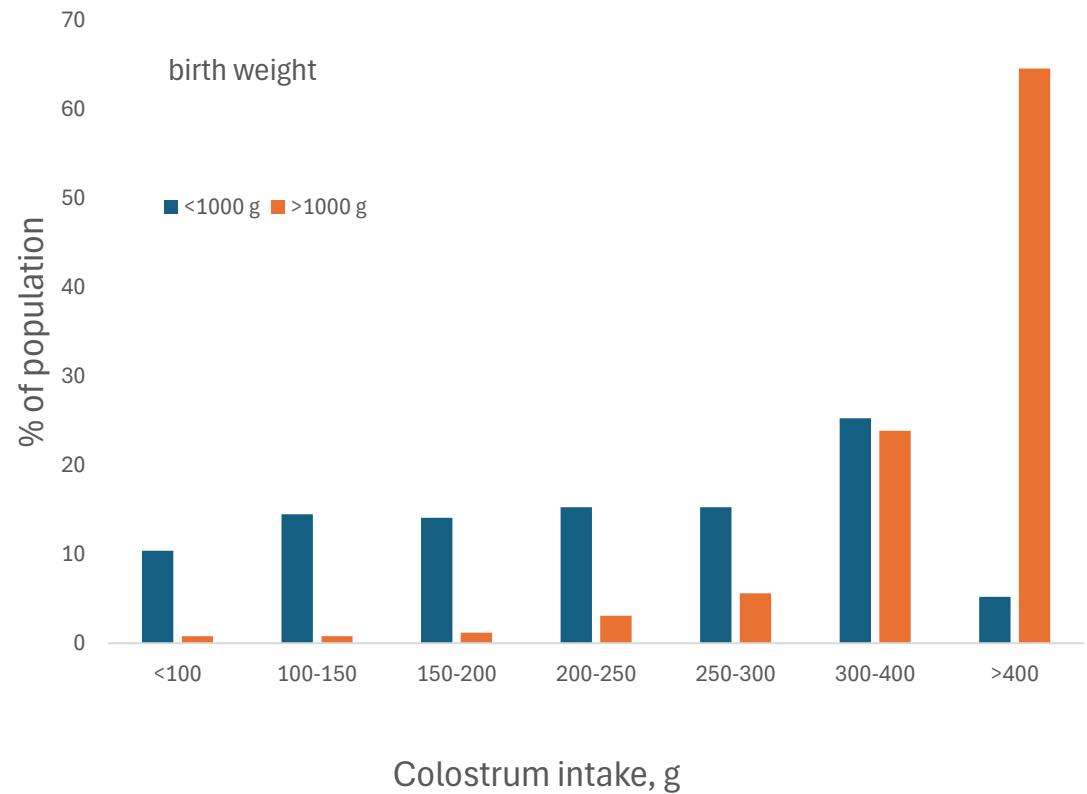
Birth weight and colostrum intake

Overall, 16 % of piglets at SRC consumes <250 g

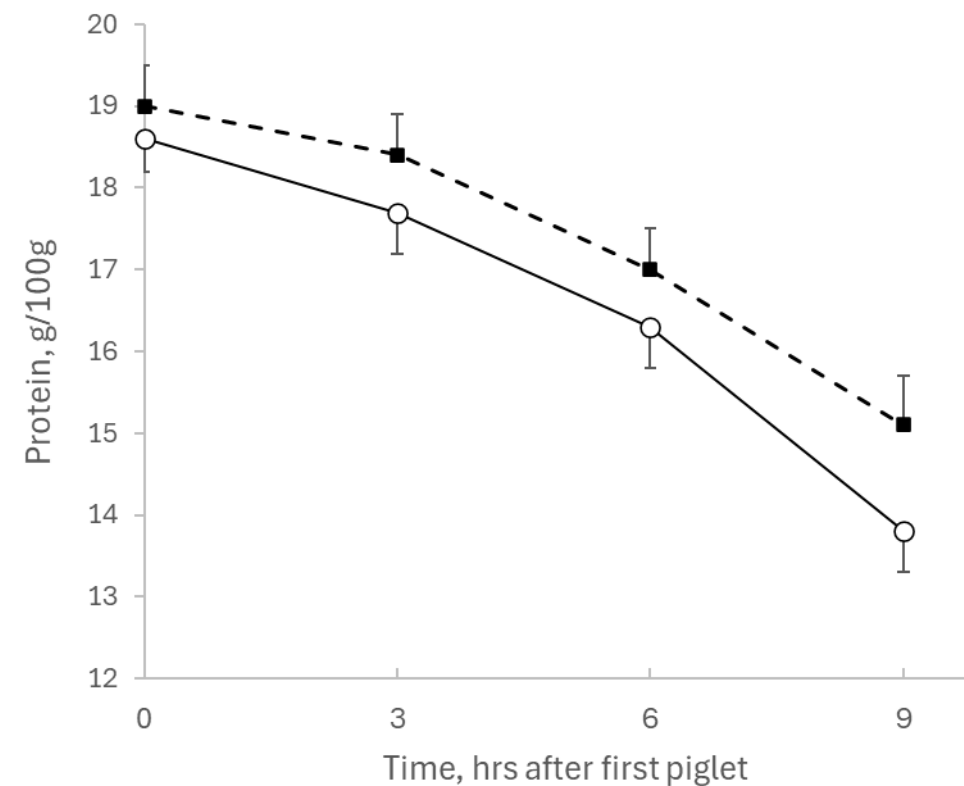
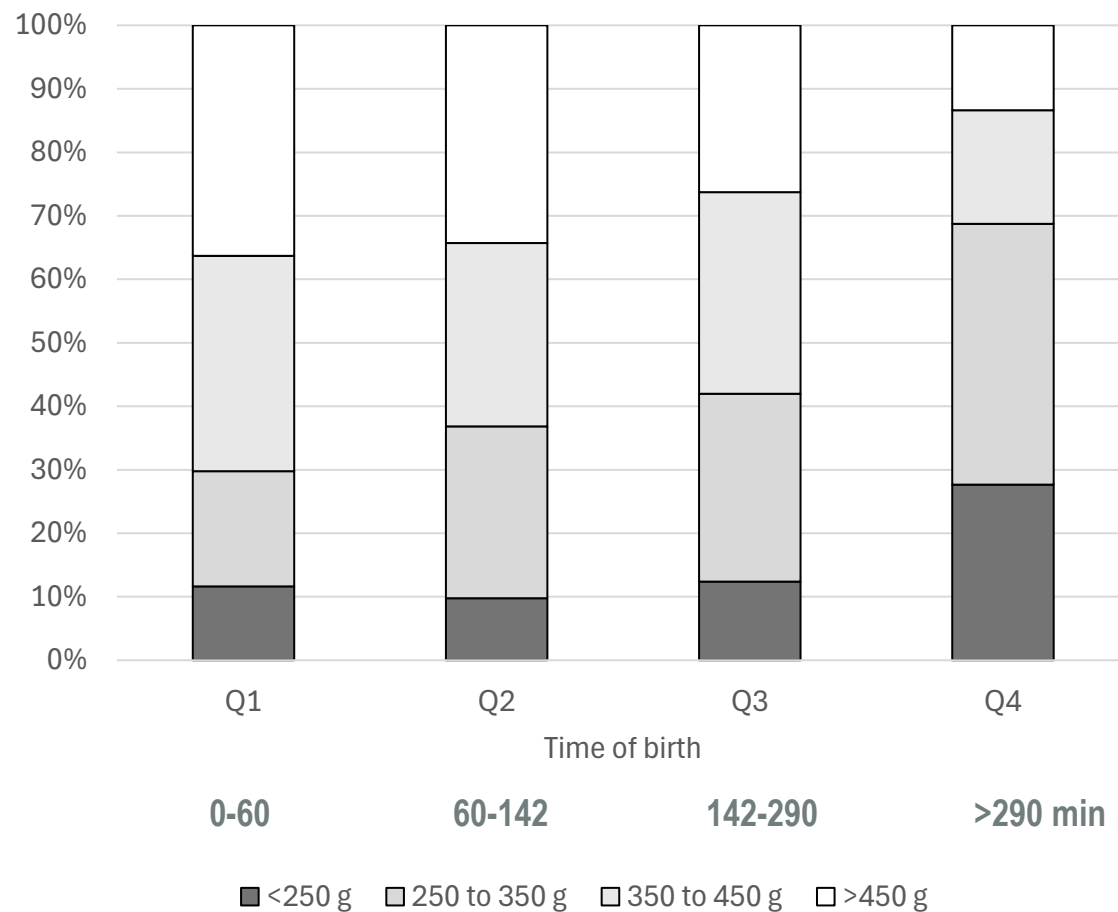
Of light weight piglets, over 50 % consumes <250 g colostrum.

Of piglets >1000 kg BW, the majority consumes >250 g.

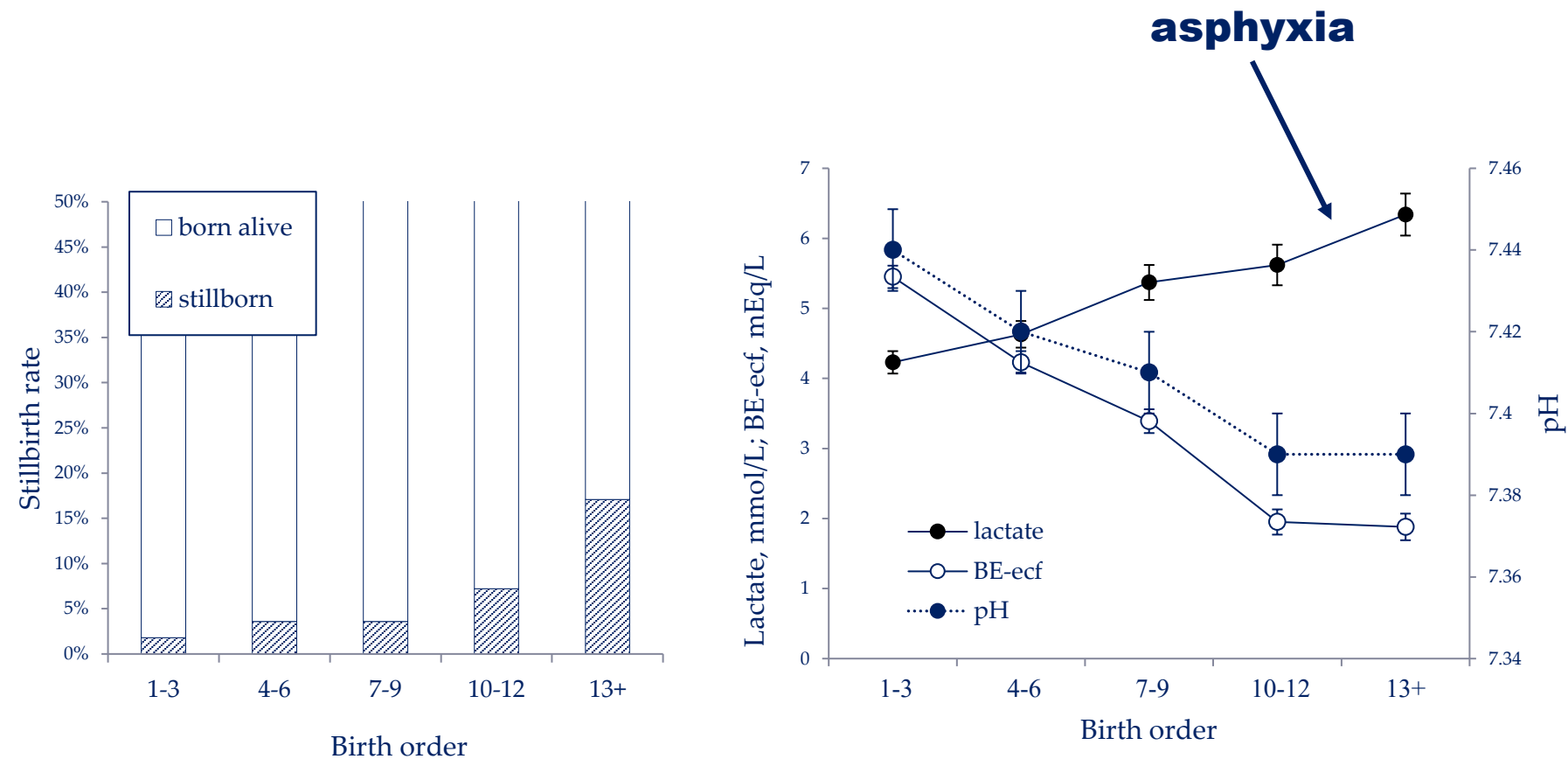
SRC data



Time into farrowing



Farrowing duration, birth order, and effects on the piglet



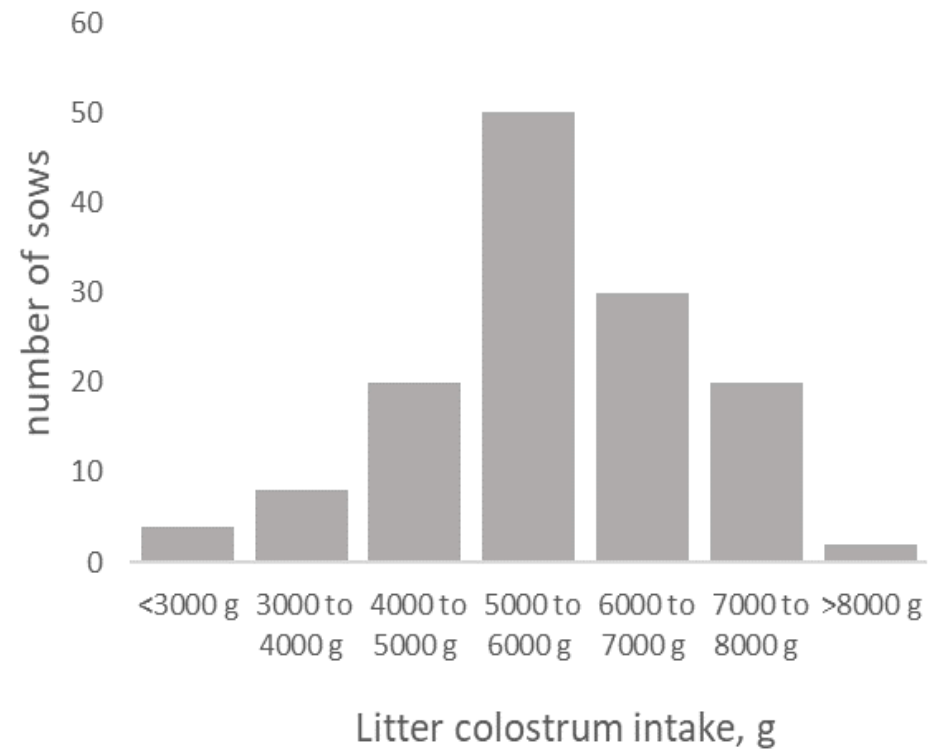
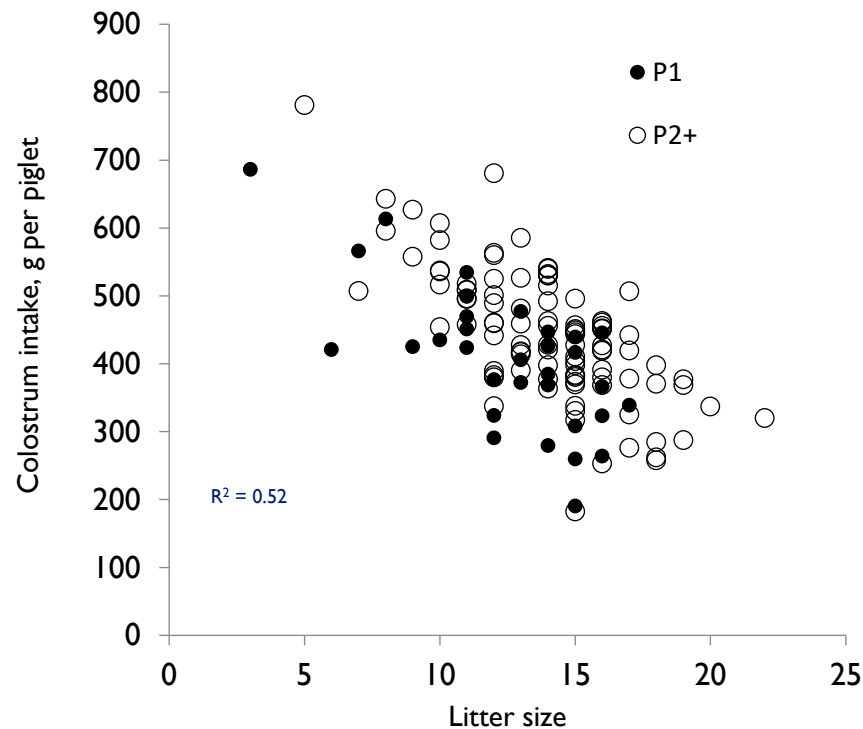
Uniformity in performance!

Permanent effects of farrowing process on piglets

	Blood lactate concentration (mmol/L)				P value
	< 3.36	3.36-4.45	4.46-6.40	>6.40	
n	127	127	129	133	
Interval birth – first suckling (min)	34.3 ± 3.22	29.7 ± 3.20	38.8 ± 3.23	39.9 ± 3.27	0.100
Colostrum intake (g)	463 ^a ± 12.7	441 ^{ab} ± 12.6	416 ^{bc} ± 12.8	377 ^c ± 12.9	<0.001
Neonatal mortality	5.5 %	5.4 %	8.5 %	10.9 %	<0.05
ADG to weaning (g/day)	259 ± 4	259 ± 4	256 ± 5	245 ± 5	0.03
Weaning weight (kg)	8.47 ^a ± 0.13	8.41 ^a ± 0.13	8.13 ^{ab} ± 0.14	7.93 ^b ± 0.14	0.024
ADG wean to finish (g/day)	721 ^b ± 14.5	710 ^b ± 13.5	717 ^b ± 14.3	664 ^a ± 13.9	0.018

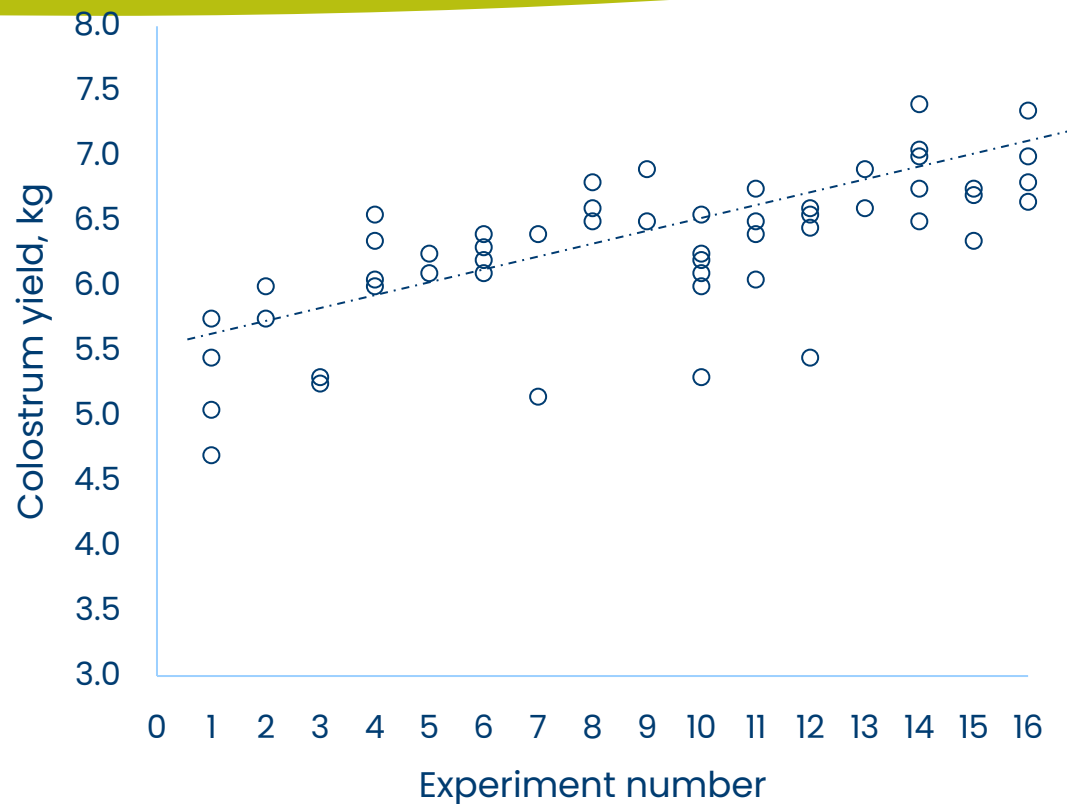
Uniformity in performance!

Variation in colostrum yield

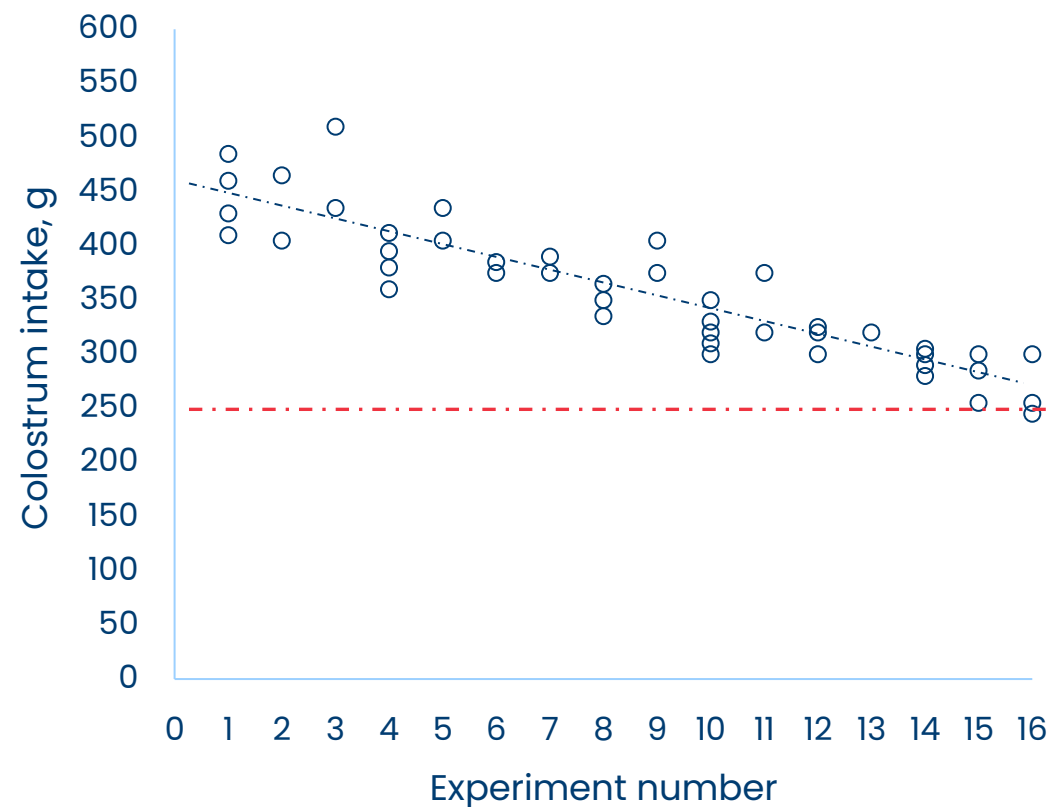


Amount of colostrum available per sow is set. Intake per piglet determined by litter size, birth order, and birth weight.

Trends in colostrum production



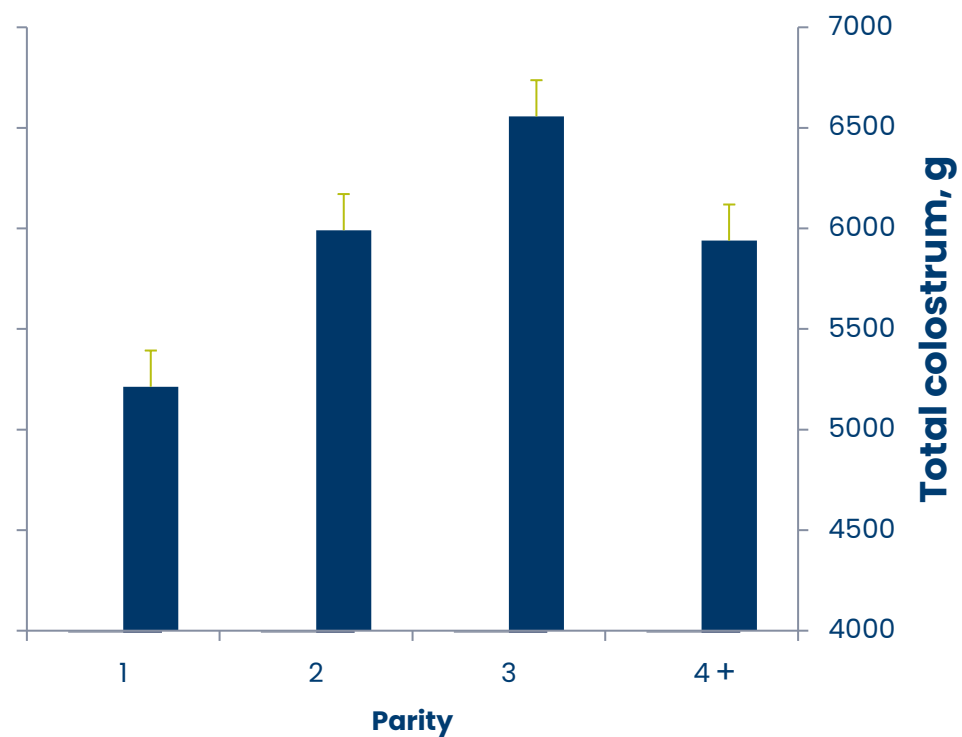
2008 - 2024



2008 - 2024

based on Feyera et al, 2025

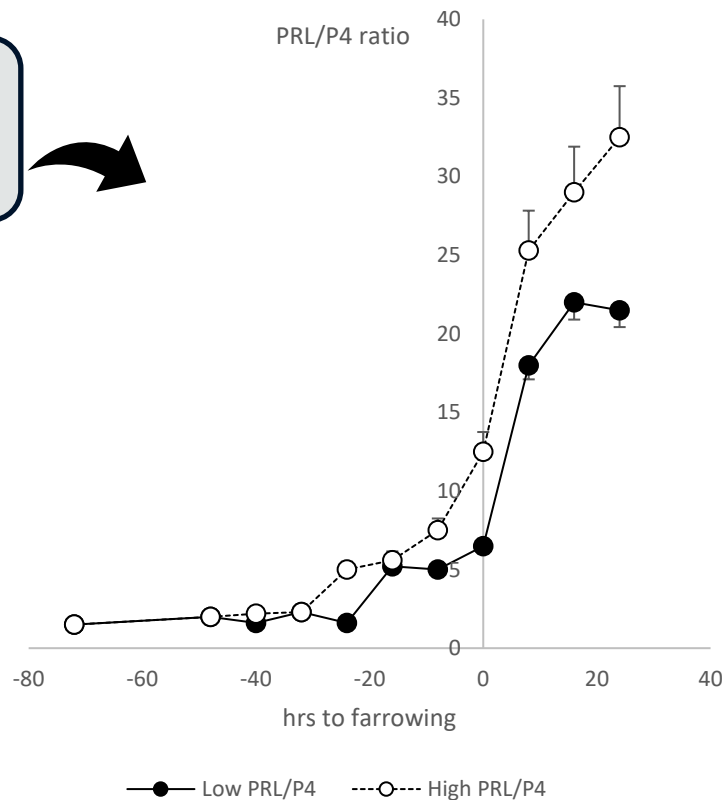
Parity and colostrum



Swine Research Centre, 2017

Data corrected for litter size and birth weight (n=160).
 $R^2 = 0.35$ (litter size), and $R^2 = 0.37$ (birth weight)

Fibre?



	Low PRL/P4	High PRL/P4
N	16	13
BA	14.4	14.2
Colostrum intake per pig, g	272 ^a	323 ^b
Colostrum intake total, kg	3.48^a	4.11^b
PWM, %	10	7

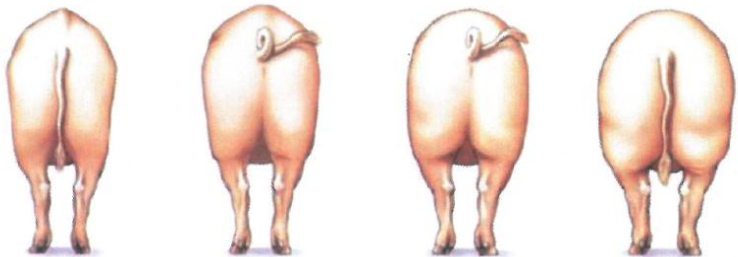
From Loisel et al., 2015

Miller et al., 2004: Feeding 2 vs 1.15 x M did not change P4 decline or piglet gain first 2 d.
DeCaluwe et al., 2014: 4.5 vs 1.5 kg/d increased colostrum yield by 0.5 kg!

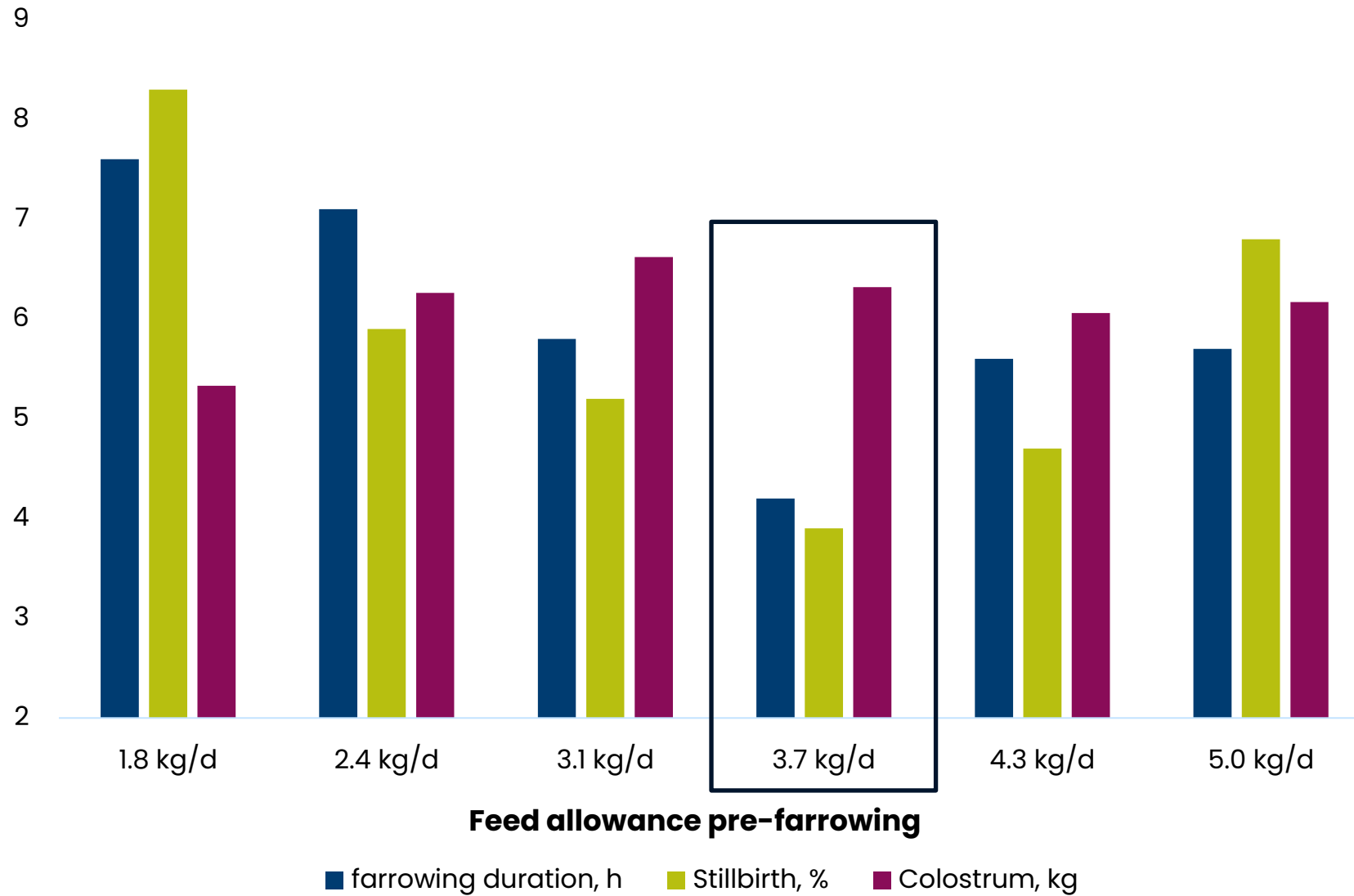
Colostrum yield and prepartum feed level (from d108)

	Feed allowance		Body condition			SEM
	4.5 kg/d	1.5 kg/d	Skinny	Moderate	Fat	
Total colostrum, g per sow	3999 ^x	3508 ^y	3874 ^{a,b}	3991 ^a	3163 ^b	141
g per piglet	312	287	297 ^{a,b}	345 ^a	230 ^b	17
g per kg piglet	239 ^a	200 ^b	215 ^{a,b}	245 ^a	178 ^b	9

DeCaluwe et al., 2014



Feed allowance during transition

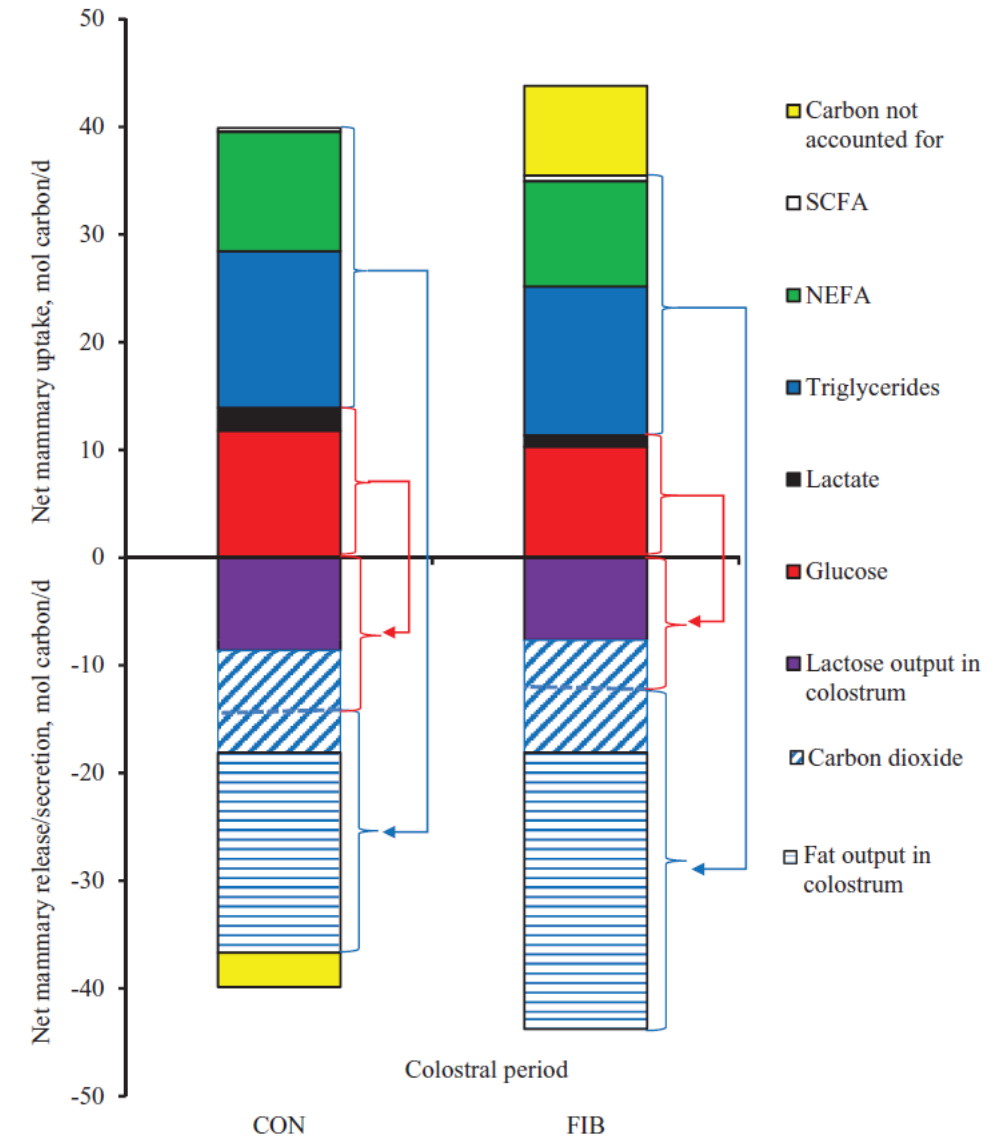


Fiber and colostrum

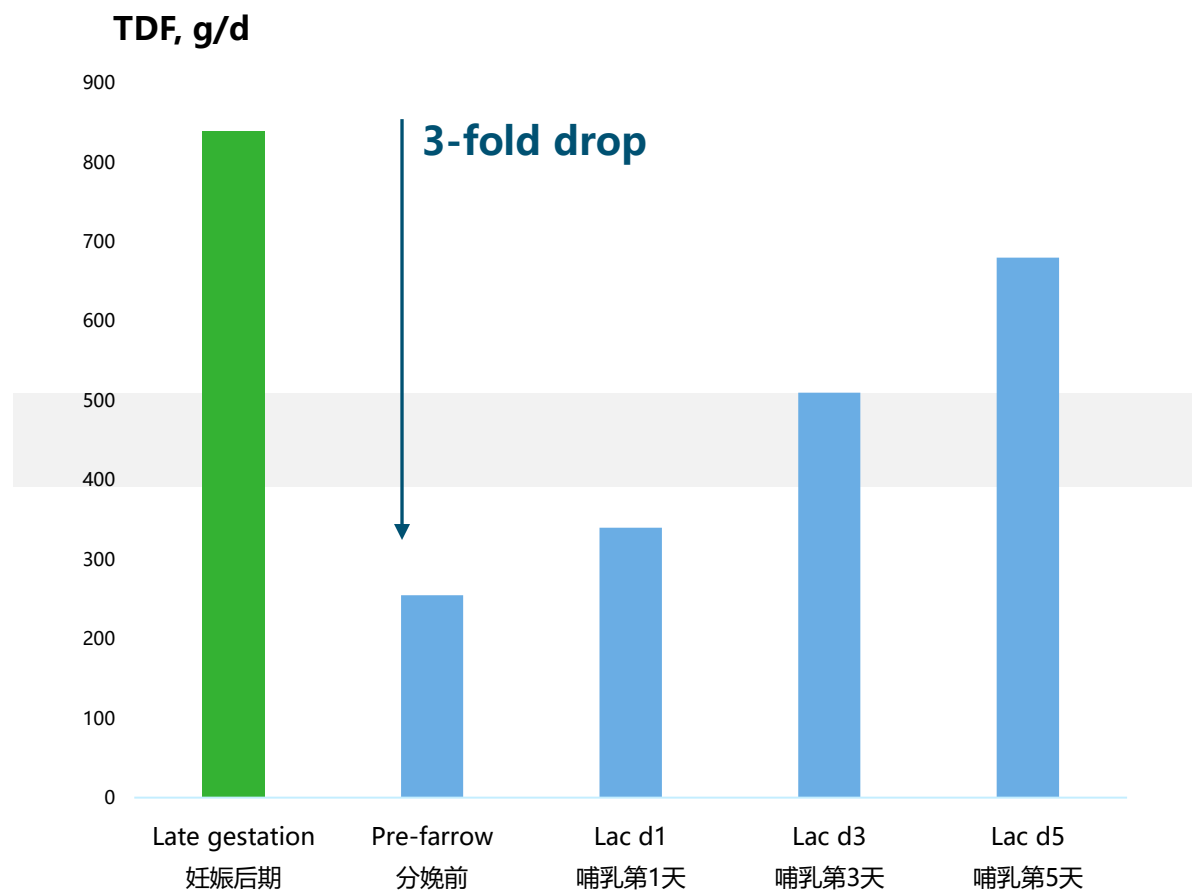
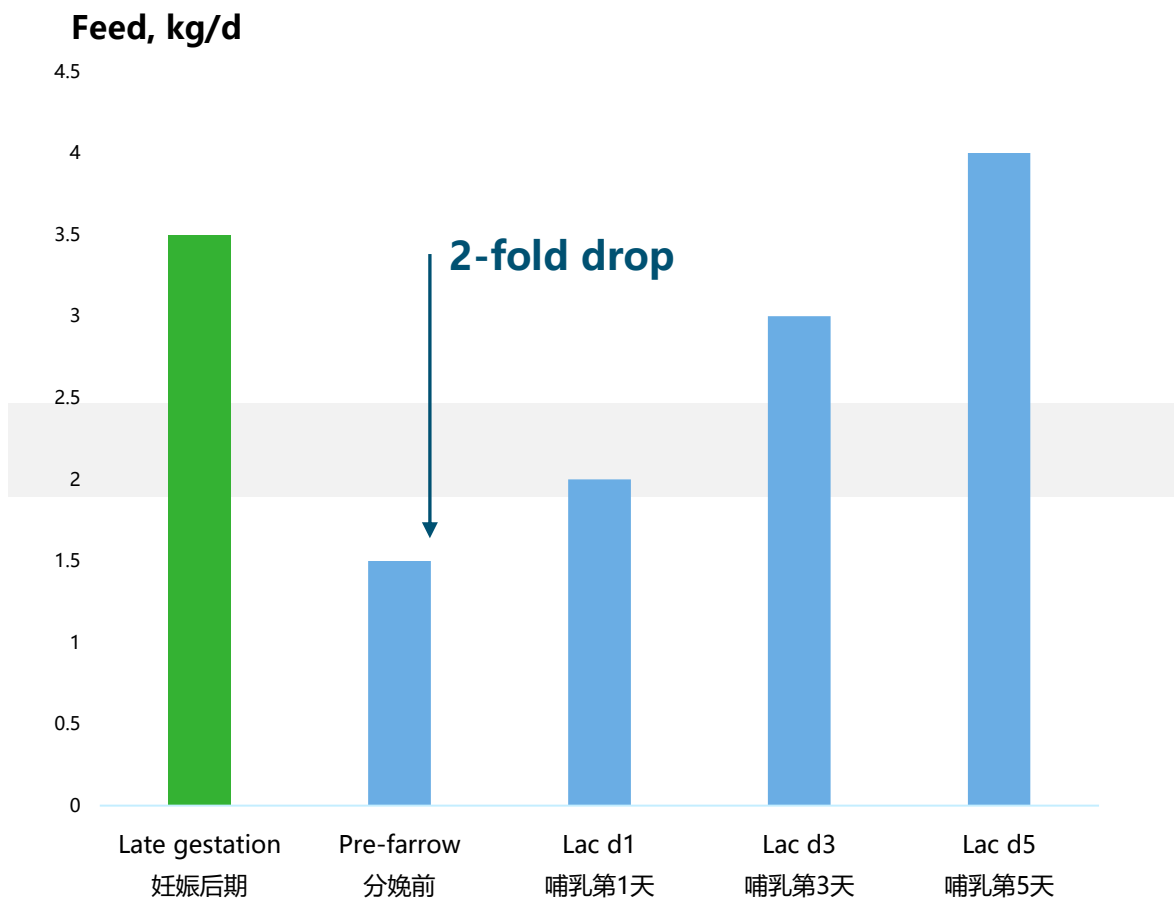
Feyera et al., 2021

1. Study with 22% vs 17 % dietary fibre in diet at 3.4 kg/d, from d108 (n=5/trt)
2. **Fiber** -> 49 % more **fat in colostrum** and greater **arterial acetate and butyrate**.
3. Uptake of C from glucogenic precursors did not match the sum of C secreted in colostrum -> **ketogenic precursors (SCFA, NEFA, triglycerides) were probably used for oxidation and fat yield in colostrum**.
4. **Fiber** fed sows used ketogenic sources rather than glucogenic sources.
5. Sows accumulated fat in mammary glands in late lactation, this was stimulated by fibre.

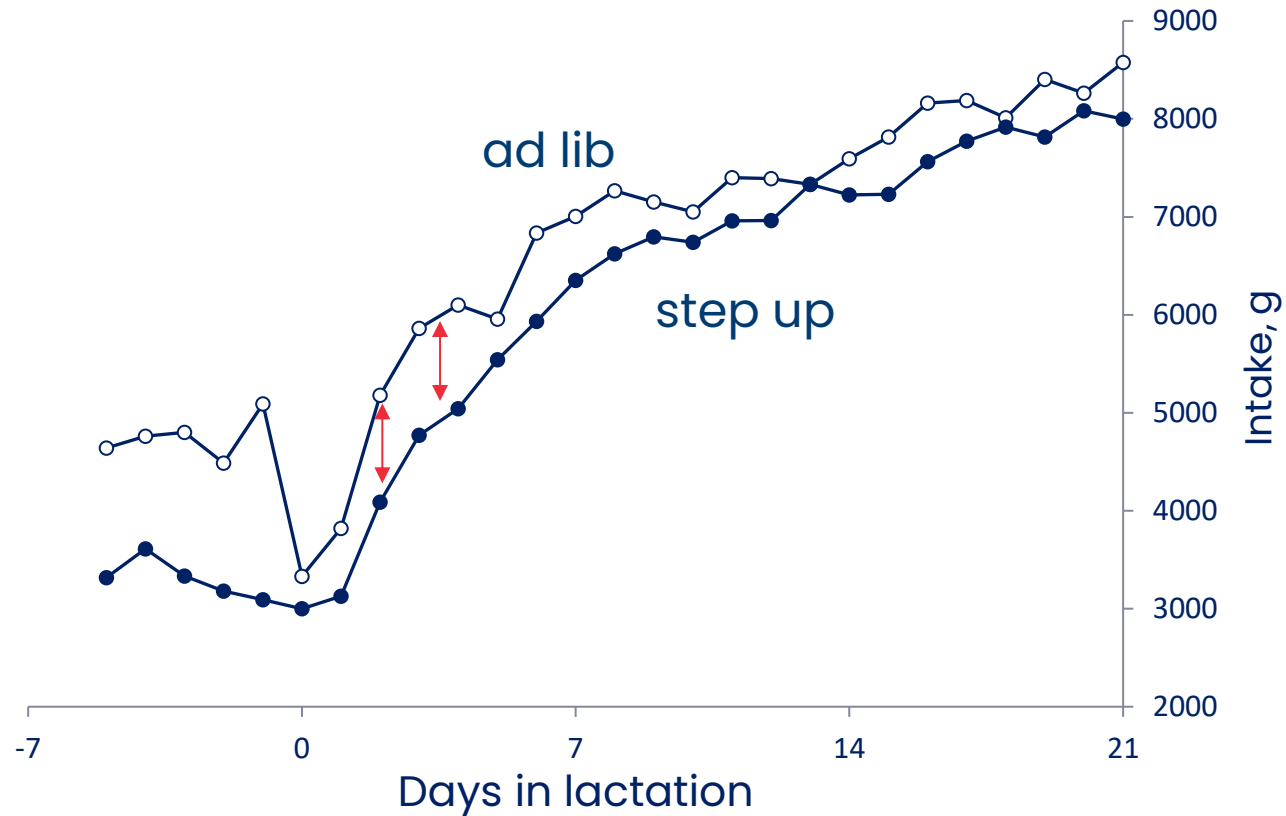
Take home message: fibres stimulate fermentation products, which 'prepare' the sow for the use of ketogenic precursors in a time where glucose is lacking, to produce colostrum fat. These precursors (NEFA, TG, SCFA) are available from stored fat and fermentation.



Transition feeding strategies



Diets and feeding strategy



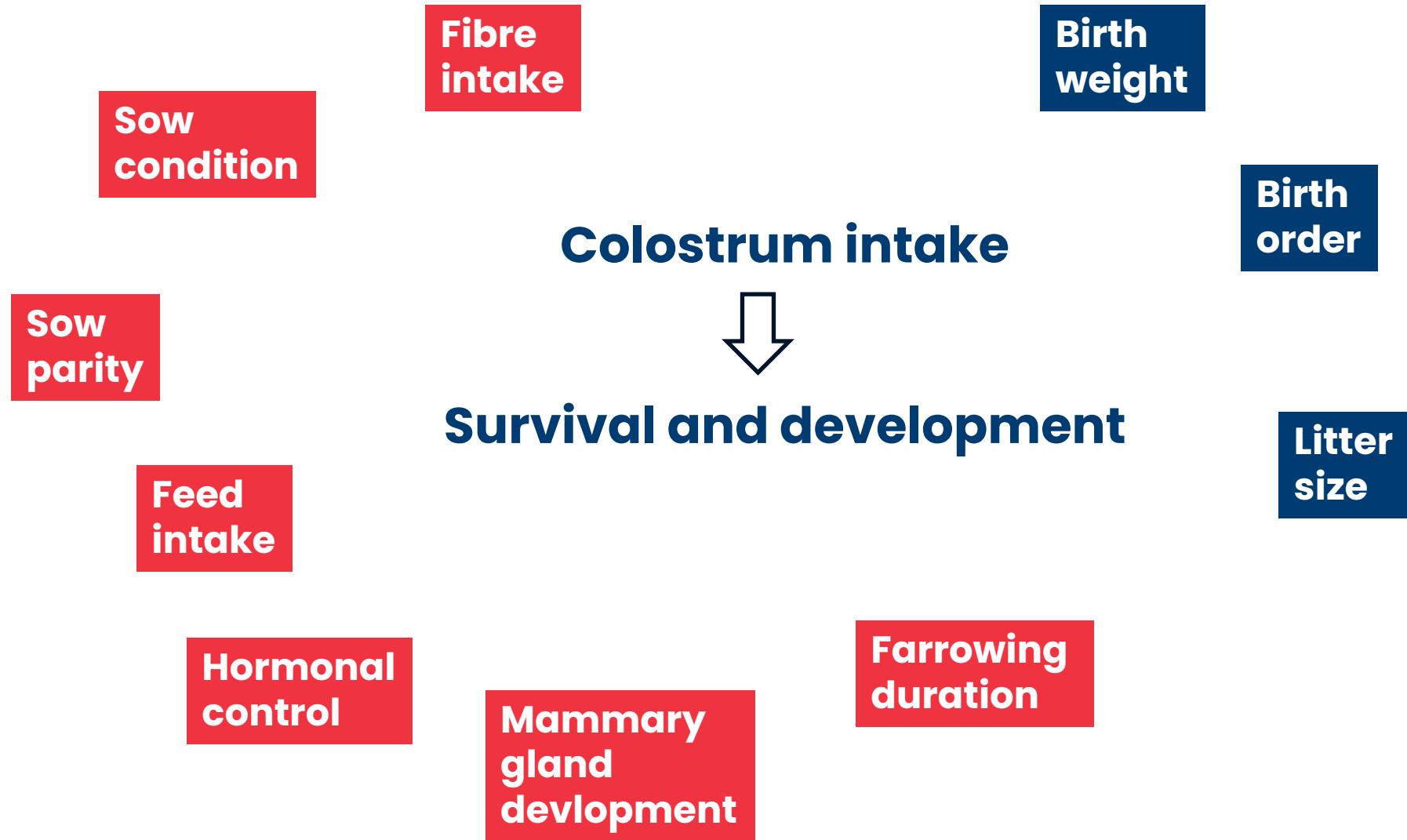
Performance of Multiparous sows		
	Ad lib (n=23)	Conventional (n=25)
Pigs weaned	12.7 ± 0.3	12.8 ± 0.4
Wean wt, kg (at 25 d)	7.62 ± 0.21 ^a	7.1 ± 0.14 ^b
Litter wean wt, kg*	97.0 ± 2.3 ^a	90.2 ± 2.2 ^b
Lactation ADFI, kg/d**	7.3 ± 0.3 ^c	6.8 ± 0.1 ^d
Sow BW loss, kg	17.6 ± 3.2	17.6 ± 2.6

Langendijk & Fleuren, 2018

	Control diet Step-up curve	Control diet Ad lib	High fibre diet Ad lib
Number of sows	18	18	18
Prepartum ADFI, kg/d	3.2 ± 0.1 ^a	4.6 ± 0.3 ^b	4.4 ± 0.3 ^b
Lactation ADFI, kg/d	5.6 ± 0.2 ^a	5.9 ± 0.2^b	6.0 ± 0.2^b
Litter size at 21 days	13.5 ± 0.2	13.7 ± 0.2	13.7 ± 0.2
Survival from TB*, %	80 ± 4	80 ± 3	80 ± 3
Colostrum yield**, g	5015 ± 523	5755 ± 508	5692 ± 465

*survival of TB to wean by biological dam; **determined in 50% of the sows; ^{a,b}P<0.05; ^{x,y}P<0.10

Concluding remarks



A photograph of several pigs in a laboratory or farm setting, overlaid with a blue gradient. One pig in the center is looking directly at the camera. It has a small black collar with a chain attached. Other pigs are visible in the background and foreground, partially obscured. The floor is a metal grate.

Thank you for listening