

What cows can learn from sows?

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What cows can learn from sows?

Vertical information transfer from mother to offspring

So, what calves can learn from cows

Based on what piglets can learn from sows

Essentials: Mom knows best

Focus: Learn the offspring what and where to eat

Early life nutrient provision

	Birth	Weaning	Post-weaning
Sow	Colostrum + milk	4 wks	Solid feed
Cow	Colostrum + milk replacer	9-10 wks	Solid feed



Natural weaning:
Sow 8-12 weeks
Cow 8-12 months

Problems in early life

- Health and performance
 - Low nutrient intake
 - Poor growth rate or even weight loss
 - Impaired intestinal functioning, diarrhoea
 - Mortality
- Welfare
 - Stress responses
 - Maladaptive behaviours



In cows low pre-weaning nutrient intake is associated with lower milk production first lactation (Samay et al, 2005)

How do we learn the offspring what and where to eat already early in life?

Who better to teach this than the mother?



Prenatal flavour learning to reduce weaning problems in piglets

flavours maternal diet

amniotic fluid

exposure piglets *in utero*

flavour recognition

preference flavour ↑

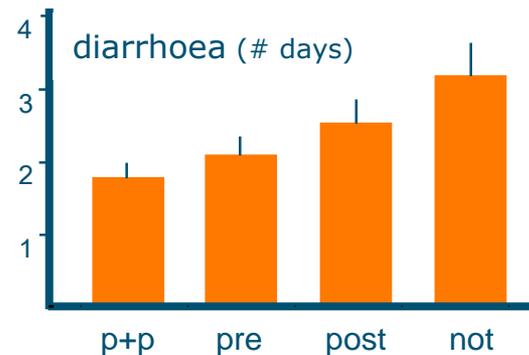
food neophobia ↓

stress ↓

feed intake at weaning ↑

growth ↑, diarrhoea ↓

damaging behaviours ↓



Prenatal flavour learning...

Can it be used as a tool to improve piglet performance, health and welfare at weaning?

- Flavour preference
- Reduction of stress



Flavour learning & performance postweaning

- Piglets prenatally exposed to flavour sow's feed
 - lower cortisol response and less vocalisations
 - higher feed intake and higher growth
 - less diarrhoea and less damaging behaviours
- ... if flavour was present in postweaning environment



From science to innovation

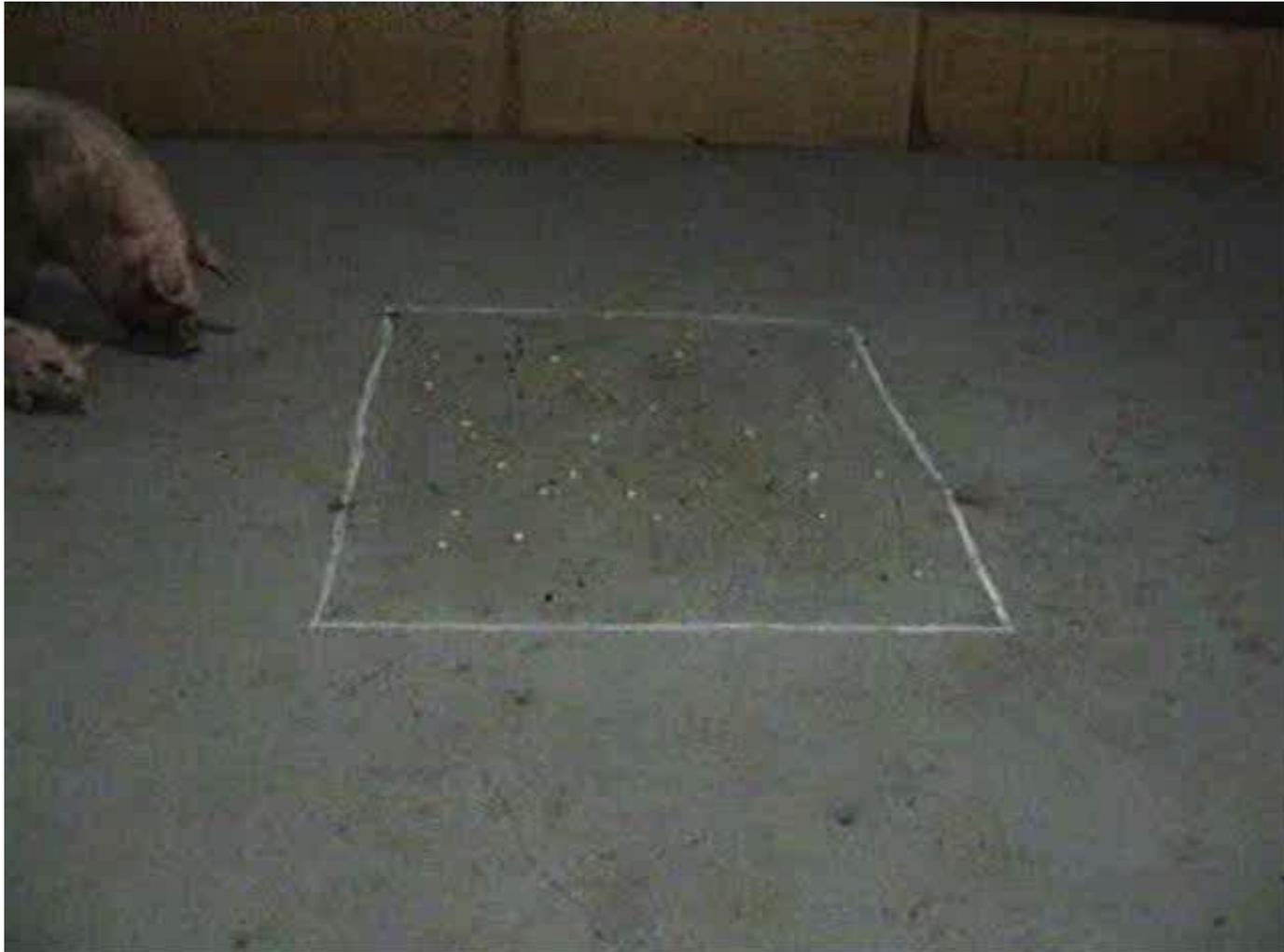
- Provide similar flavours in feed for cows and milk replacer for calves



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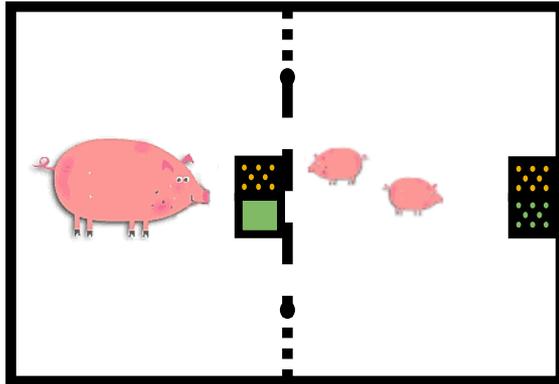


Role of mother in reducing feed neophobia in early life



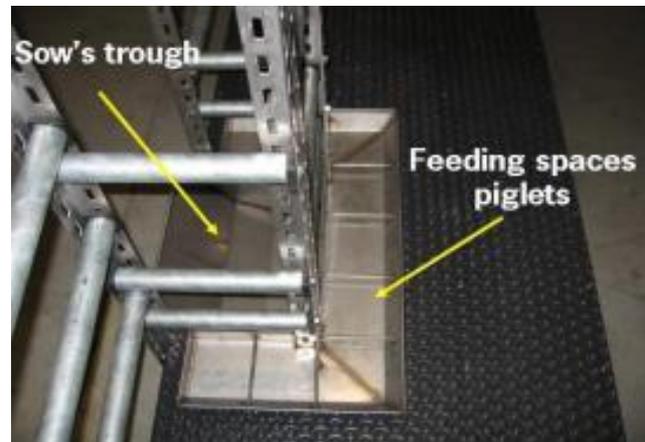
Social learning: processes and cues

What cues do piglets use to learn to eat from their mother?



Main conclusions on processes and cues in social learning in pigs

- Piglets should be able to participate in or at least to observe the sow eating
- Piglets prefer a similar flavoured sow feed
- Piglets prefer to eat at the same feeder as the sow



How to translate this to cows and calves?

Is rearing of cows with calves a feasible option?

Lot of societal pressure on the practice of very early weaning of calves?

Problems with calf rearing (diarrhoea, mortality, relative low milk intakes)

Potential benefits:

- Generally more milk intake of calves (free choice of frequency and size of meals)
- When calves are allowed to forage with their mother earlier and more gradual exposure to solid feed



Group housing during lactation



Intermittent and gradual weaning



Potential benefits of half day separation of cow and calf

- Learning from their mother where, what and how to eat
- Gradual weaning instead of abrupt
 - Used to separation
 - Learn to use milk feeder
 - Prevention of growth check
- Milk losses due to suckling seem to be more limited

Conclusion

Mom teaches offspring what and where to eat

Cows can learn from sows and sows can learn from cows



WeKnowMemes



Thank you

