

Keys To Boost Your Weaned Pigs Throughput

Global Technical Services Reproduction
June 2017

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Outlook

- Maximizing genetic potential through practical feeding management.
- Maximizing piglet conversion through basic strategies to control PWM.



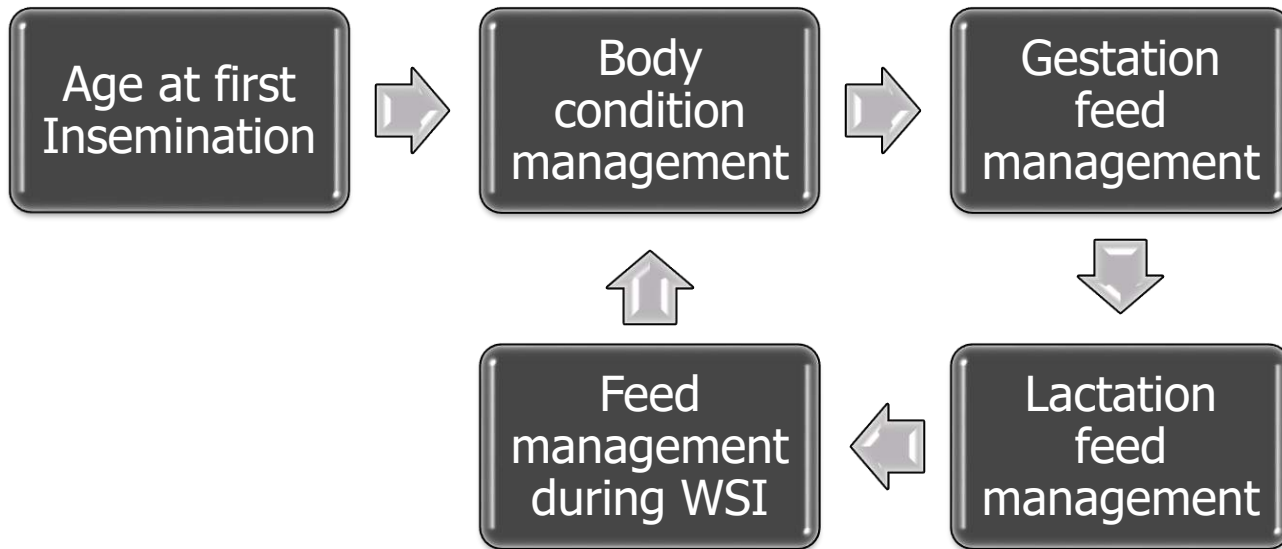
Feed Management Practicalities

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The Big 5 Areas To Look At



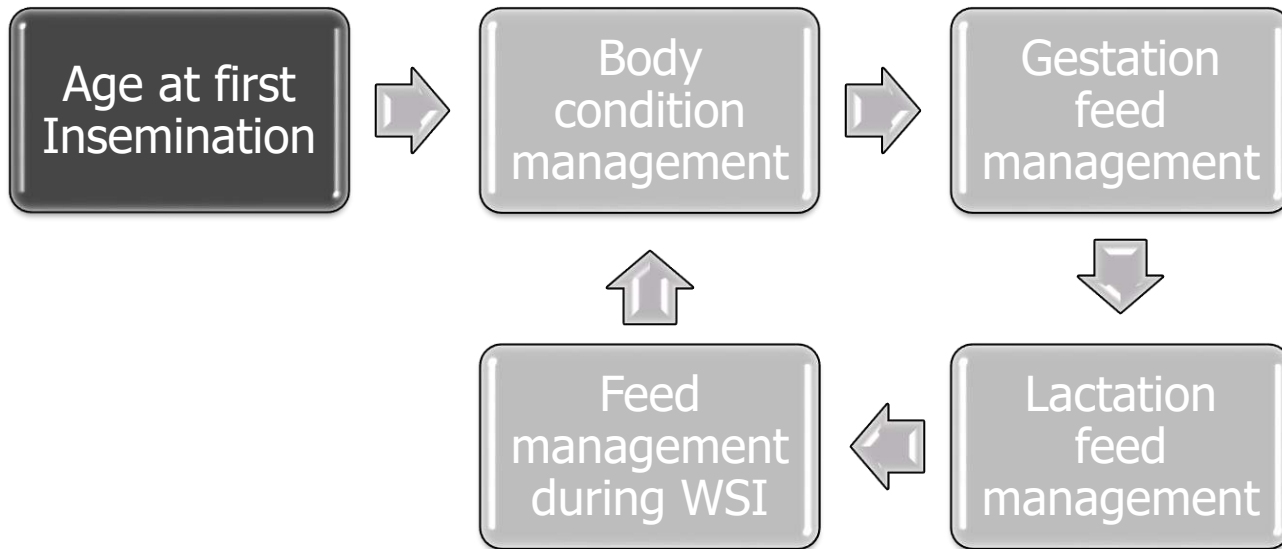
Key(s)



Broad perspective.
Economic and productive
implications.



The Big 5 Areas To Look At



Key(s)  Lifetime performance.



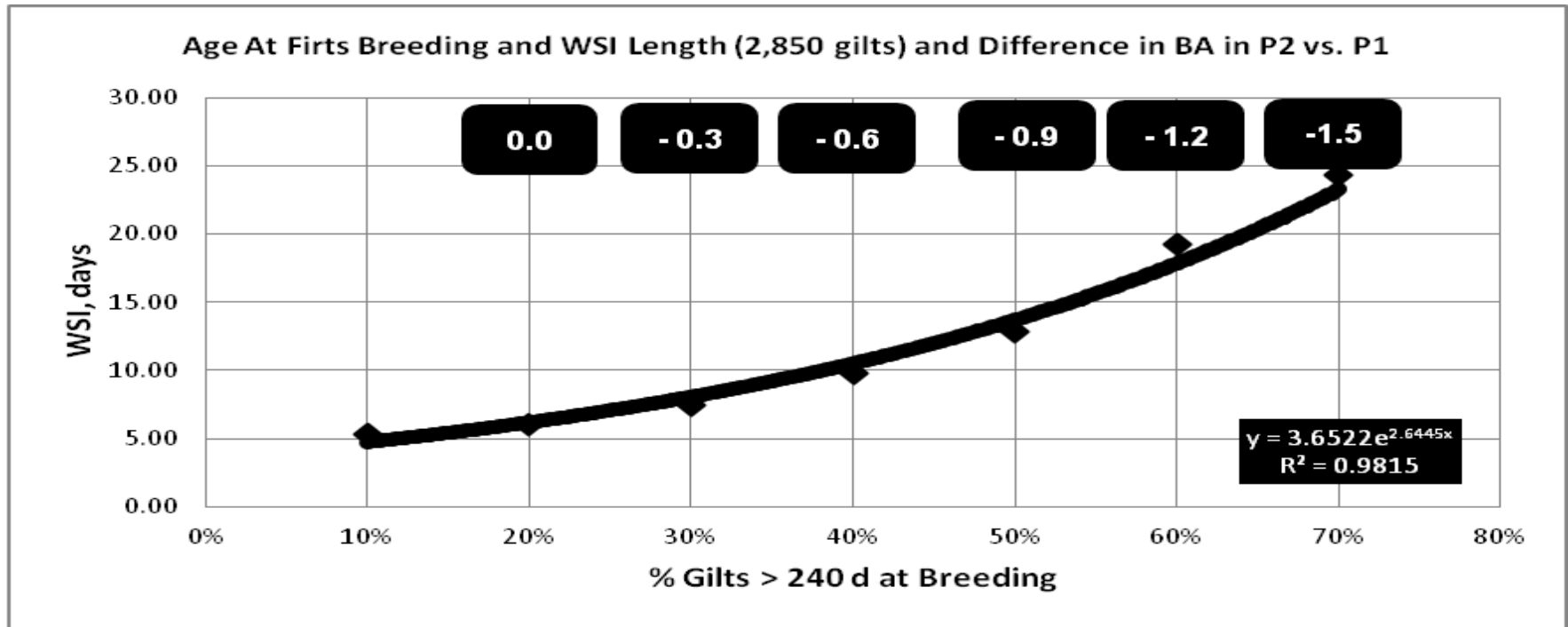
Gilts Eligibility Criteria

Concept	Goal
Maximize Feed Intake	<i>Ad libitum</i> birth to Breeding
Weight at 1 st Mating	Min. individual weight \geq 135 kg; Max. individual weight \leq 160 kg; Optimum group average 145 to 154 kg.
ADG birth to Breeding	0.60 a 0.80 kg/day
Immunity	3 wks from last vaccination/health procedure
Age	From 29 wks of age if all above recommendations are met.





Age/Weight At First Mating



- Average, each 10% of gilts bred heavy:
 - Add 0.7 extra days on WSI.
 - Drop P2 Litter size by 0.3 pigs.





Economic Impact Age At First Mating*

Concept	PIC	Other	Difference
Age at 1 st Mating, days	210	240	30
Feed , Kg			120
Feed cost , R/kg			R3.5
Economic impact per gilt, R			420
Annual replacement rate.%			45%

*Min weight at first mating 135 kg, Average daily feed intake 4 kg.

**Economic
Impact**

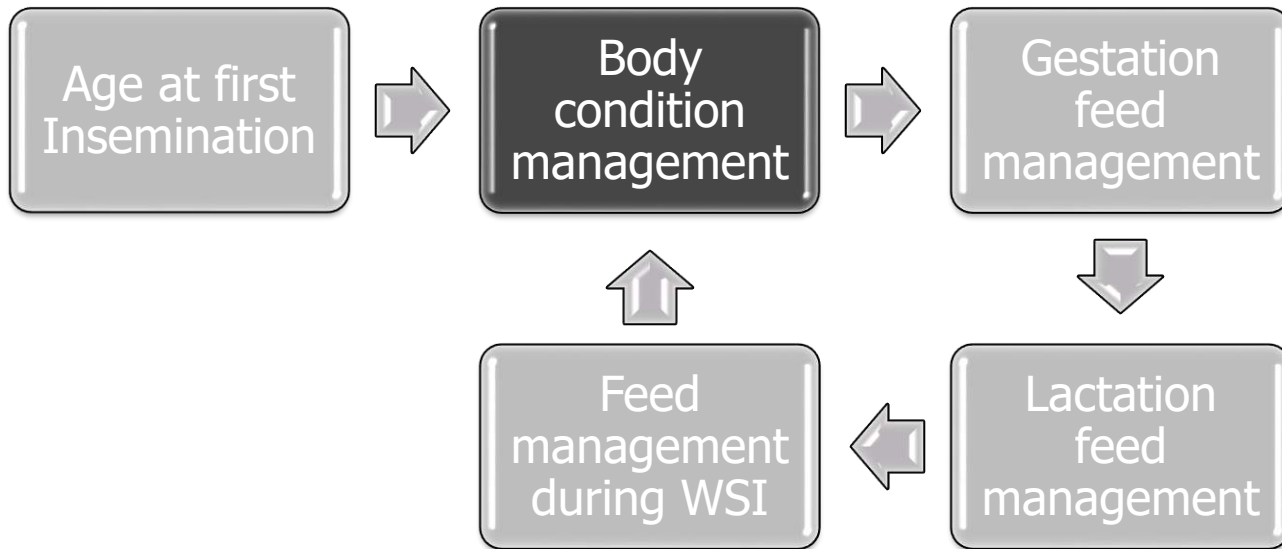


R190 sow per year



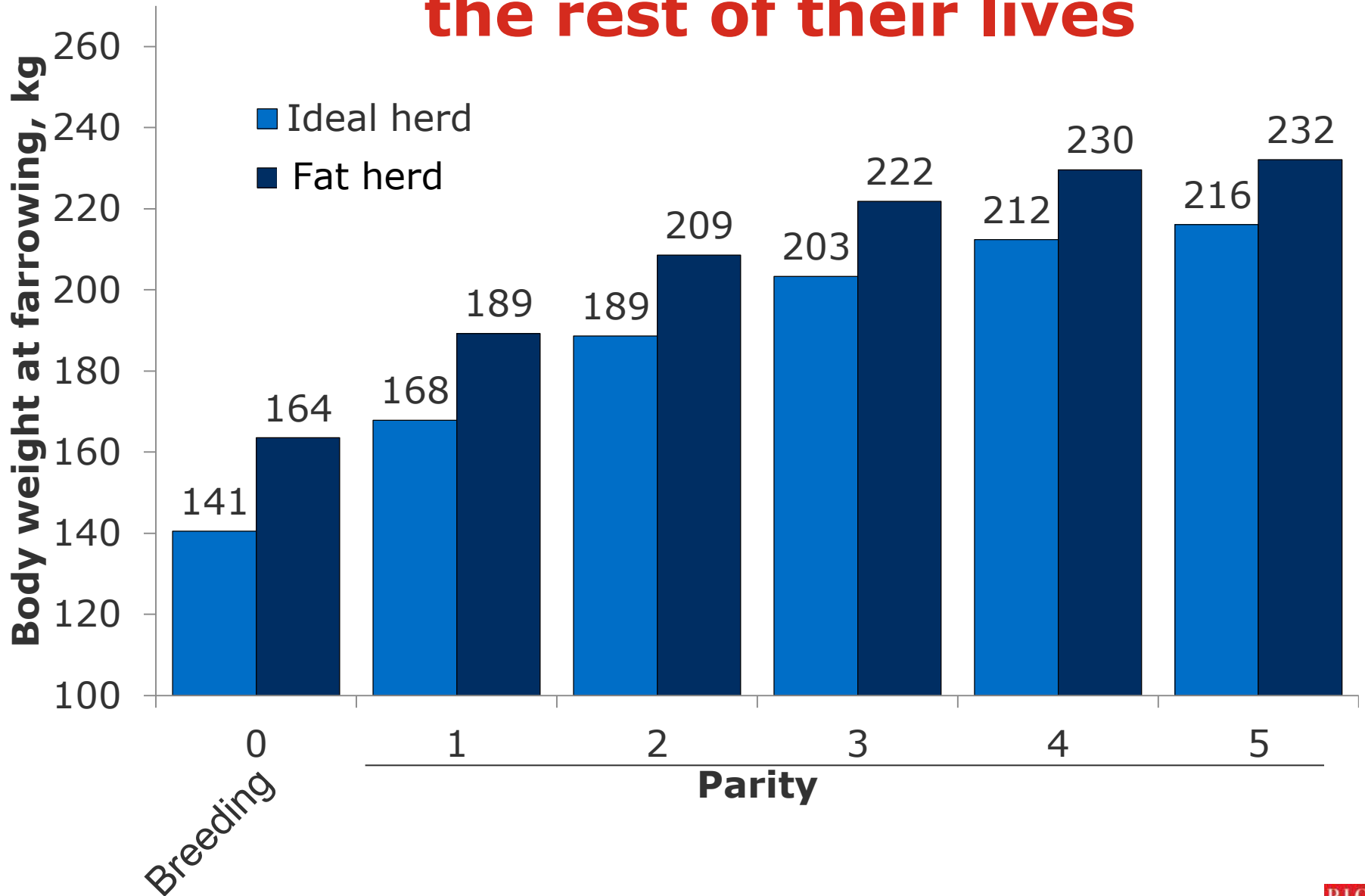


The Big 5 Areas To Look At



Key(s)  Herd body condition dynamics

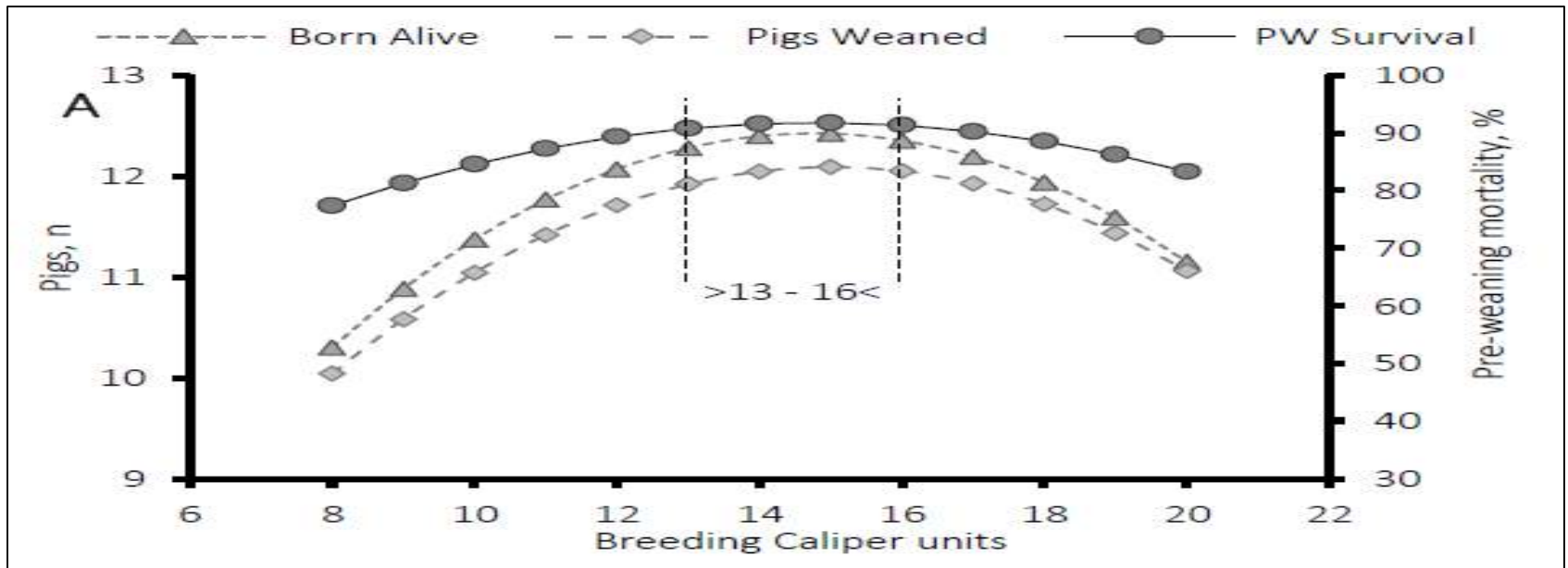
Fatter gilts, more maintenance the rest of their lives



Simulated data



Body Condition Management



Bryan and Knauer, 2014; A total of 2460 sows were used.

- Although, both (Thin and heavy) have a negative impact on sow performance....
-Heavy body condition happens more often, having an additional penalty cost.





Caliper





Economic Impact Body Condition Management*

Concept	PIC	Other	Difference
Weight at first mating, kg	140	165	25
Extra gestation feed intake, Kg			0.170
Feed cost per kg, R			R3.5

*Considering 270 days of gestation feed intake per sow

**Economic
Impact**

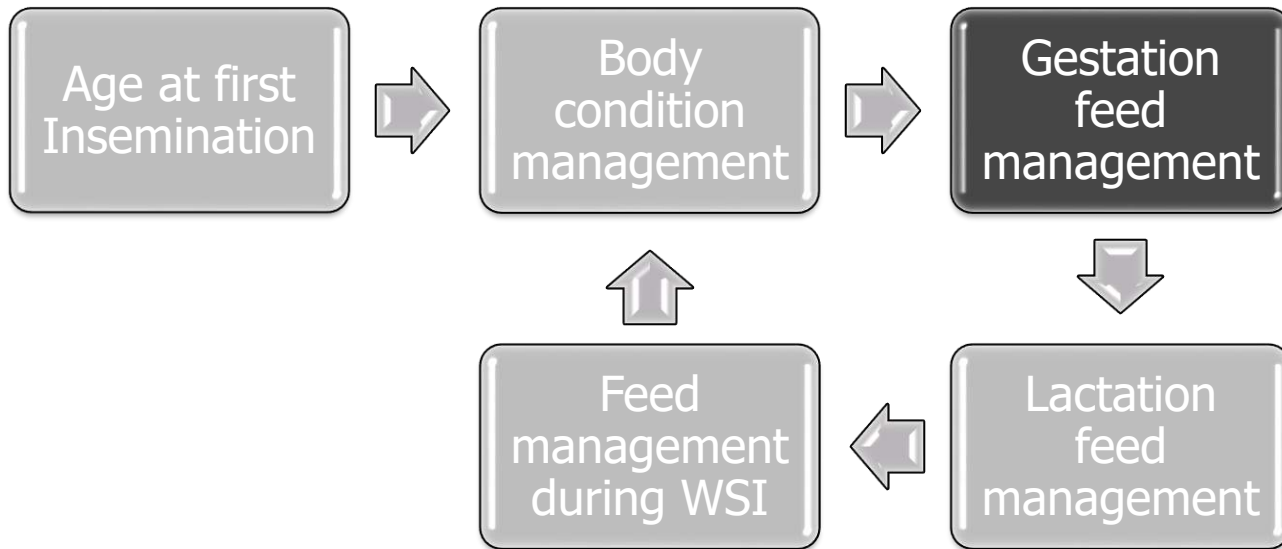


R160 sow per year





The Big 5 Areas To Look At



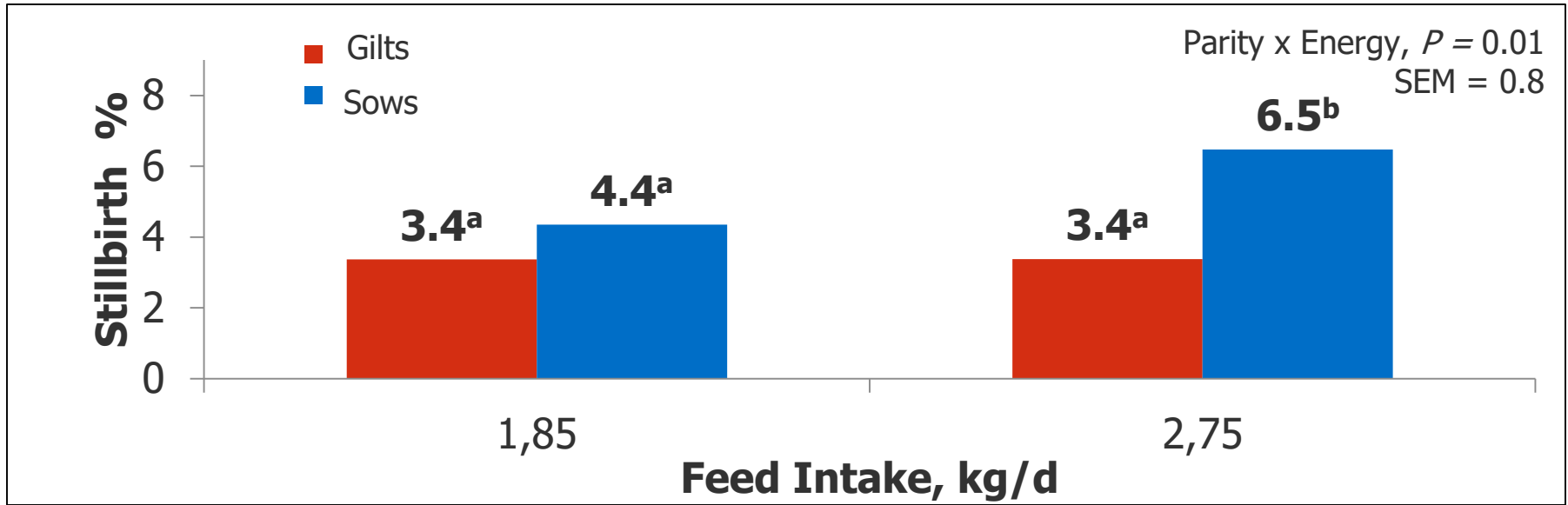
Key(s)



Bump feeding late gestation



Feed Management In Late Gestation



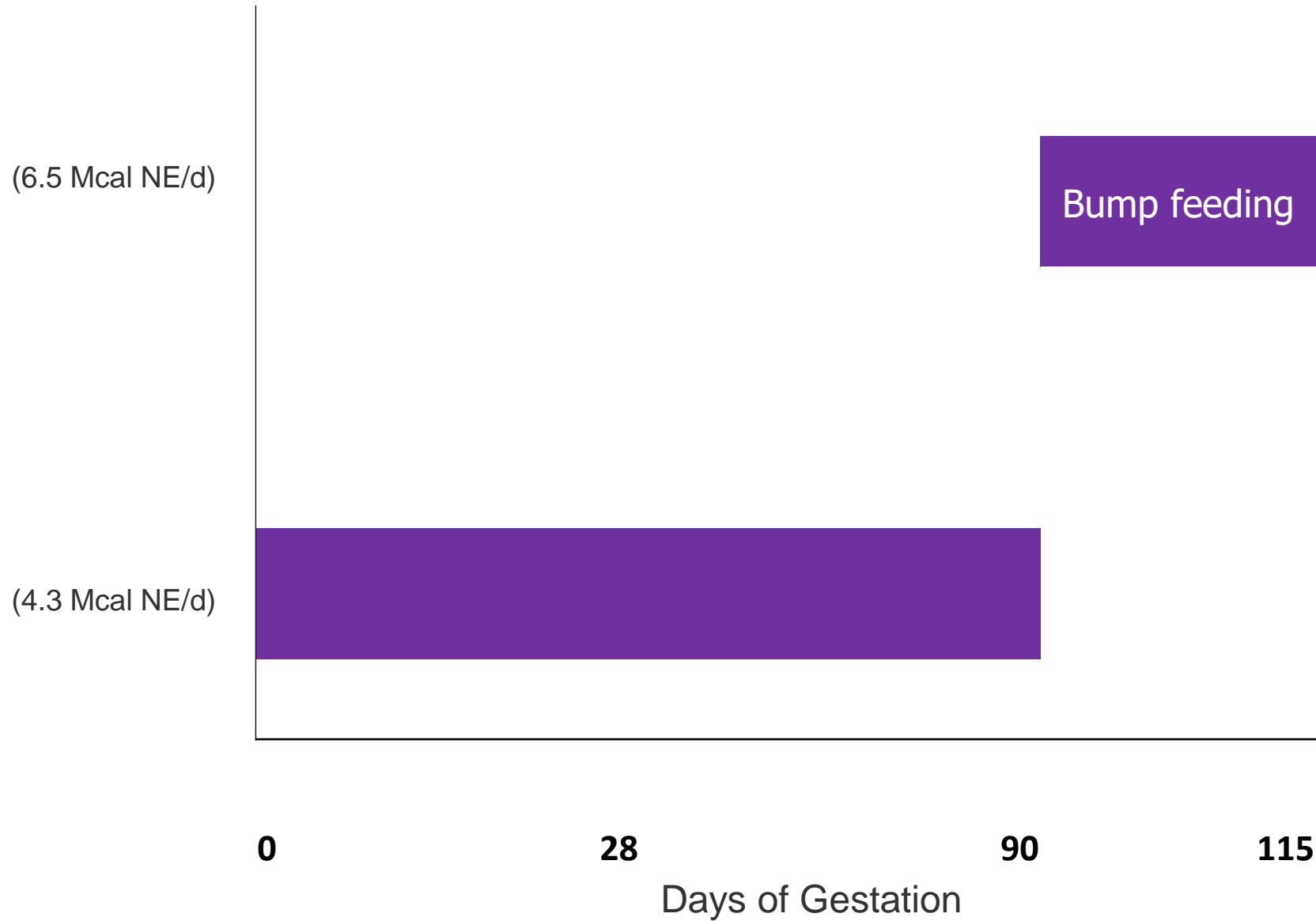
Treatments from d 90 to d 112 of gestation; adapted from Gonçalves et al., 2016

- Increase % SB by 2.1% in sows.
- No significant impact on birthweight improvement on sows, moderate impact on gilts.





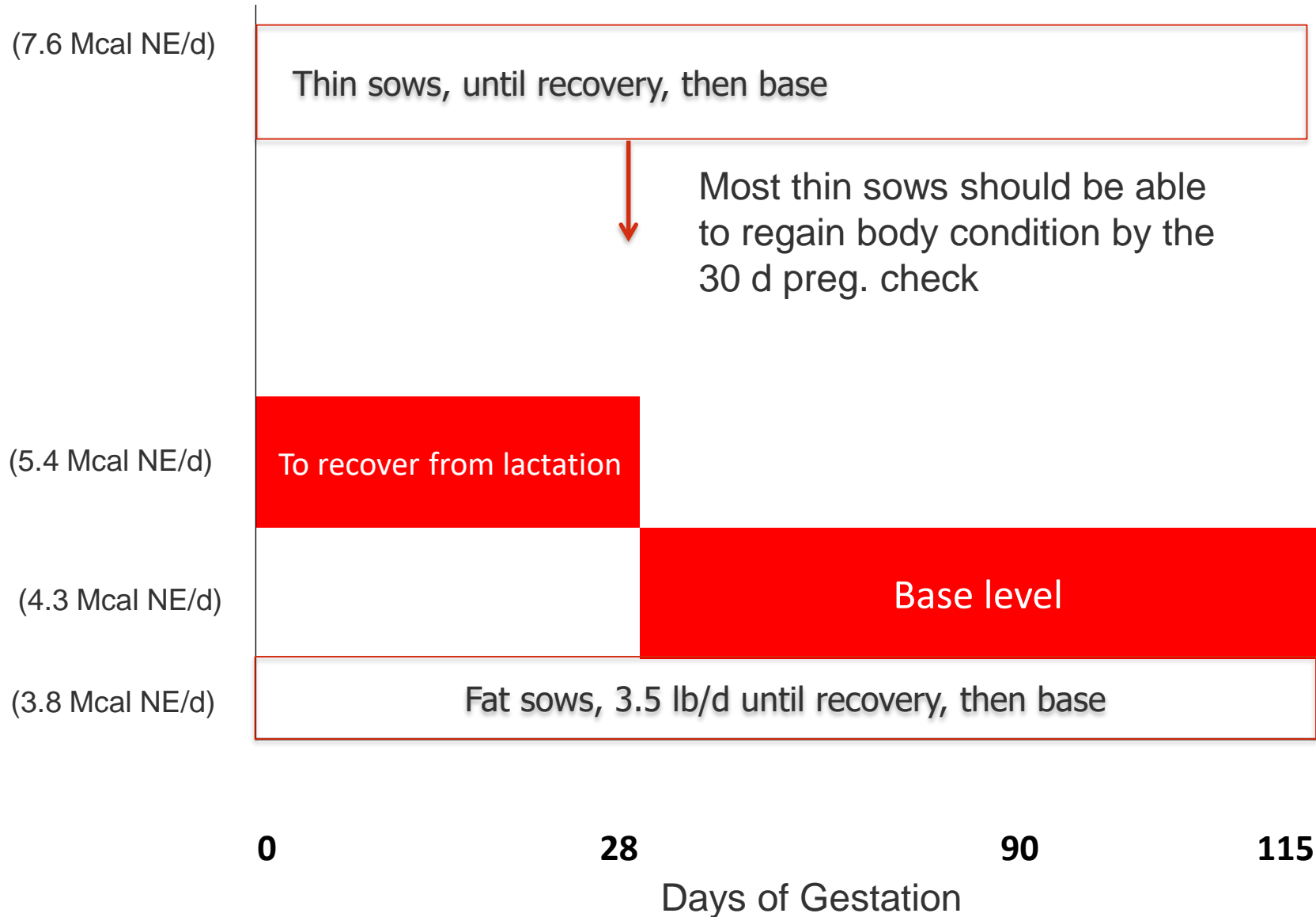
Example: Gilts



Assuming corn-SBM based diet with 0.60% SID Lys.



Example: Sows



Assuming corn-SBM based diet with 0.60% SID Lys.



Economic Impact Gestation Feed Management*

Concept	Result
Feed Intake, Kg/day	1
Days of feed (from 90 to 112)	22
% herd without bump feeding	80%
Feed cost per kg, R	R3.5
Feed (Kg)/sow/year	54

*Bump feeding only on gilts, not on sows from day 90 of gestation if they are in a normal body condition.

**Economic
Impact**

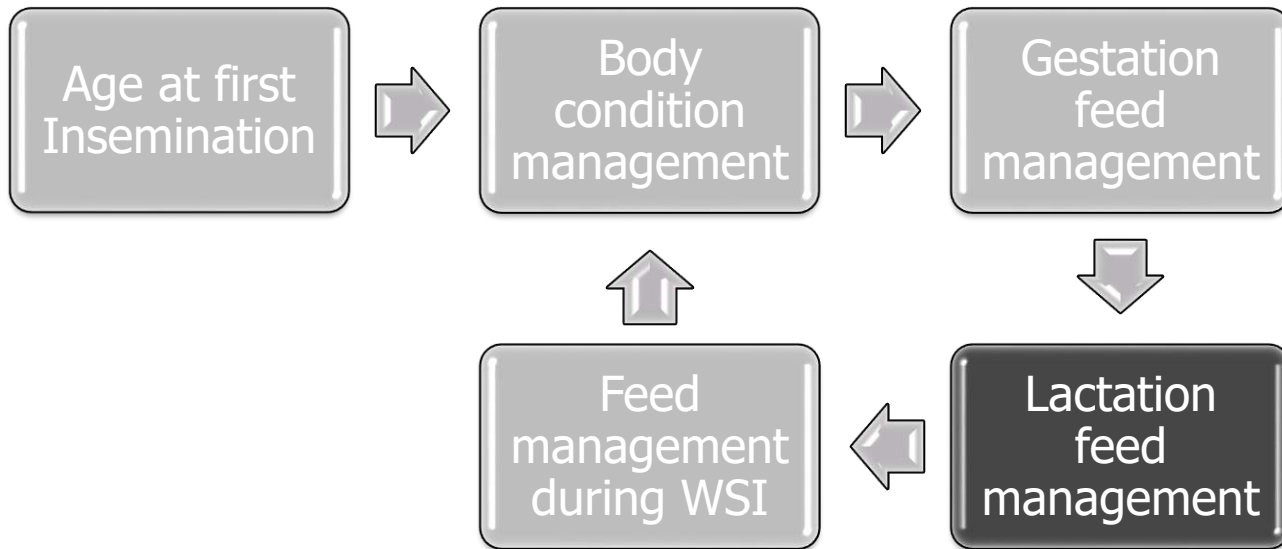


R150 sow per year





The Big 5 Areas To Look At



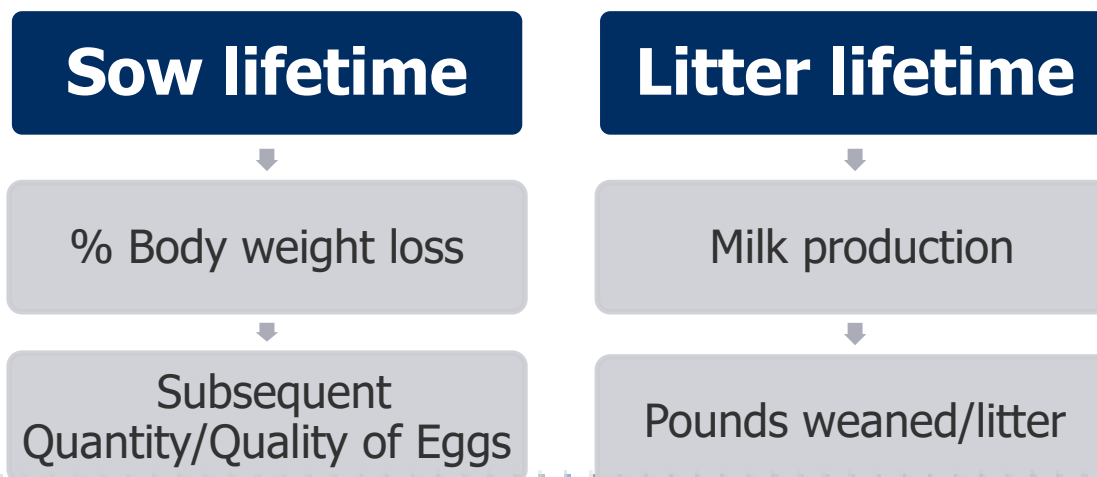
Key(s)  Full feeding - Body weight lost P1's perspective



Lactation Feed Intake

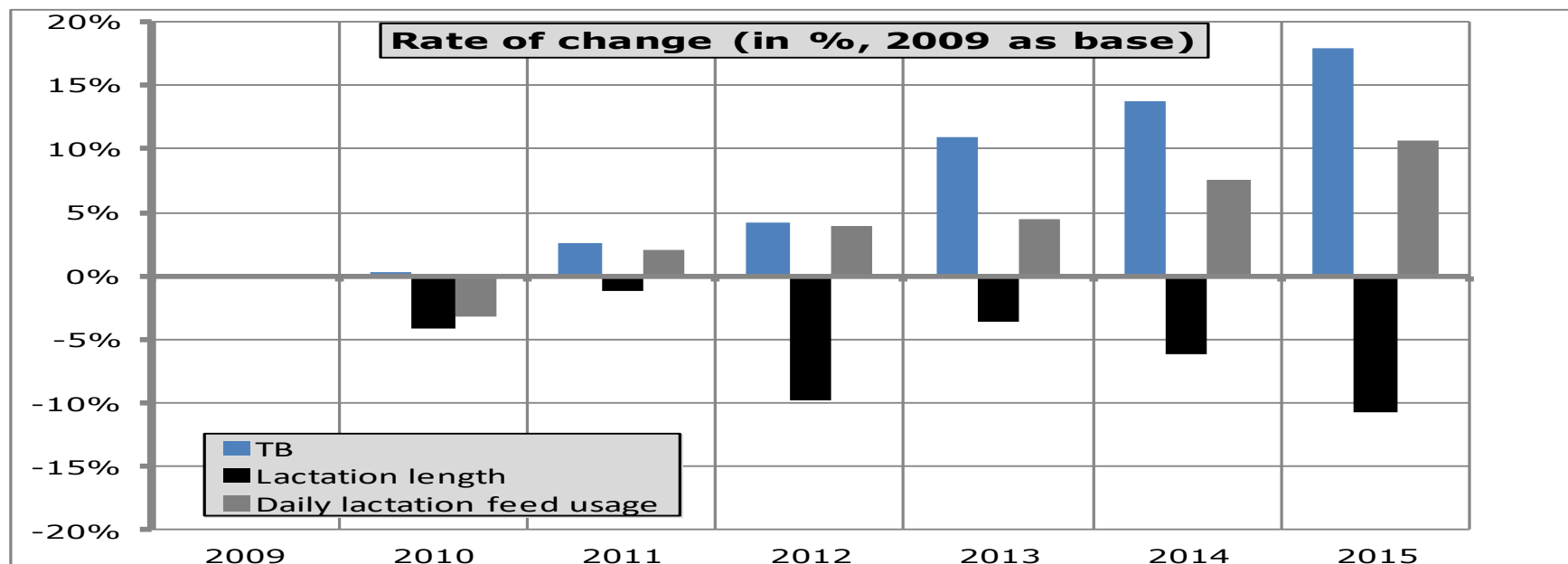
Sow Lifetime Performance

- Daily feed intake in lactation affect both **sow and Litter lifetime performance.**
- Greater energy and lysine intake, among other nutrients, are crucial to minimize the negative effect of **body weight losses and its impact on weaning performance**





Lactation Feed Intake

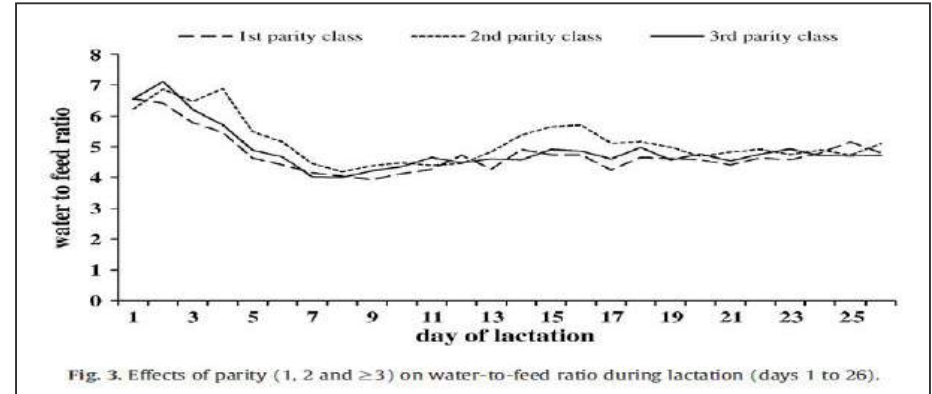
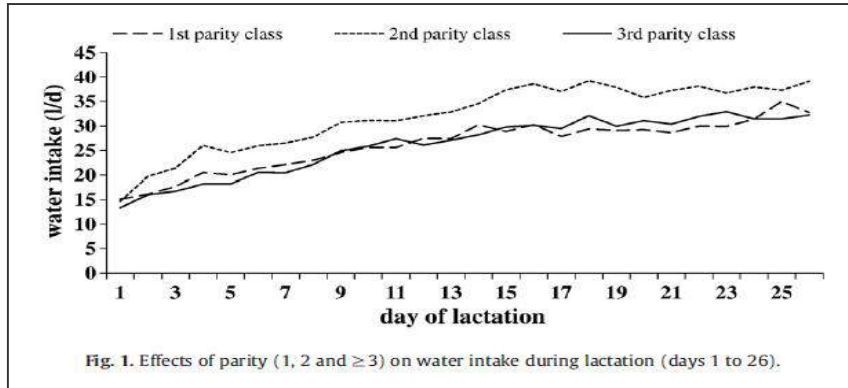


- Daily feed intake as a single factor has a tremendous effect on litter size in a long term.
- While, longer lactation add security, it is not the main driver on litter size improvement.





Water Intake



S. Kruse et al., 2010.

- Average water intake – 27.7 L per day.
- Water intake is highly correlated with feed intake and body weight lost in lactation.
- Water:Feed intake ratio average is 4.9
- For 175 Kg feed in lactation per turn – 35 L water avg.
Water Flow 2 L/min – **17.5 min.**





Pre-farrowing Training - Gilts

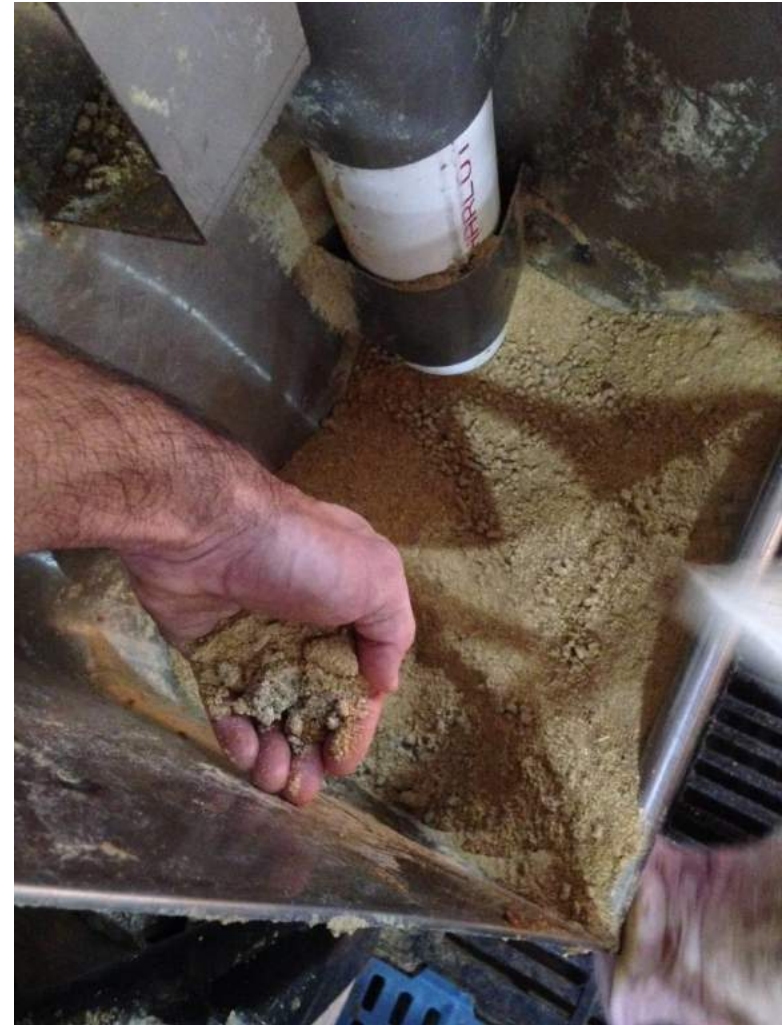


- Allow at least 3 days of Pre-farrowing training.
- Two employees – one in front and one in the back.
- Twice a day – Stand up, check water nipples and feed bowl.



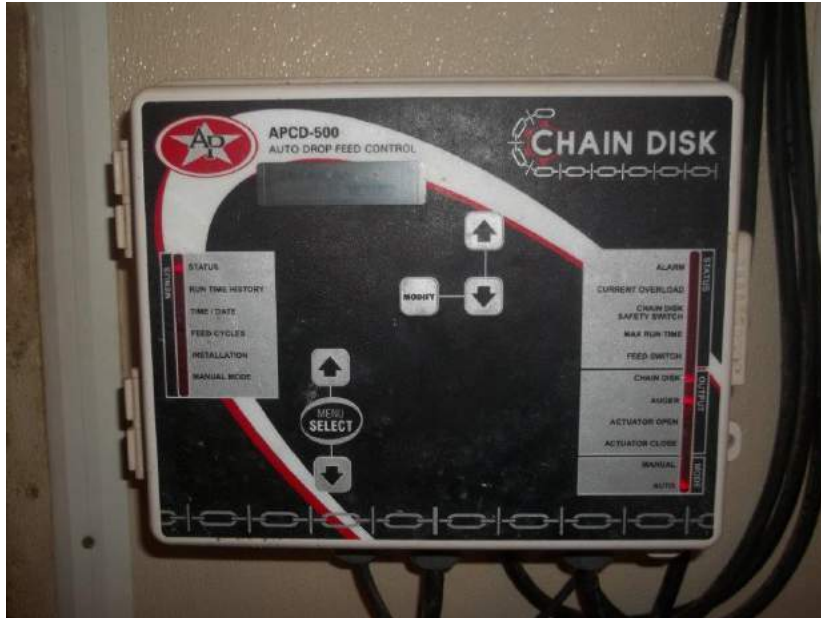


Feeder Adjustment





Set up Feeding System

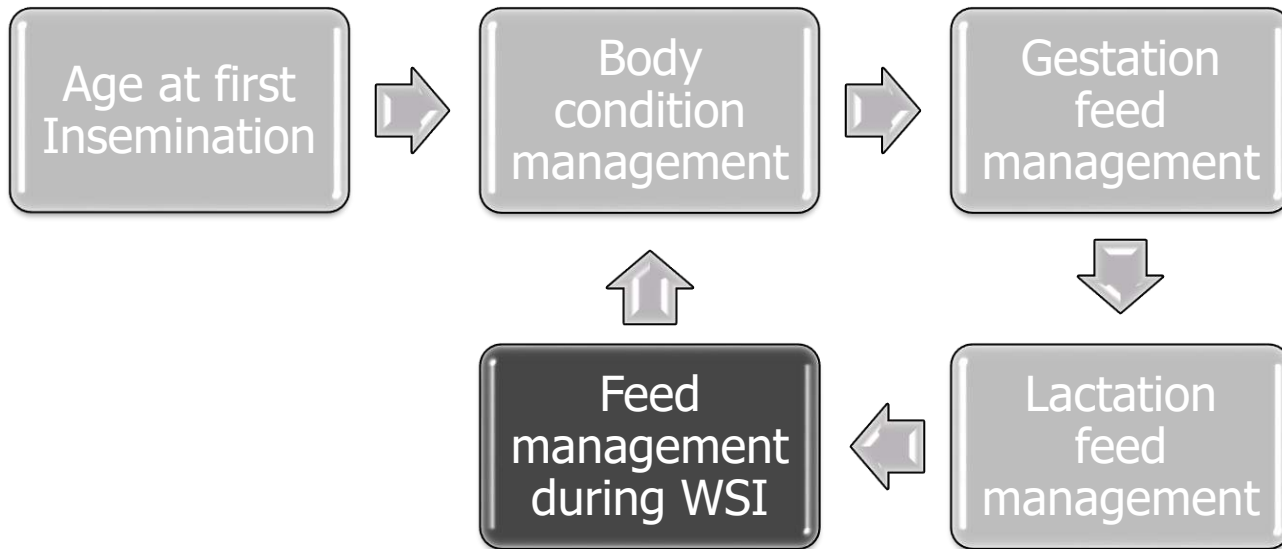


- Full feed offer: Enough times per day to get - 24/7 Fresh feed.
- Do not restrict feed in lactation day before weaning.





The Big 5 Areas To Look At

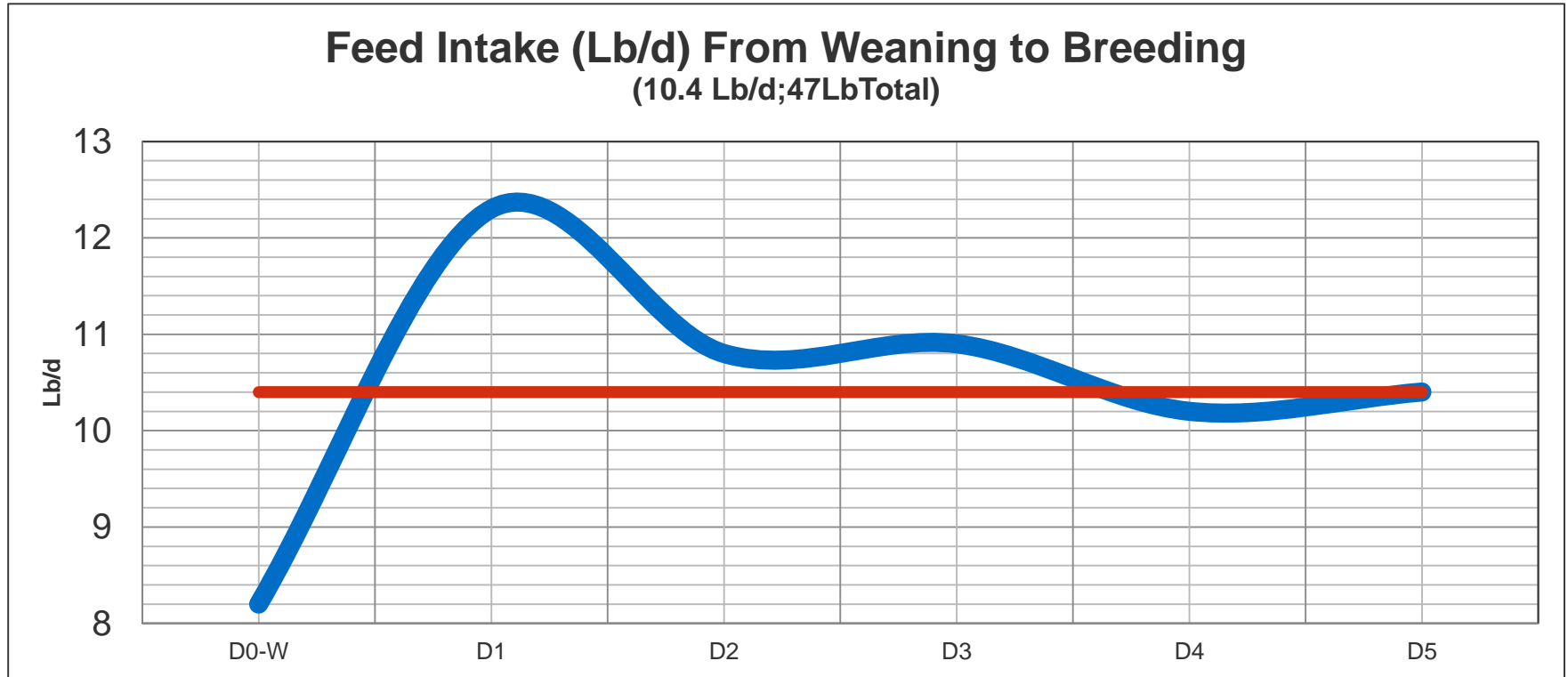


Key(s)  Full feeding
P1's perspective



Feed Intake during WSI

Initial Proof of Concept



Parity Distribution: P1+P2: 32%, P3-P6: 60%, +P7: 8%.

Weanings of August-September-October

N=438

Individual Crates, Nipples drinkers and dry feed.

Barn Temperatures: Max 80 F Min 72 F.

Gestation Feed: 3190 Kcal ME/Kg





Feed Intake during WSI

Second Part - Analysis

	Trial	Control	Difference	Better/Worse
Avg. WSI	4.4	5.3	0.9	Better
Bred by d 7	97.5%	92.8%	4.7%	Better
Sows	279	391		
Total Feed	19 kg	14 kg	5 kg	Better
ADFI	4.2 kg/d	2.3 kg/d	1.6 kg/d	Better
Litter Size	13.9	12.9	1.0	Better

Marginal Cost = R 17.5 (5 Kg x R 3.5)

Marginal Revenue = R 446 (1.0 pig x 85% piglet conversion x R 525 piglet price)

Margin Over Feed Cost = R 428 / Sow

Cost : Benefit = 1:25



Strategies To Control PWM

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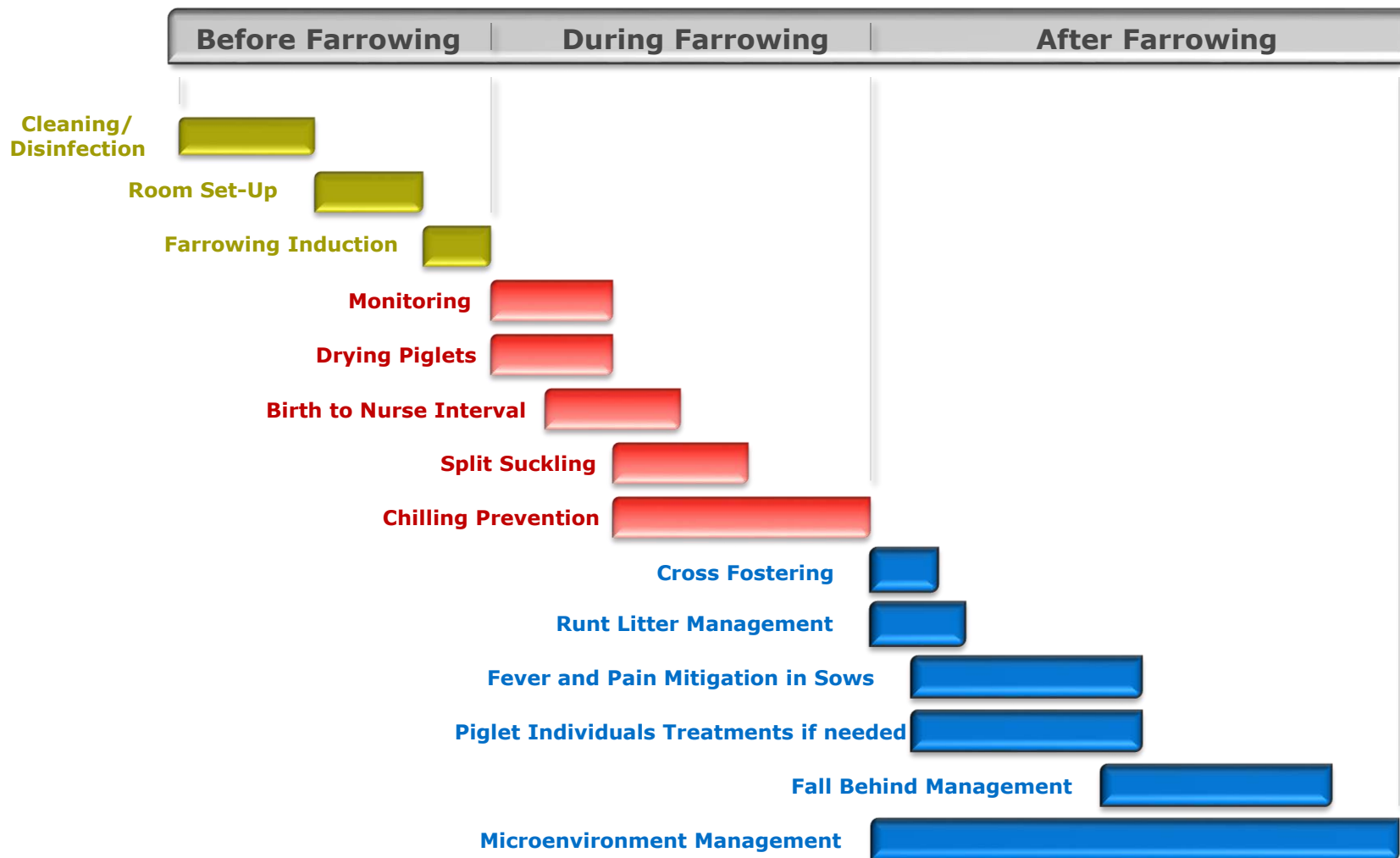
Goal

We want to provide you with a simple strategy to get your pre-weaning mortality down.



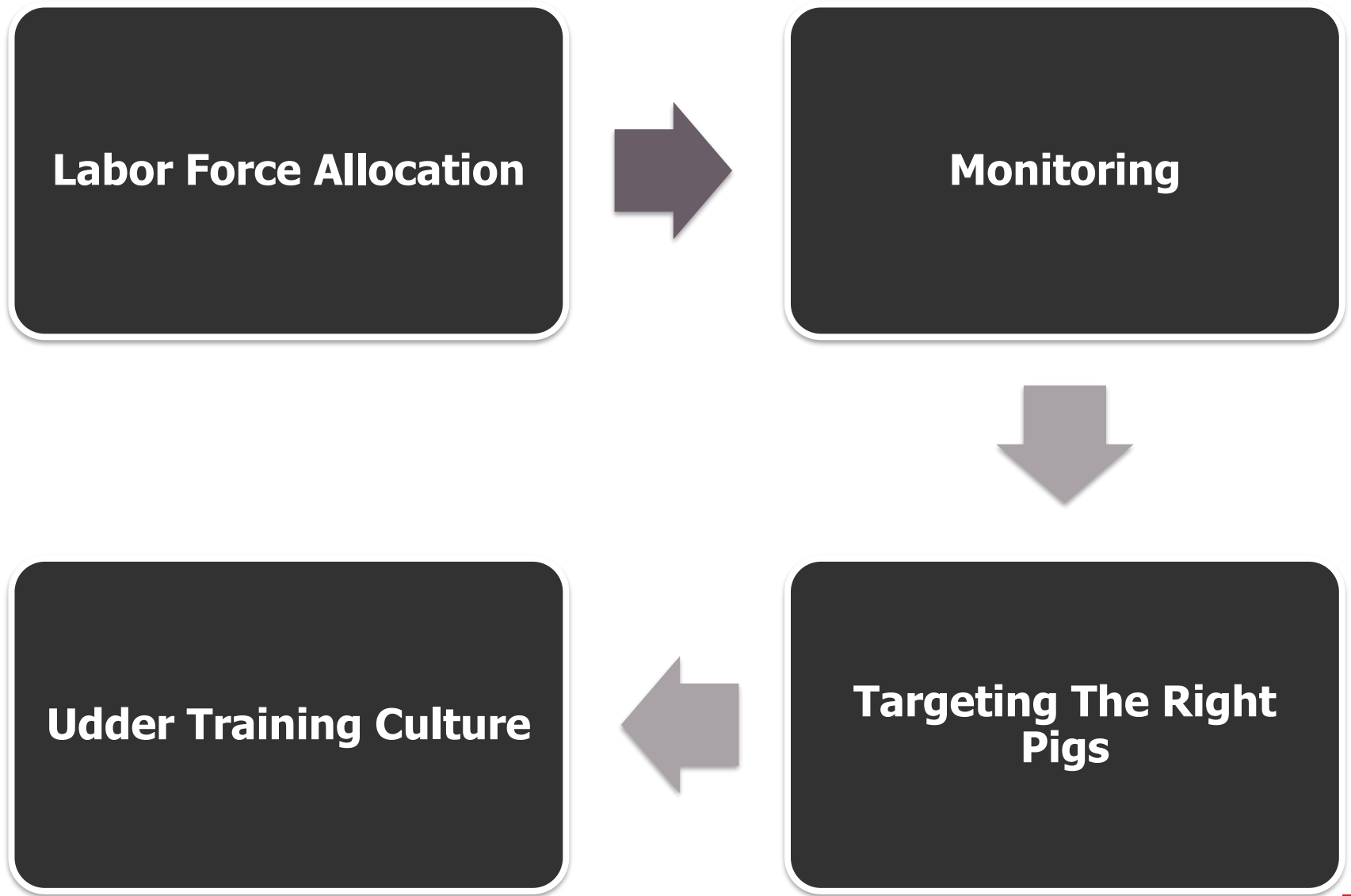


Let's Start With The Facts



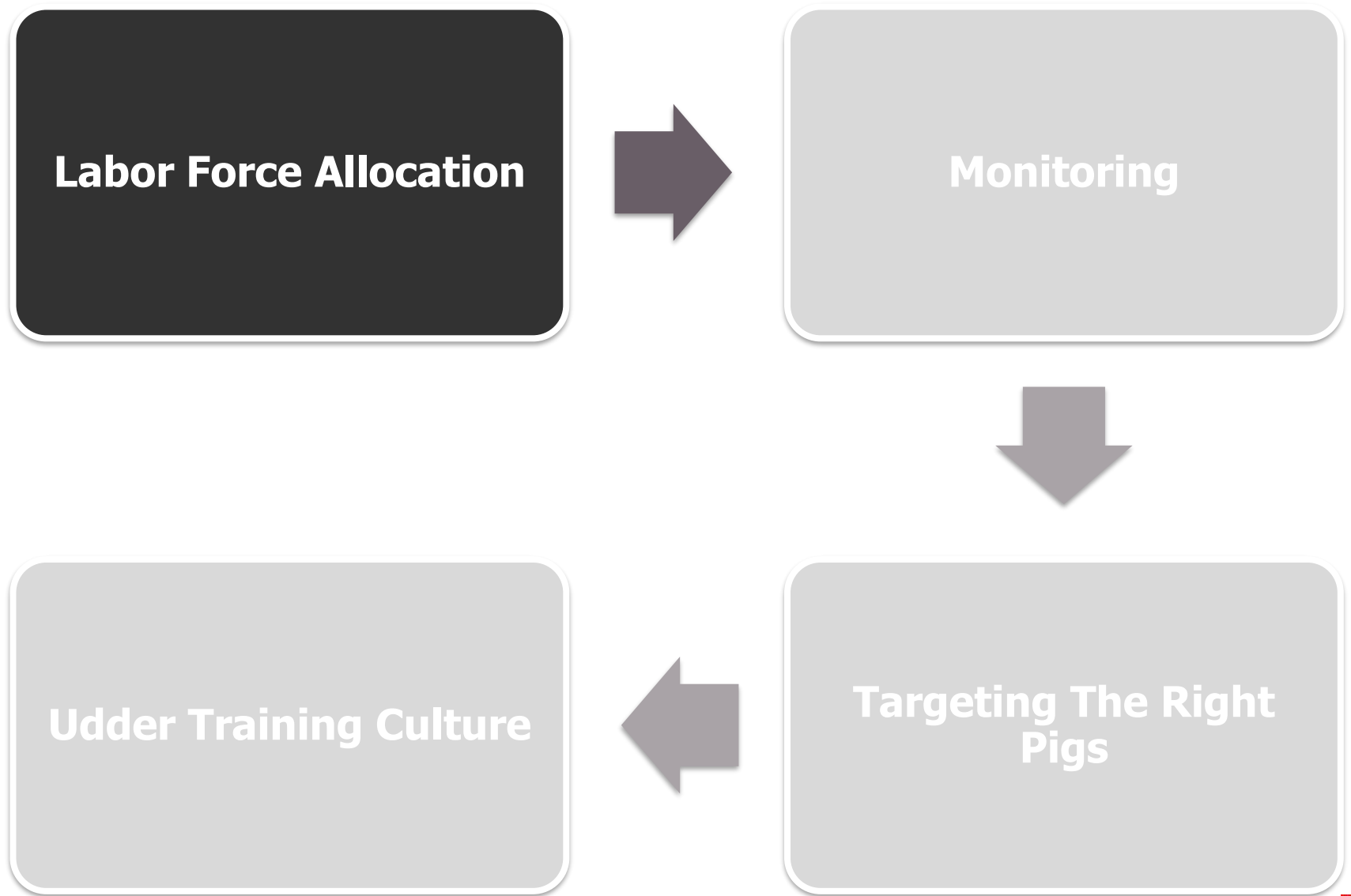


Setting The Priorities





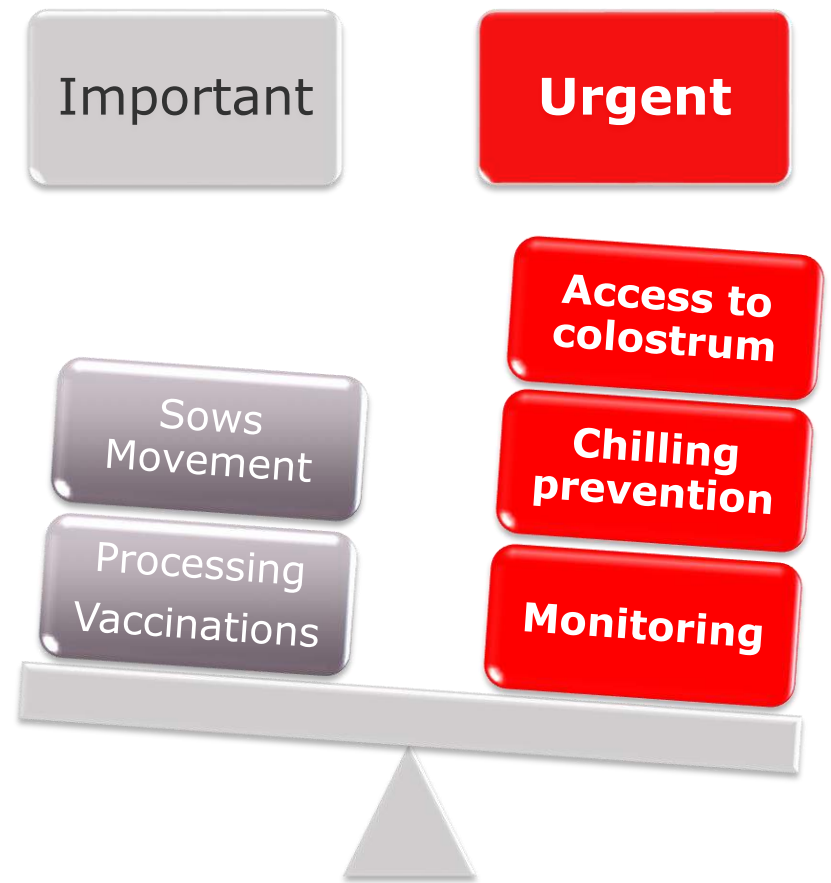
Setting The Priorities





Labor Force Allocation

- Postponing urgent chores equates dead pigs.
- **Farm manager** is a key piece on setting this right.
- The combination of actions produce better results than each one alone.





Labor Force Allocation

- This challenge goes beyond protocols, policies and SOPs.
- The real challenge is how to implemented consistently.
 - **Labor distribution** - Not all days of the week are equals, not all hours of the day are equals.
 - **Quality of Labor** - Not all people qualify for that job.
 - **Priorities** – Active monitoring, chilling prevention and quick access to colostrum.





Labor Force Allocation

- **First 2 hours of the day** – Plan in advance for days known by having more farrowings
 - Catch up overnight farrowings (sows and piglets care)
 - Dry piglets found wet in your first walk.
 - Mark empty belly pigs and/or born between 0.9 to 1.35 kg.
 - Udder training them.
 - Check heat sources and make sure they work well.
 - Plan ahead for overnight farrowings to foster immediately after colostrum intake management





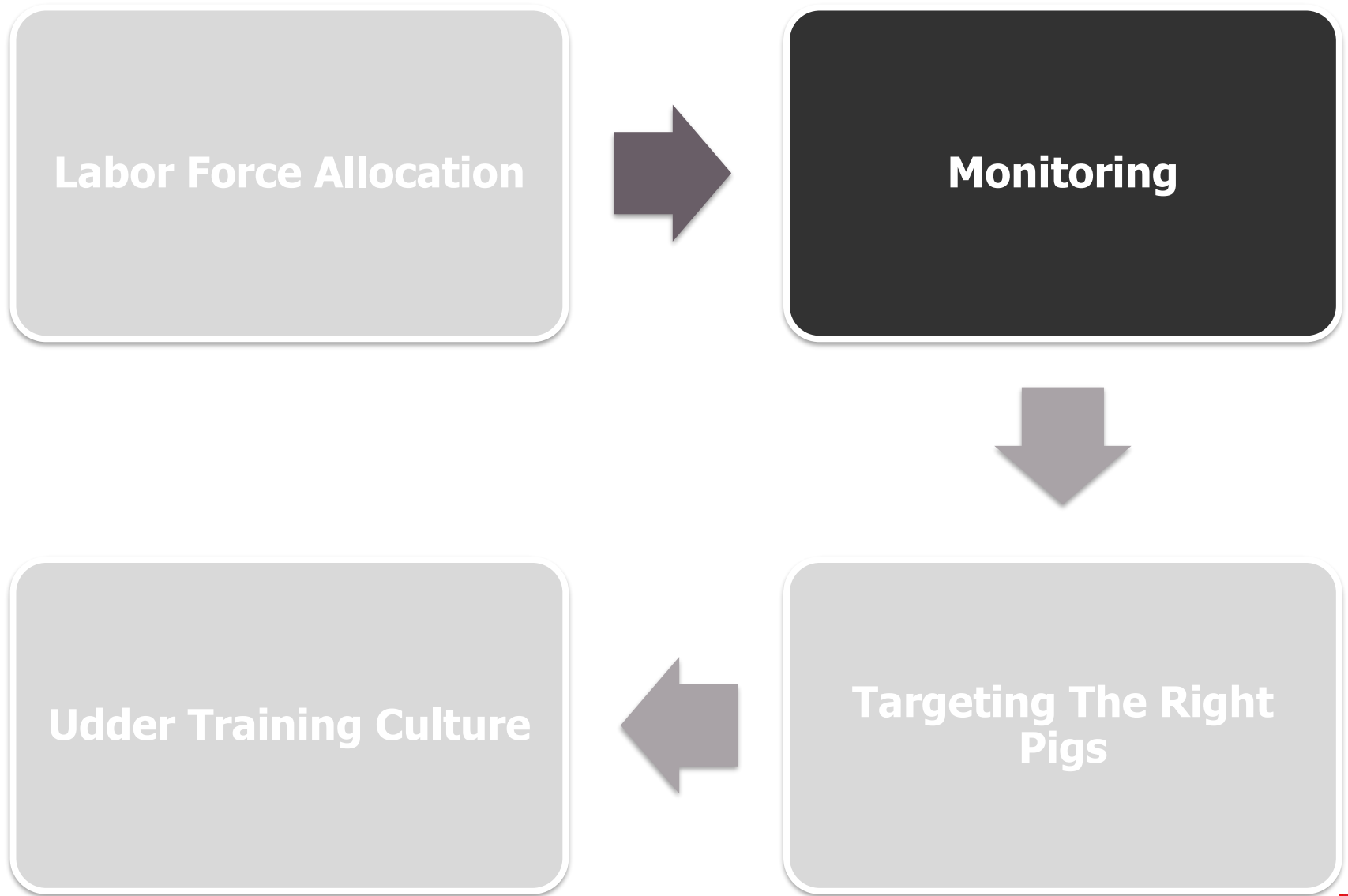
Labor Force Allocation

- **Manpower and distribution** – On weekends, prioritize the urgent chores.
 - To do a good job, 1 person per every 15-20 farrowings.
 - Visiting and accessing sow/piglets needs every 20 minutes.
 - 1 person has to stay in farrowing rooms while everybody else is on break.





Setting The Priorities





What Does Attended Farrowing Means?

- **Attended farrowing** is defined as being present every 20 to 30 minutes while the sow is farrowing to:
 - Help and assist, checking the birth canal if there is not a new piglet born.
 - Drying 100% of pigs new born off.
 - Identify/warm cold pigs/empty belies pigs from overnight farrowings.





What Does Attended Farrowing Mean?

- Marking and udder training piglets new born between 0.9 – 1.35 kg, and the ones with empty bellies.
- Checking heat sources.
- Keeping sows comfortable, laid on and pigs nursing (Rubbing udders)





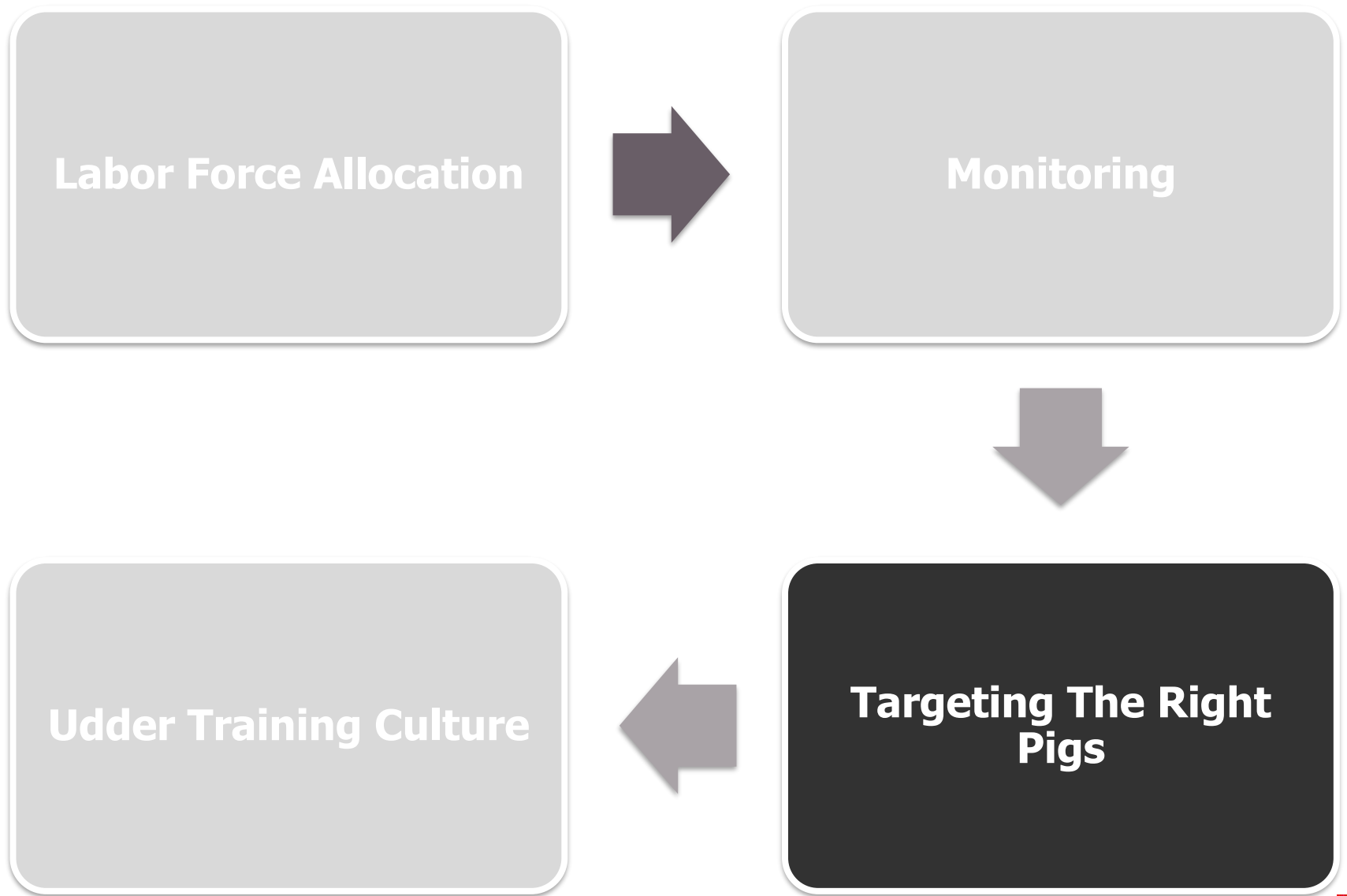
Why Do We Fail Attending Farrowing?

- **The goal standard** is to be able to attend properly and in timely manner > 90% of litters when the staff is on.
- **Common mistakes** identified on farms:
 - Incomplete/inaccurate knowledge of what attended farrowing means and its implications.
 - < 75% of attendant rate when staff is on (Monday to Friday)
 - < 50% of attendant rate on wean days and weekends





Setting The Priorities





Targeting The Right Piglets

- **Recent researches** (~Last 3 years) shown that birth weight is playing a major role in colostrum intake.
 - Devillers, Dividich and Prunier (2011).
 - Decaluwe et al (2014).
 - Ferrari et cols (2014).
 - PIC GTSR Unpublished information (2016).





Decoding PWM

Area	Dead 1-3 d	Weaned
Avg birth weight (kg)	1.00	1.40
Birth rank	7.7	7.2
Interval from previous birth (min)	13.7	13.8
Colostrum intake (kg)	0.145	0.332
Weight gain (kg)	-0.018	0.104
Rectal temperature	97.9° F	100.2° F
Cortisol (ng/ML)	484	275
IgG (mg/ML)	16.9	24.3
Glucose (mg/L)	758	1,048
Lactate (mmol/L)	6,405	5,147

Modified from Devillers, Dividich and Prunier (2011)

**Key
Point(s)**

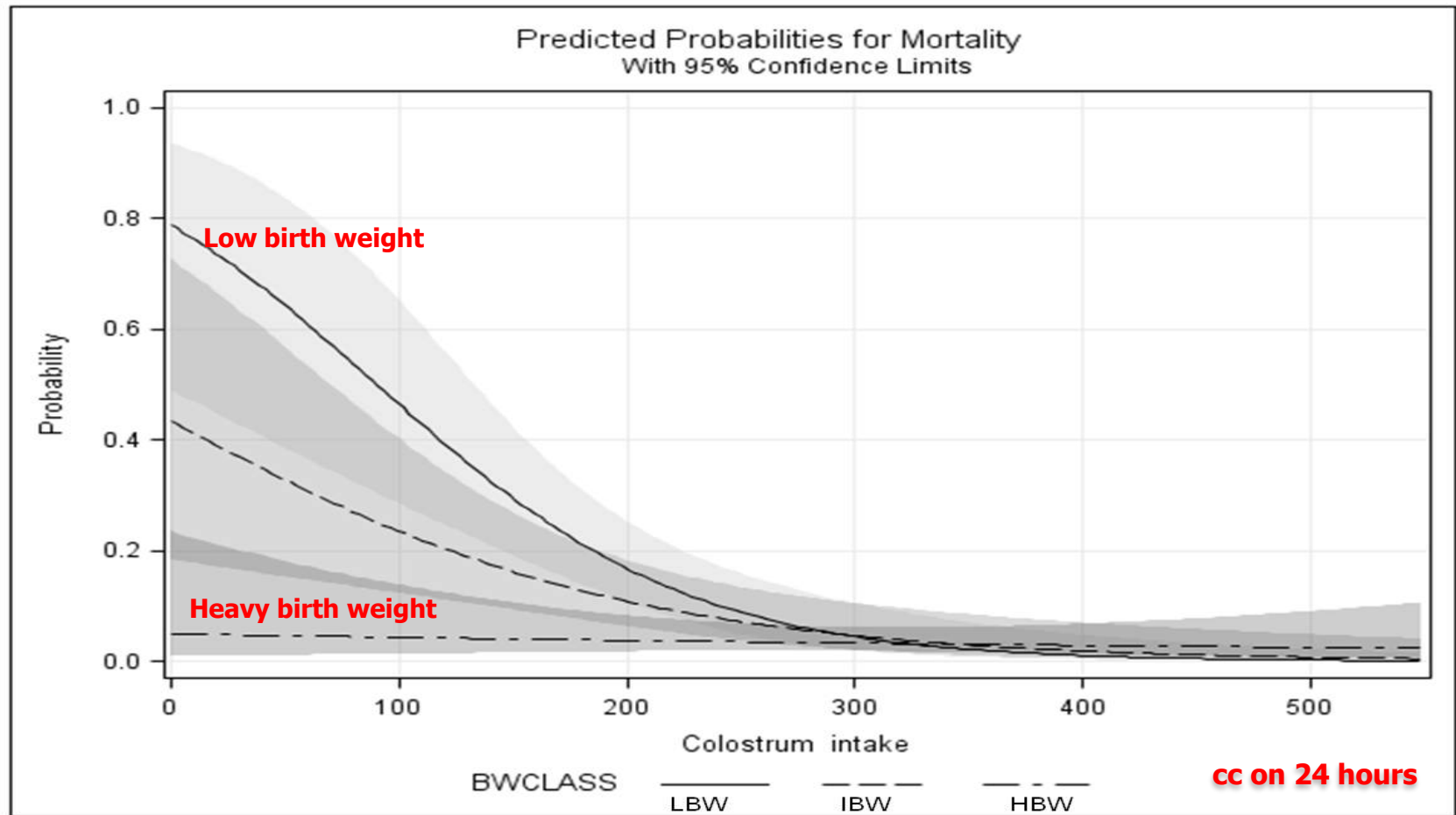


Birth weight and colostrum intake are strongly related with piglet survivability





The Value of Colostrum Intake



Ferrari et cols (2014). Courtesy of Dr. Fernando Bertolozzo (UFRGS, Brazil).

Key Point(s)

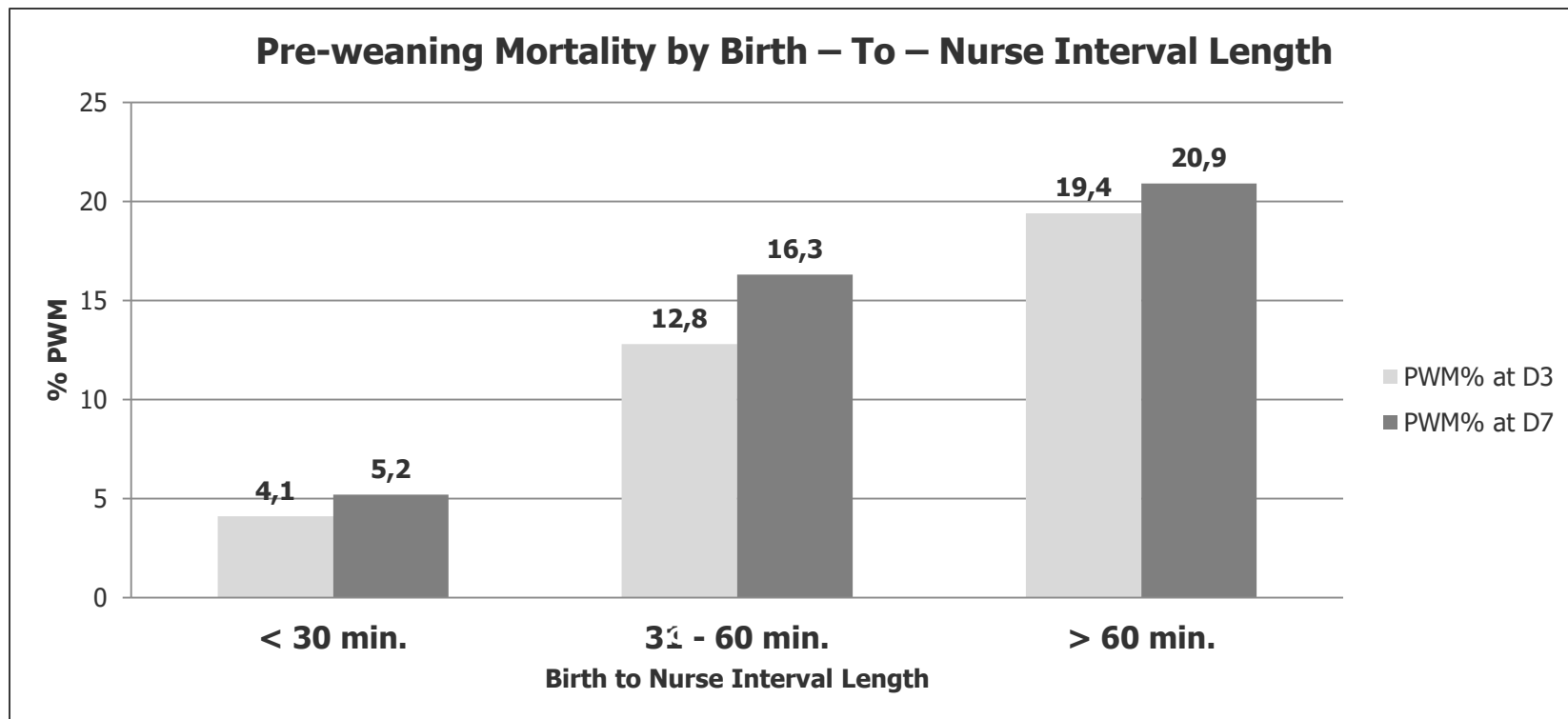


**A runt needs > 250 cc on day 1.
The most important are the first 10 cc!!!!**





Birth To Nurse Interval



< 30 min – N:290
31 – 60 min – N:86
>60 min – N:67
A,b;A,B P<0.05

(Decaluwe et al., 2014)

**Key
Point(s)**

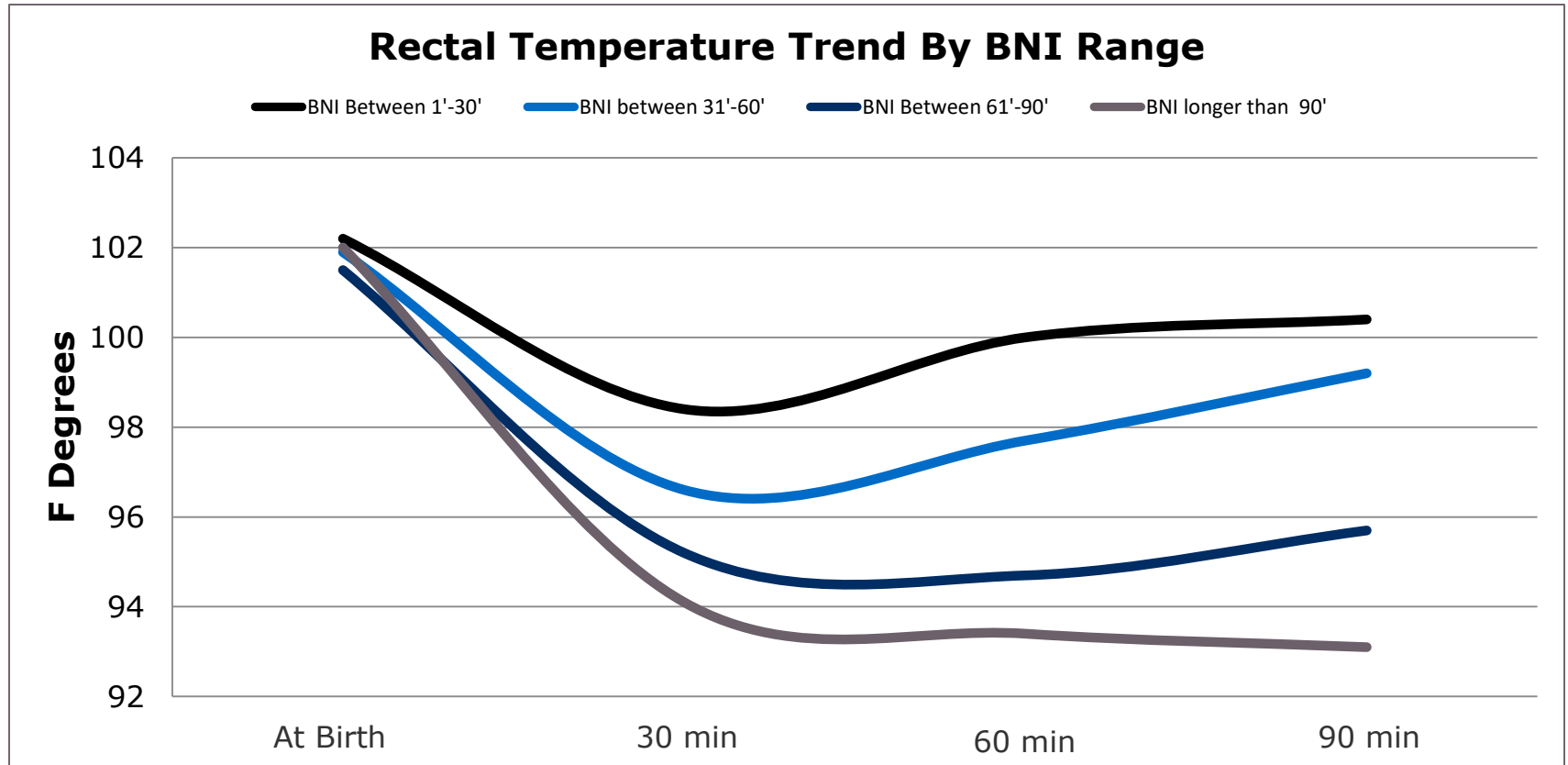


**Birth to nurse interval over 60 minutes
increase PWM**





Birth To Nurse Interval



Source: PIC GTSR. Unpublished data, preliminary result. Unassisted farrowings.

Key Point(s)



The longer interval, the slower the temperature recovery.





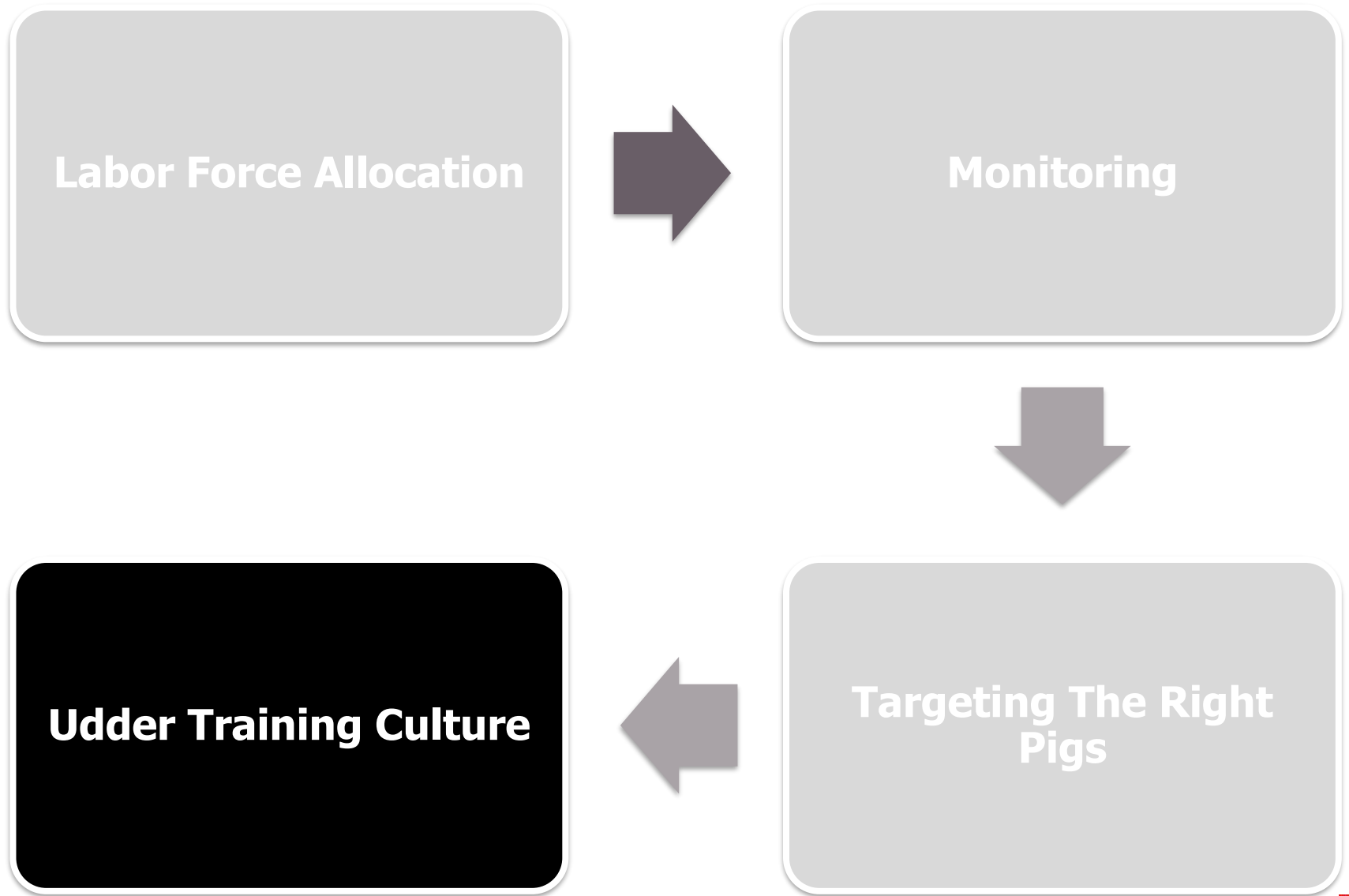
Targeting The Right Piglets

- **Different outlook** - Priorities on management strategies have changed.
 - Birth-to-Nurse Interval (BNI) is highly influenced by birth weight – Piglets born between 0.9-1.35 kg are the aim population.
 - Quick access to colostrum - Udder training is more relevant on 0.9 – 1.35 kg pigs.
 - Split suckling and fostering have no relevance on PWM reduction without a solid udder training strategy on place.





Setting The Priorities





Udder Training Culture

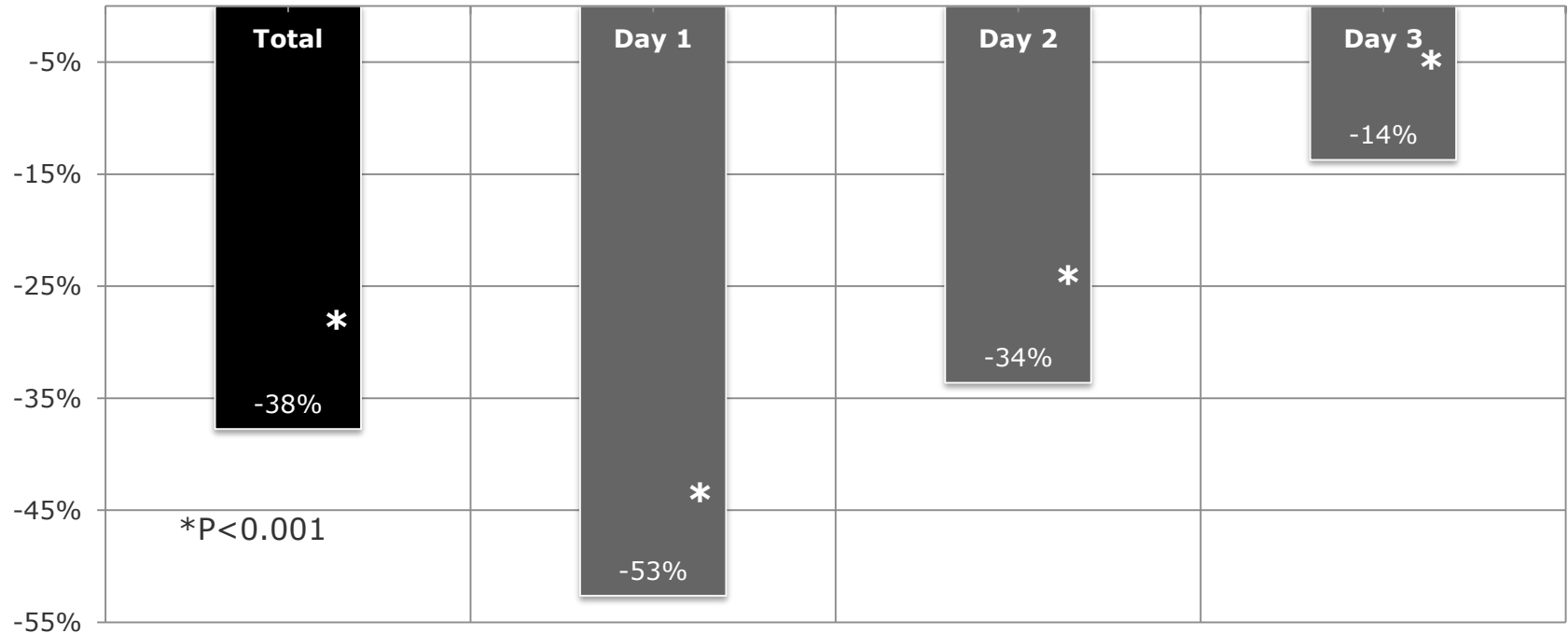
- Not every group of pigs responded the same way to management strategies.
 - Pigs < 0.9 kg and > 1.35 kg: No differences in PWM.
 - Pigs 0.9 to 1.35 kg: Big difference – 35% of PWM reduction in this group ($P < 0.001$)
- We had 1,000 piglets born according to the farm protocols (no help) vs 1,000 pigs that **were born from monitored farrowings and were dried off and udder trained.**





Udder Training Medium Size Piglets

PWM Difference Trial vs. Control



PIC Females: Control : 1,022 pigs, Trial : 1,044 pigs, dried and udder trained at birth, 30 min and 60 min after birth.



Udder Training Medium Size Piglets

- Dry them
- Mark them.
- Choose the proper teat.
- Execute udder training within 30 minutes after farrowing.
- Repeat 60 minutes after birth.
- The goal is to have piglets drinking milk on its own after intervention.





Seize the Opportunity

- **3% potential** - 40% of BA pigs weighed 0.9 to 1.35 kg.
- **100% profit** – Additionally saved pigs are margin.
- **Simplest execution** - Consider that even before more complex strategies (split-suckling, cross fostering).

2,500	• Sows
32,500	• Pigs born between 2.1 – 3.0 lb per year
2,600	• Extra pigs weaned per year
1.0	• More pigs weaned per sow per year
R520	• Extra income per sow per year





Take Away Message

- **Capitalize** - The opportunity is R525/sow/year on PWM.
- **Focus** - The 0.9-1.35 kg pigs at birth are the subpopulation where we have to fight against PWM.
- **Simplicity & prioritise** – Without giving up the basics, do good monitoring, chilling prevention and colostrum intake training.
 - Consider other strategies only after you have excelled at the 3 mentioned.
- **Farm manager** – Key to allocate the staff on urgent chores.

