DIETARY PROTEIN FOR GESTATING SOWS IN TRANSITION

AARHUS
UNIVERSITY
DEPARTMENT OF ANIMAL AND VETERINARY SCIENCES

SVINEVET ÅRSMØDE
21 JANUARY 2025

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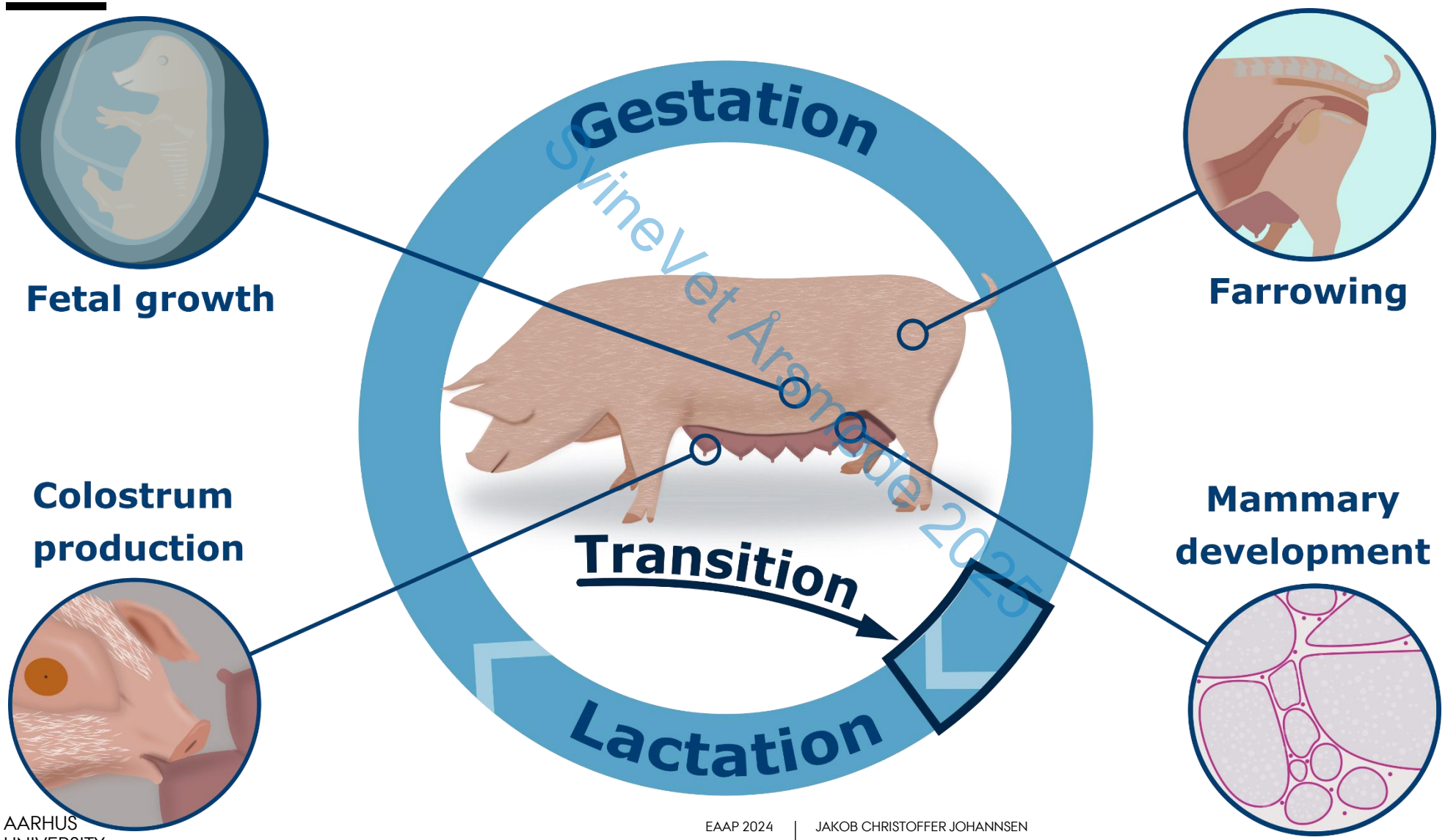
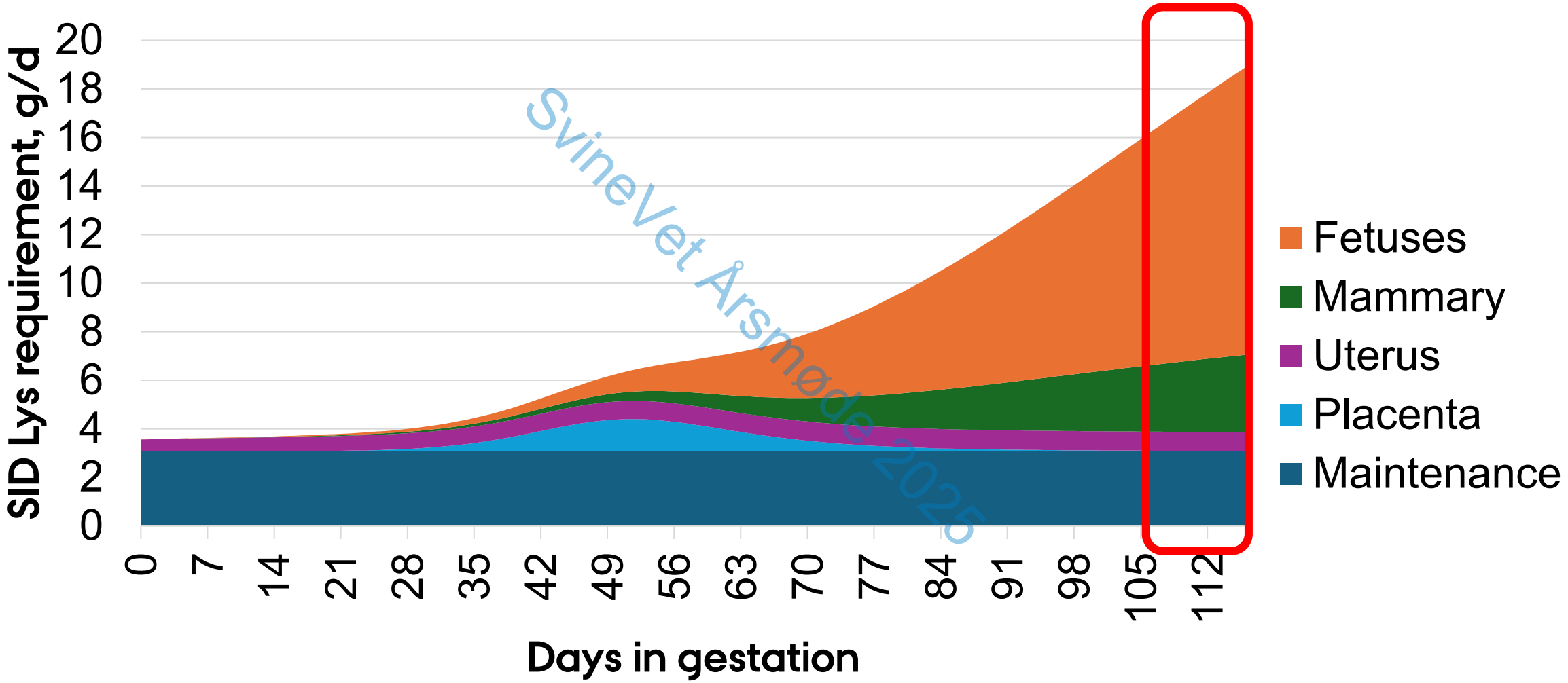
PHD FELLOW

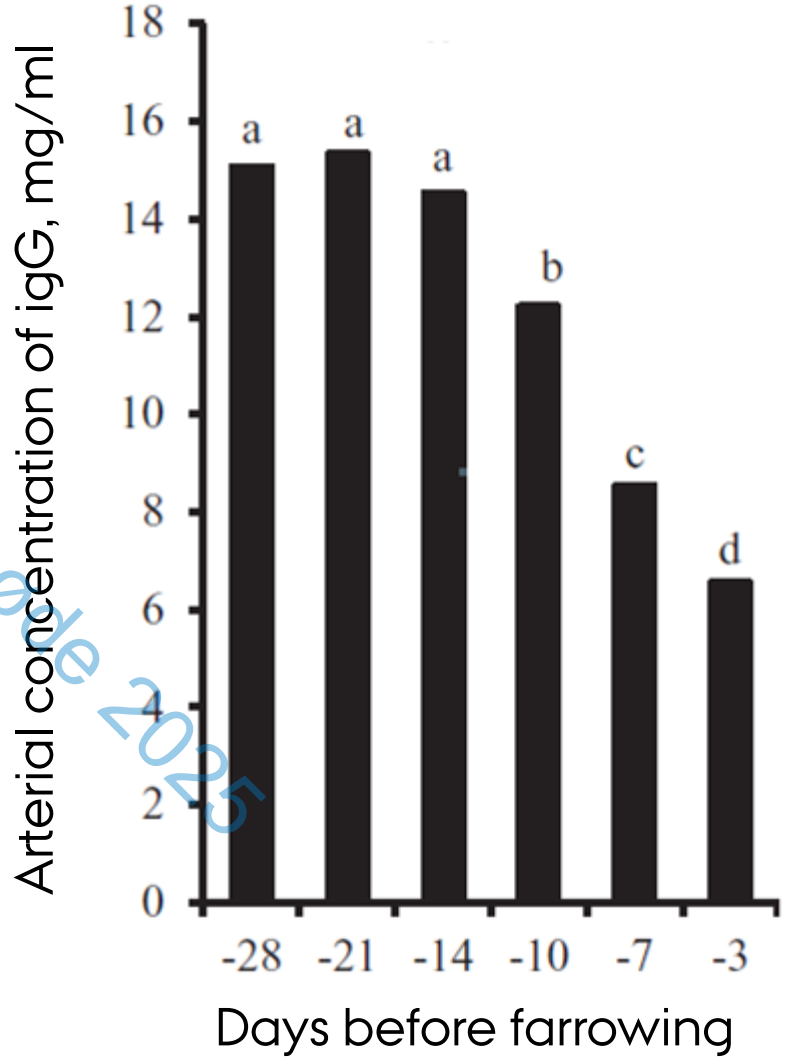
WHAT IS TRANSITION?



ACCELERATED REQUIREMENT FOR PROTEIN



REQUIREMENT FOR COLOSTRUM?



OPTIMAL FEED SUPPLY

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THE EFFECT OF FEED SUPPLY ON FARROWING

Optimal farrowing at ~4 FUsow/d

The sow lacks energy below

The sow gets constipated above

Feed supply, kg/d	1.8	2.4	3.1	3.7	4.3	5.0
Farrowing duration, h	7.58^{a}	7.11^{a}	5.76^{ab}	4.21^{b}	5.61^{ab}	5.71^{ab}
Farrowing assistance, %	4.33^{ab}	4.68^{a}	1.43^{bc}	0.77^{c}	0.74^{c}	4.72^{a}
Stillbirth rate, %	8.31	5.86	5.17	3.89	4.66	6.83

CARRY-OVER EFFECT TO LACTATION

Feed supply, kg/d	1.8	2.4	3.1	3.7	4.3	5.0
Milk yield, kg	11.7^{b}	12.8^{ab}	13.2^{ab}	14.2^{a}	13.6^{a}	13.7^{a}
Litter weight at weaning, kg	82.4^{b}	94.6^{a}	93.3^{a}	98.4^{a}	98.3^{a}	98.5^{a}
Litter size at weaning	12.8^{c}	13.7^{b}	13.7^{b}	14.2^{a}	14.0^{a}	13.7^{b}

Milk yield is optimized at ~4 FUsow/d during transition

OPTIMAL DIETARY PROTEIN

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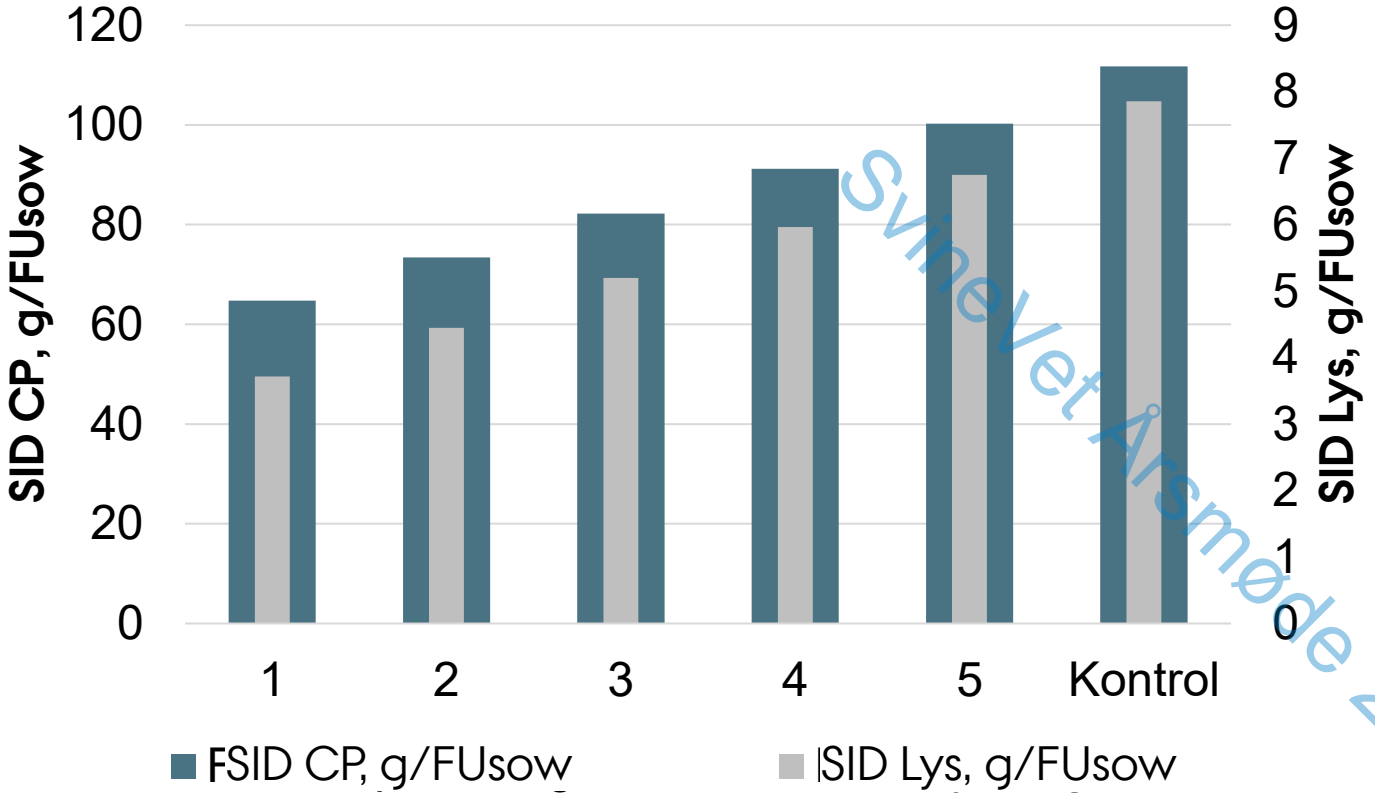
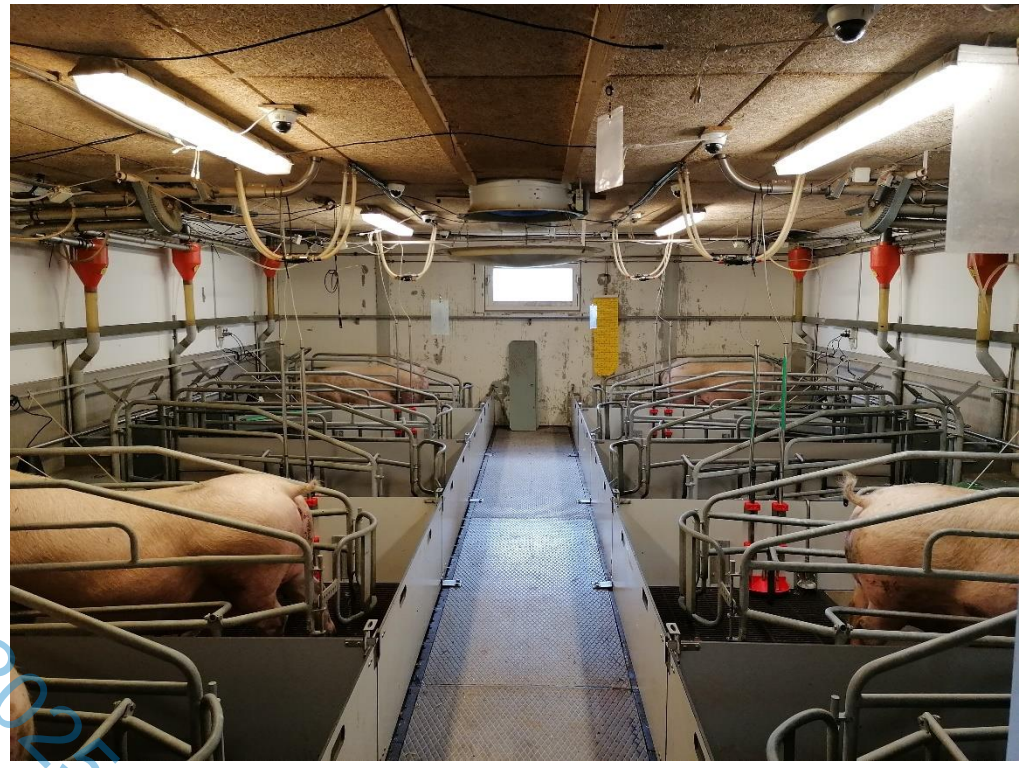
DOSE-RESPONSE TRIAL



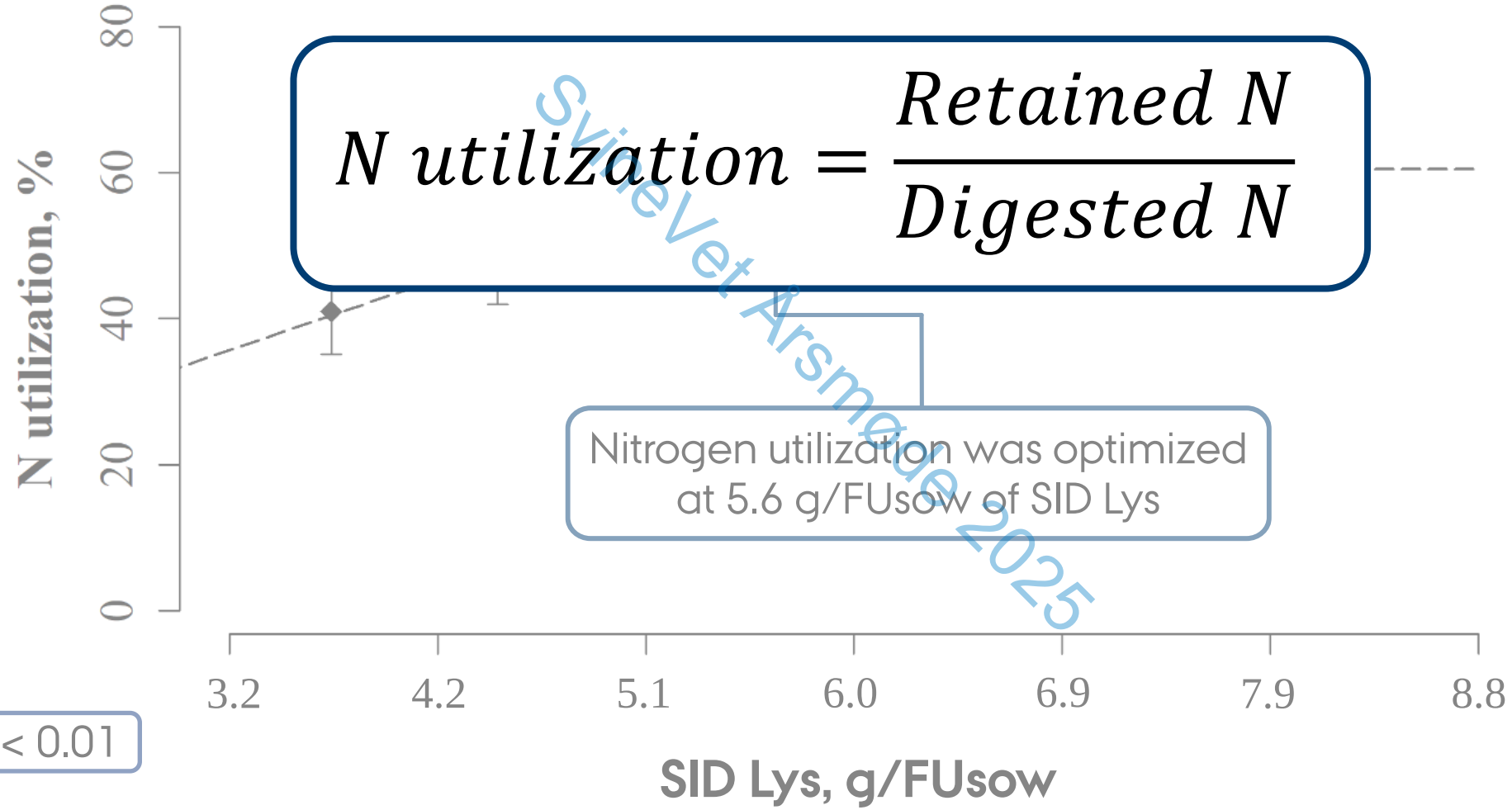


d108 → 24h postpartum

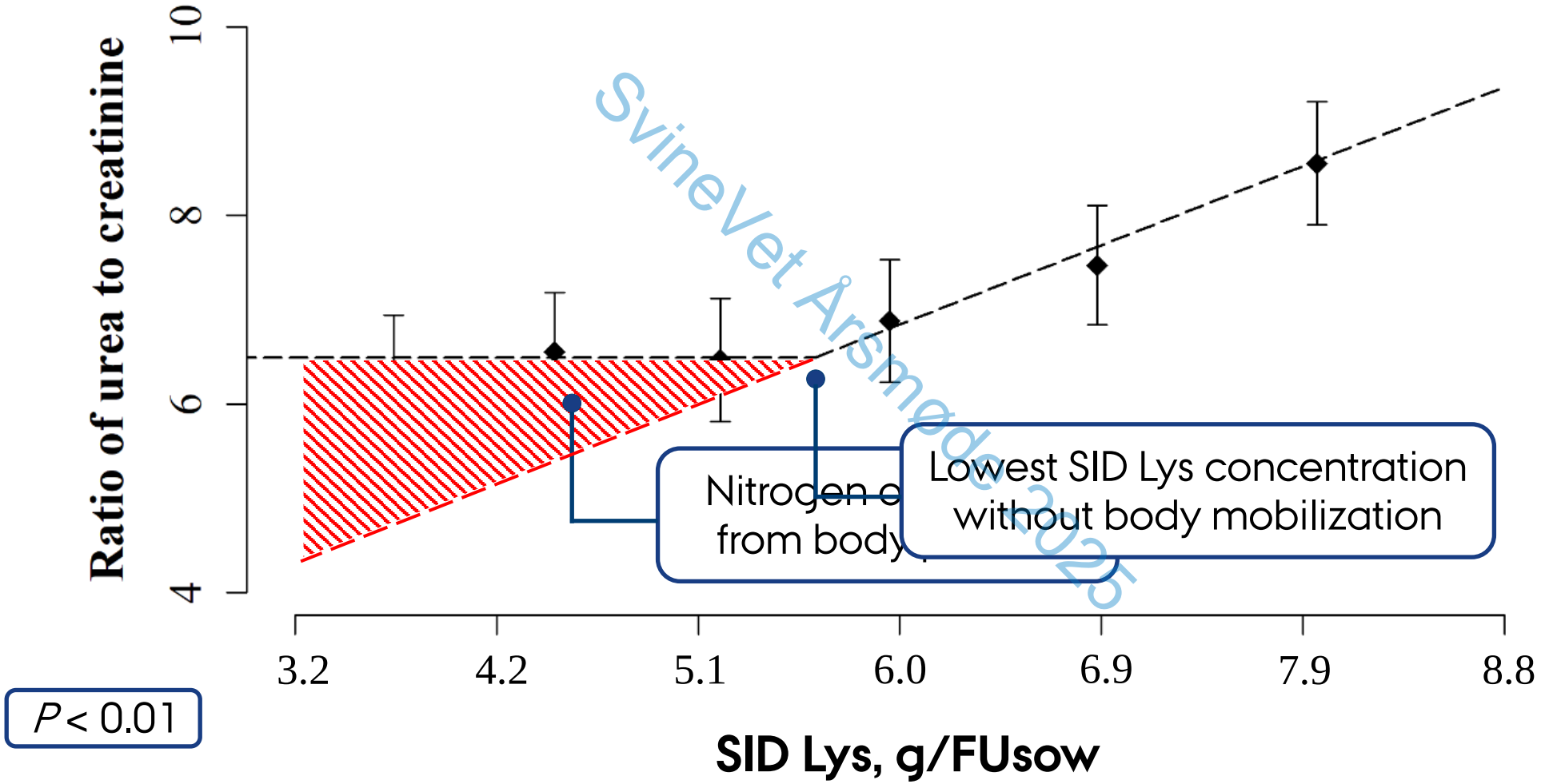
Transition

NITROGEN BALANCE

$$N\ utilization = \frac{Retained\ N}{Digested\ N}$$

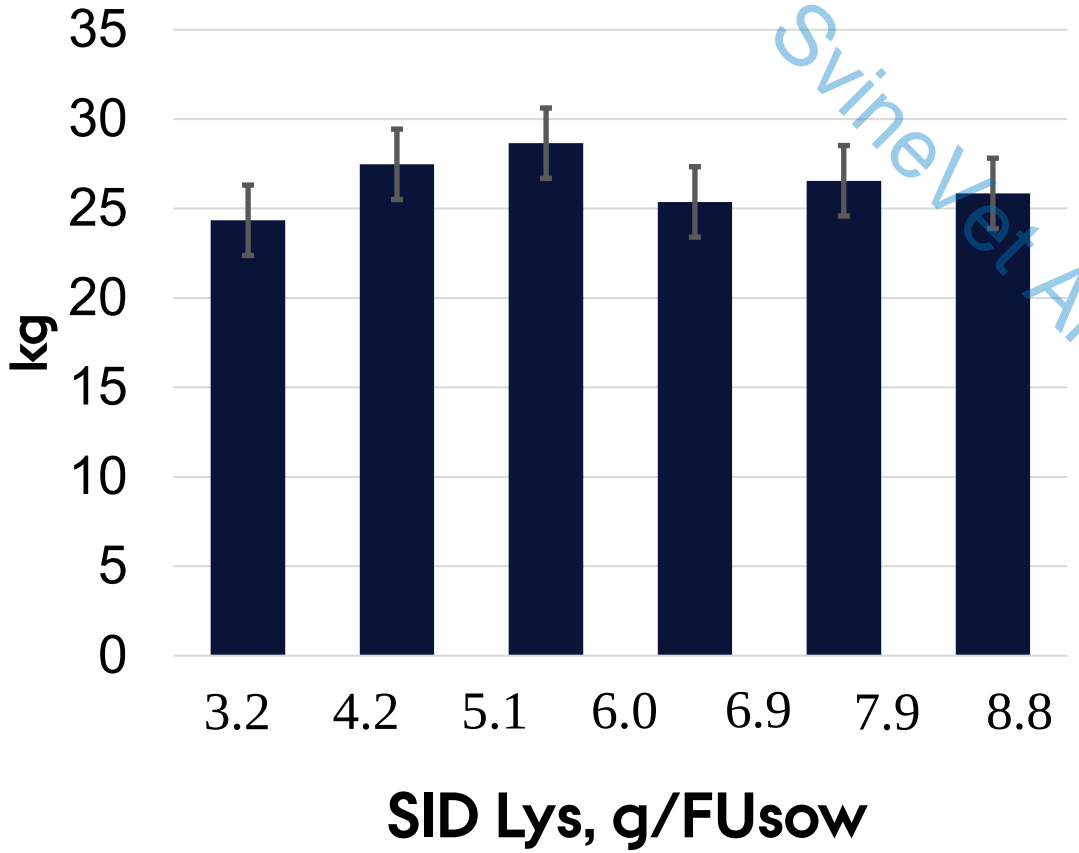


URINARY UREA

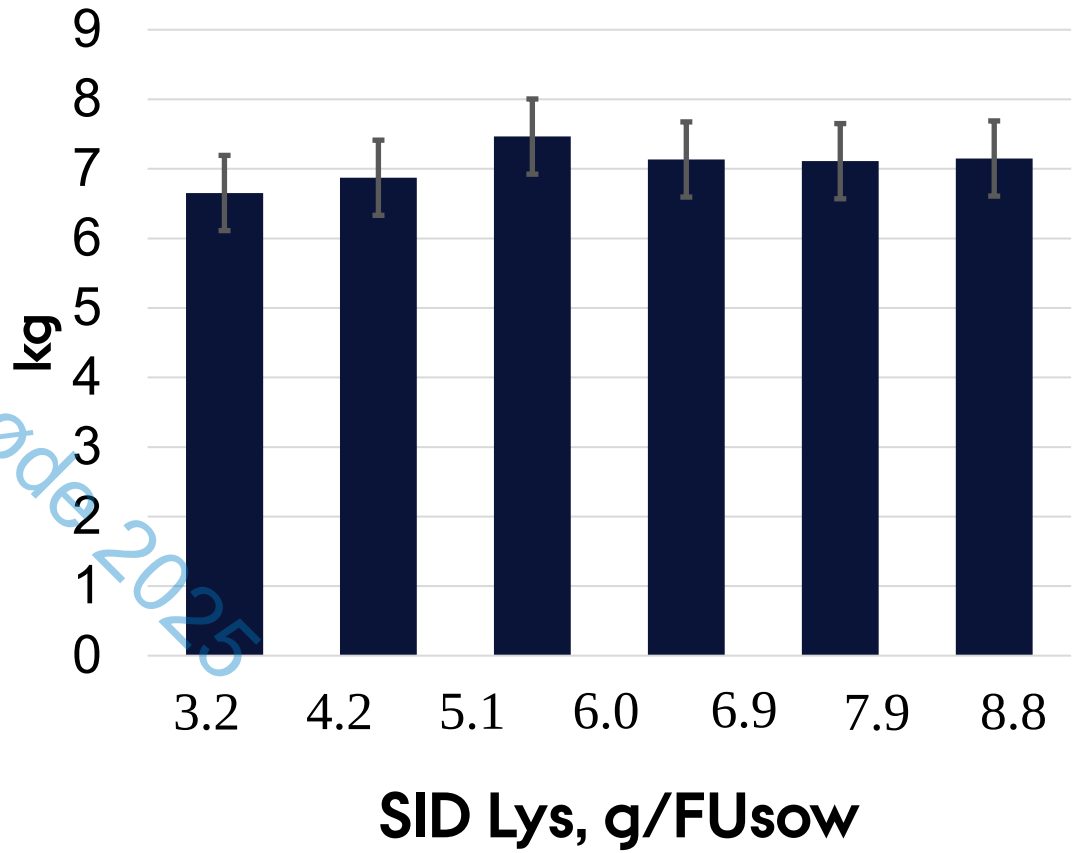


PIGLETS AND COLOSTRUM

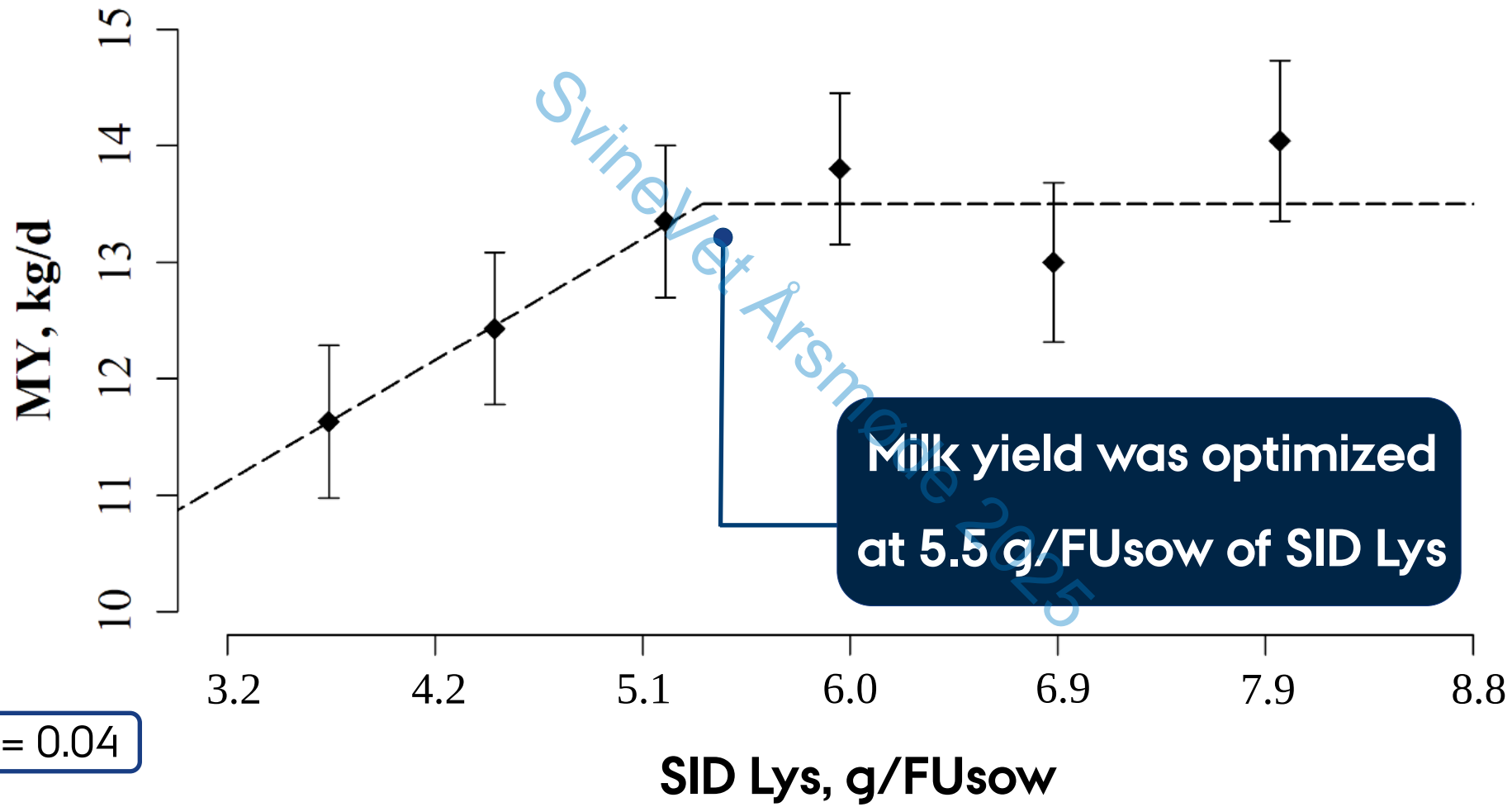
Litter weight at birth



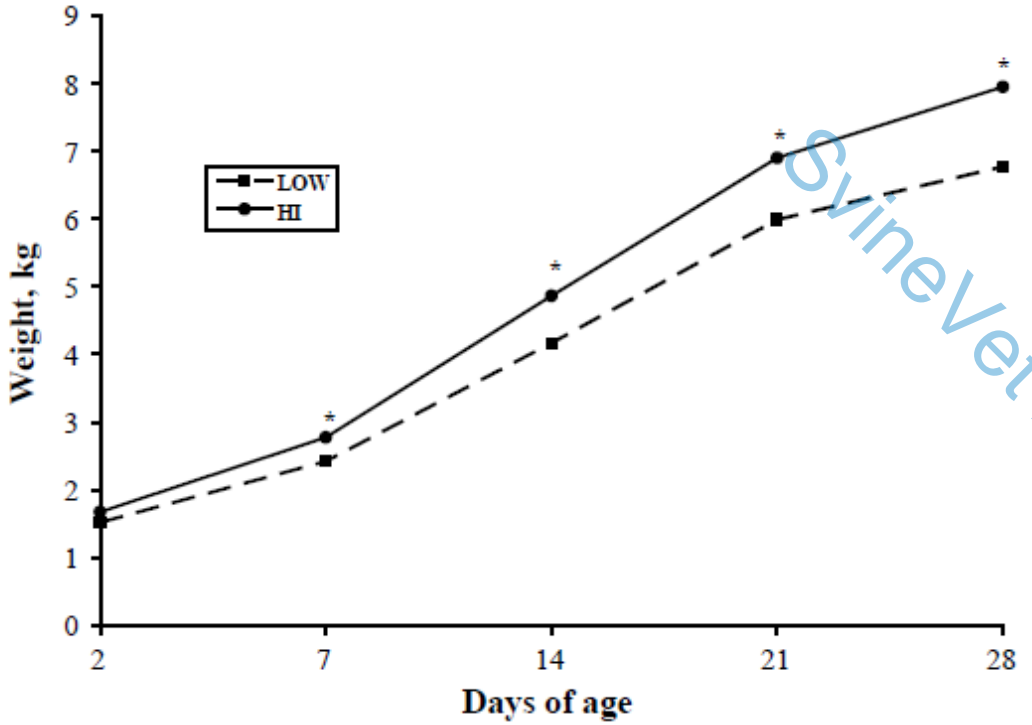
Colostrum yield



LACTATIONAL PERFORMANCE



EFFECT ON MAMMARY DEVELOPMENT?



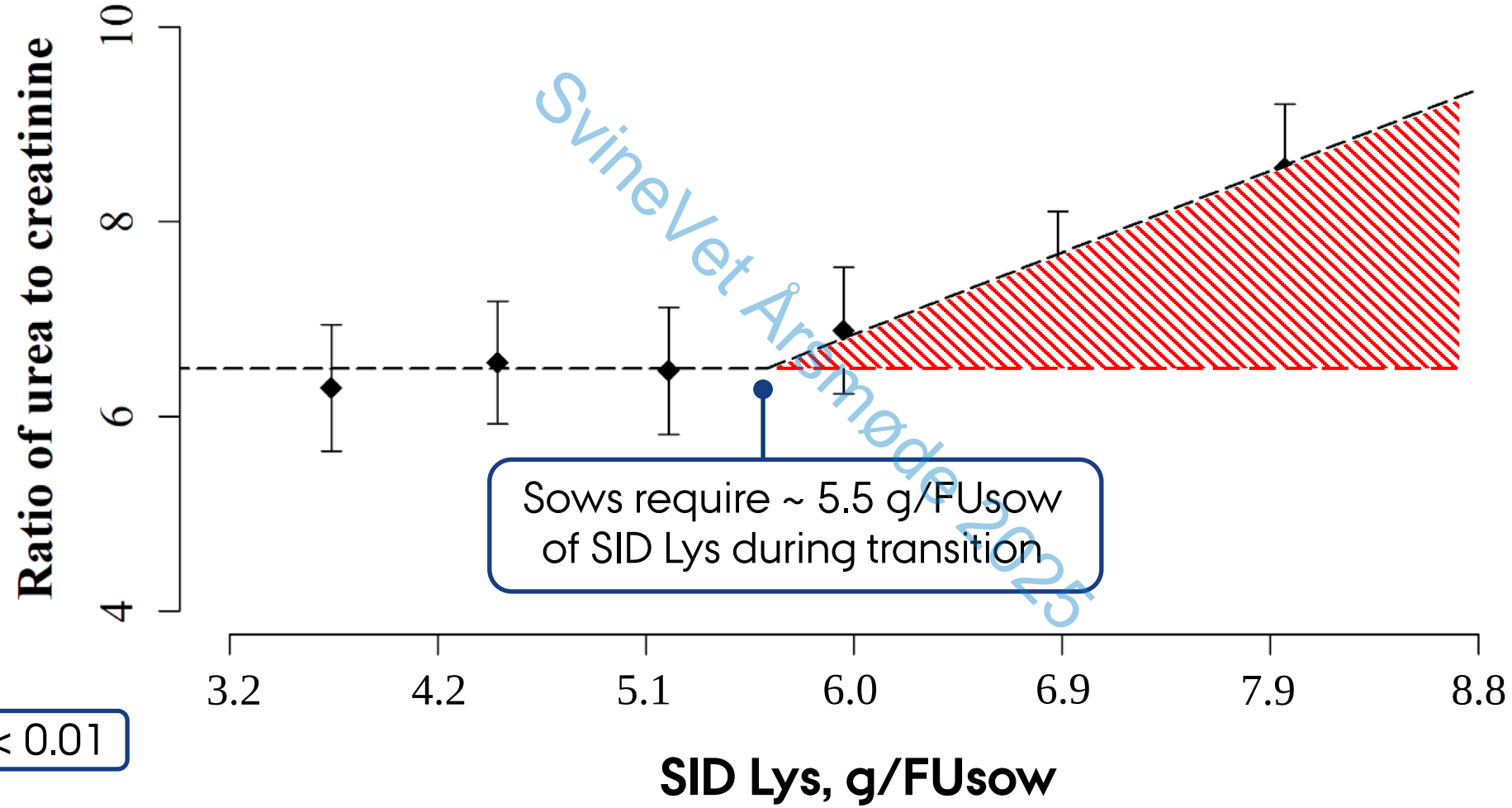
High milk yield

=

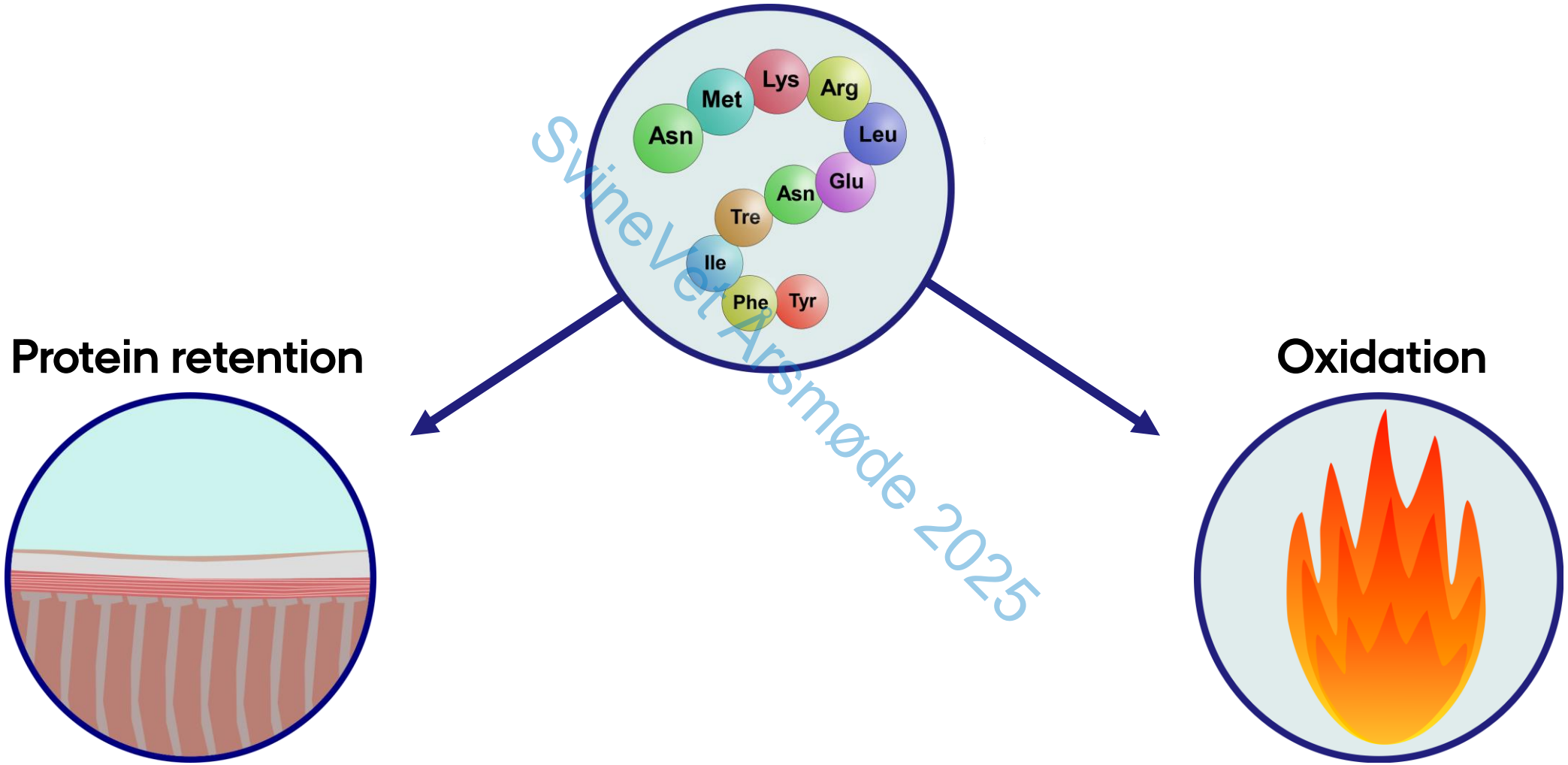
More DNA, RNA and protein

Reference: Farmer et al. (2010). *Canadian Journal of Animal Science*. **90**(3): 379-388. https://doi.org/10.4141/CJAS09124

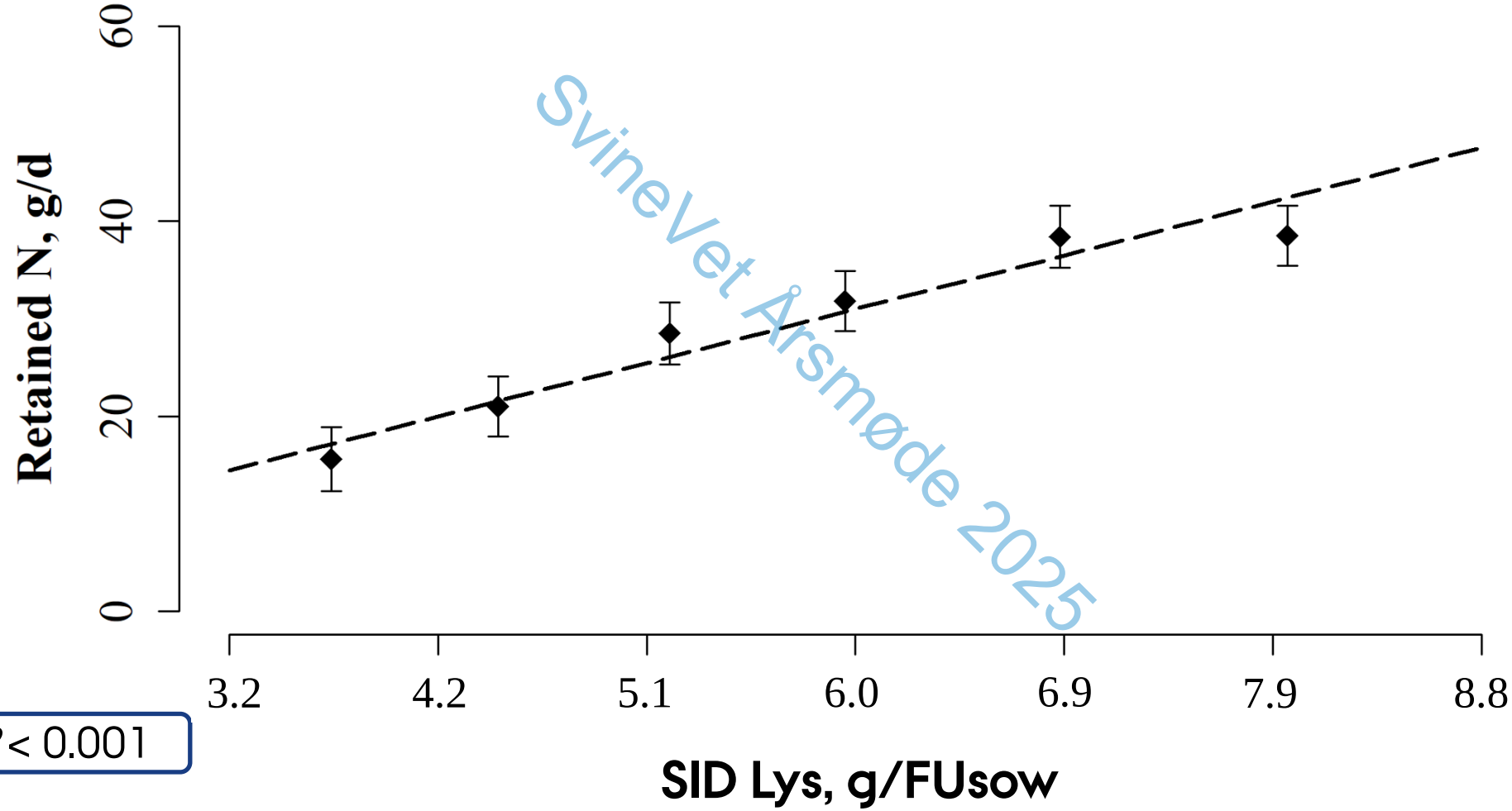
URINARY UREA



EXCESS PROTEIN

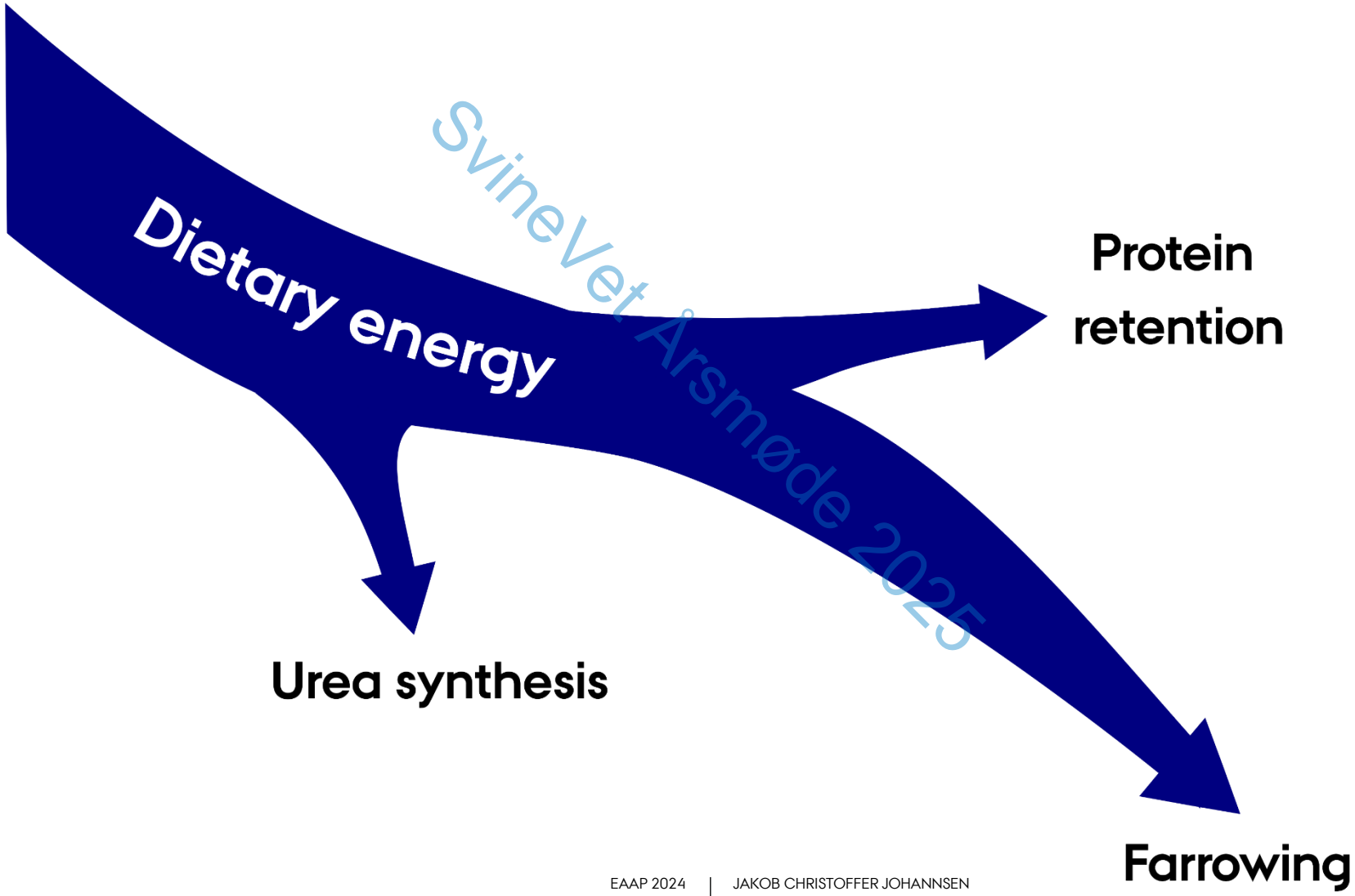


RETAINED NITROGEN

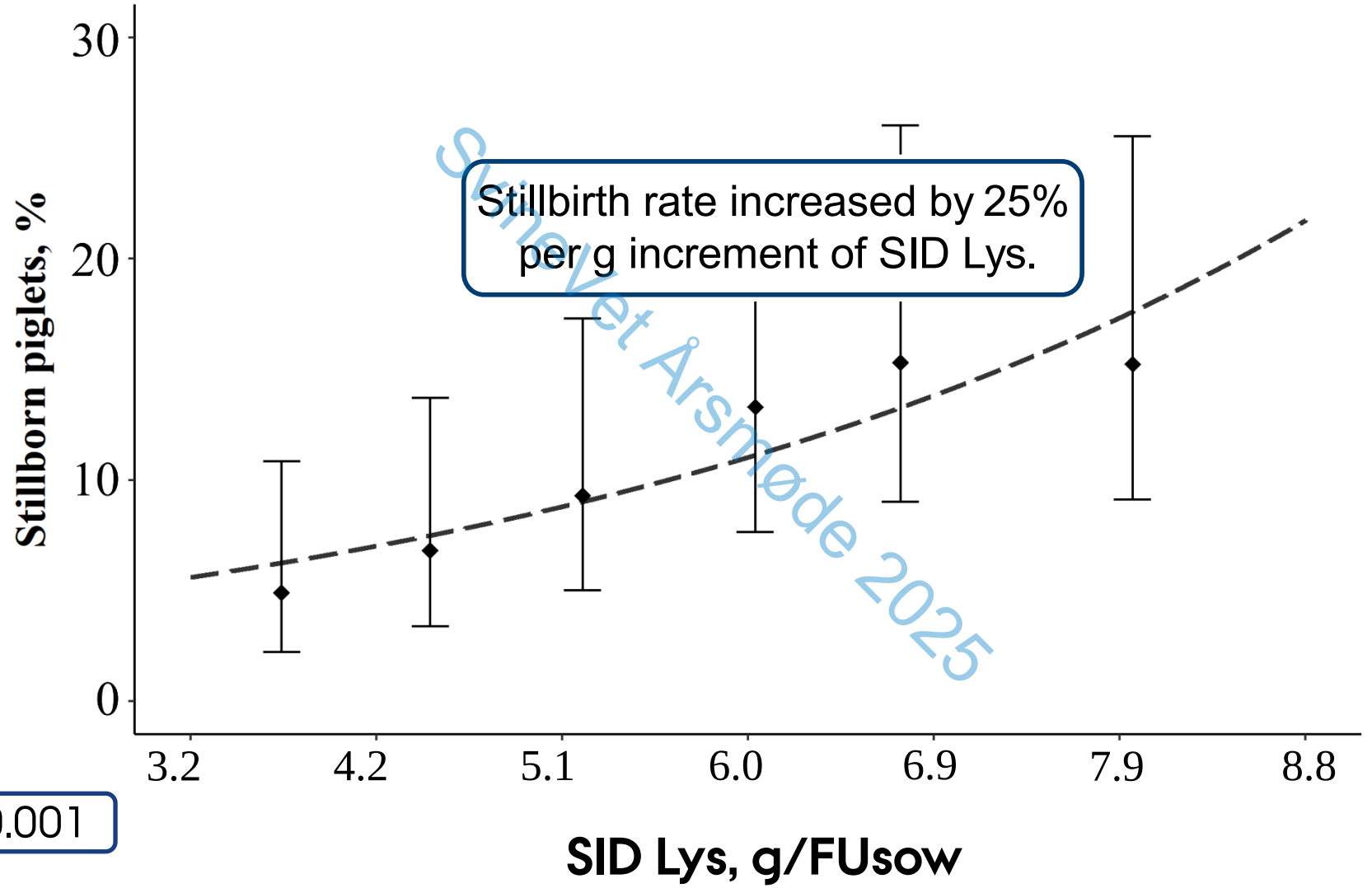


$P < 0.001$

ENERGY AVAILABILITY



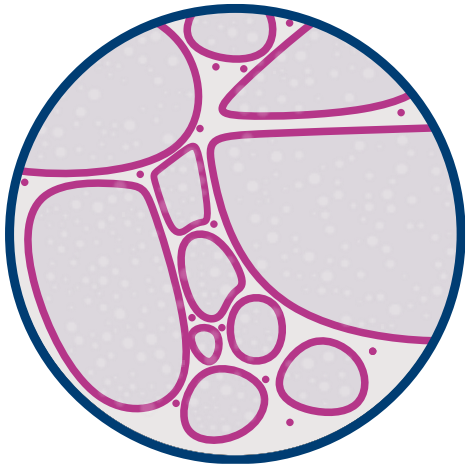
FARROWING PERFORMANCE

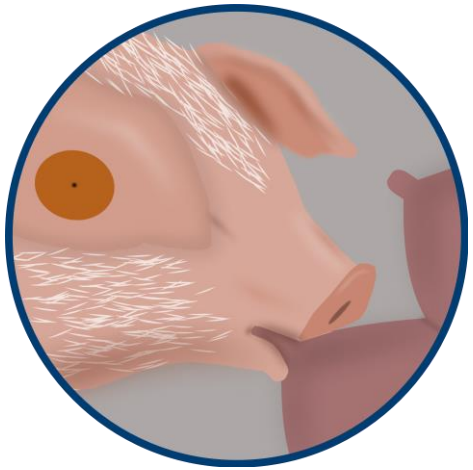


$P < 0.001$

CONCLUSION

THE ART OF BALANCING





5.5 g/FUsow of SID Lys

22 g/d of SID Lys

PRACTICAL IMPLEMENTATION

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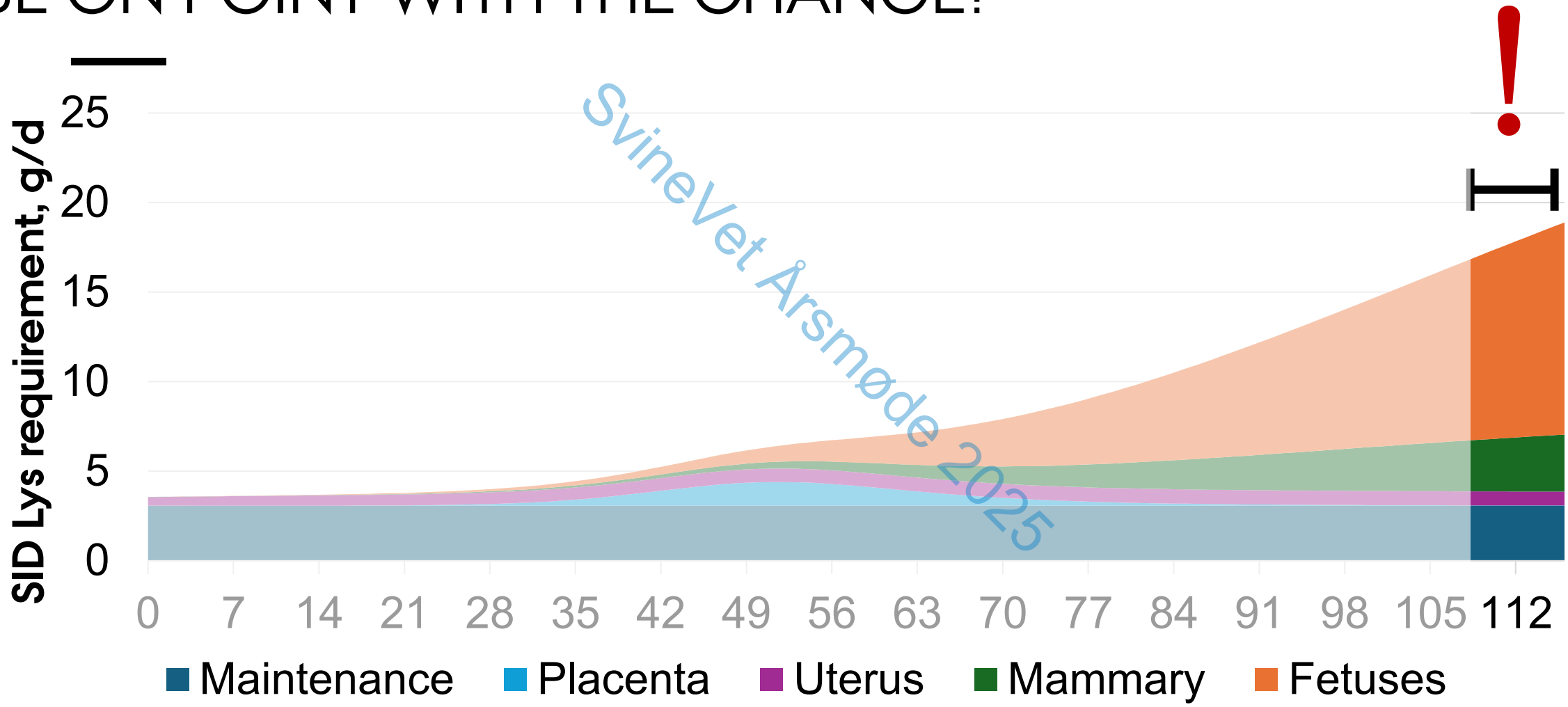
PROTEIN SUPPLY DURING TRANSITION

BE ON POINT WITH THE CHANGE!



PRACTICAL IMPLEMENTATION – MIXING OF DIETS

Current: Gestation diet			Solution: Gestation diet + Lactation diet	
Feed supply Fusow/d	Lys concentration g/FUsow	Daily Lys supply, g/d	Gestation diet, FUsow/d	**Lactation diet, FUsow/d**
3.5	4.0	14	1.34	**2.16**
4.0	4.0	16	2.38	**1.62**

SEGES INNOVATION

PRACTICAL IMPLEMENTATION – SOYBEAN MEAL

	Current: Gestation diet		Solution: Gestation diet + Soybean meal	
Feed supply Fusow/d	Lys concentration g/FUsow	Daily Lys supply, g/d	Gestation diet, FUsow/d	**Soybean meal, g/d**
3.5	4.0	14	3.12	**382**
4.0	4.0	16	3.71	**286**

SEGES INNOVATION

Interested in more?

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