

WHY KEEP CALVES IN GROUPS ? Behavioural and welfare aspects.

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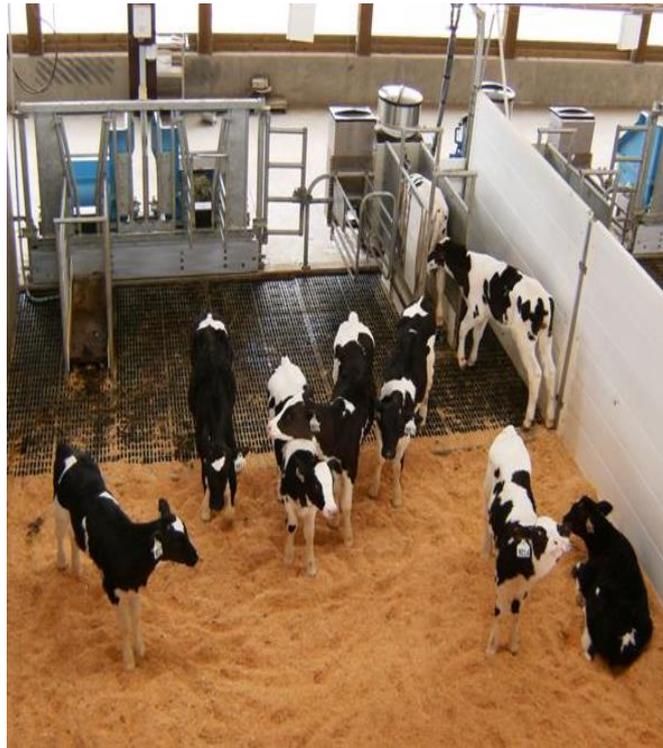


Photo: R. Meagher / UBC Animal Welfare Program



Because

- 1. They gain weight faster
- 2. They eat more grain
- 3. Their health is as good as in individual housing
- 4. Cross-sucking is not a problem
- 5. Their social needs are met
- 6. Their learning is improved

Also: How to control defecation/urination?

Early Pair Housing

Calves housed:

- a. Individually from birth**
- b. Pair housed from day 6 after birth**
- c. Pair housed from day 43 after birth**

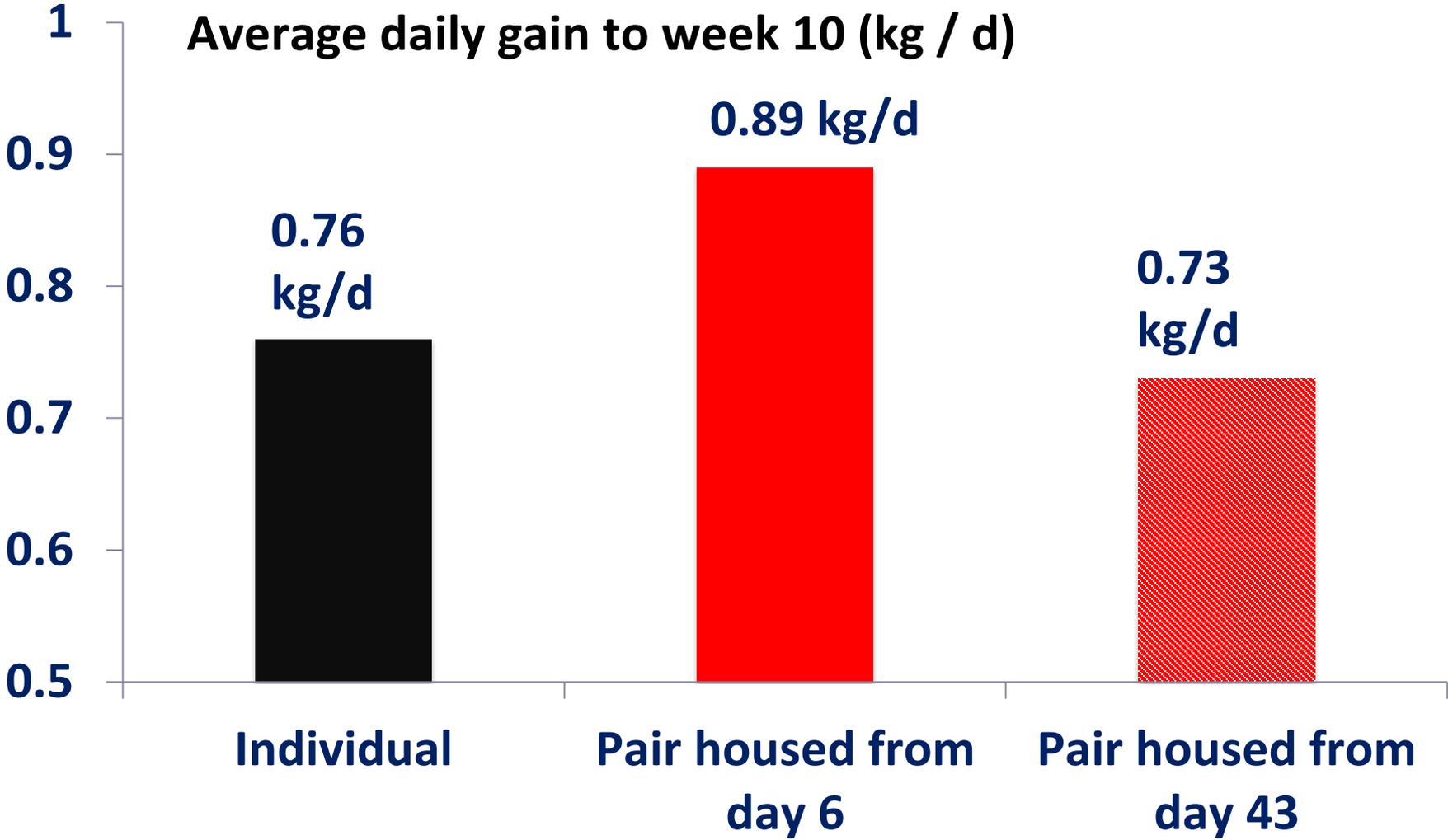
Feeding: 8 L/d of whole milk

Calf starter *ad lib* from day 1

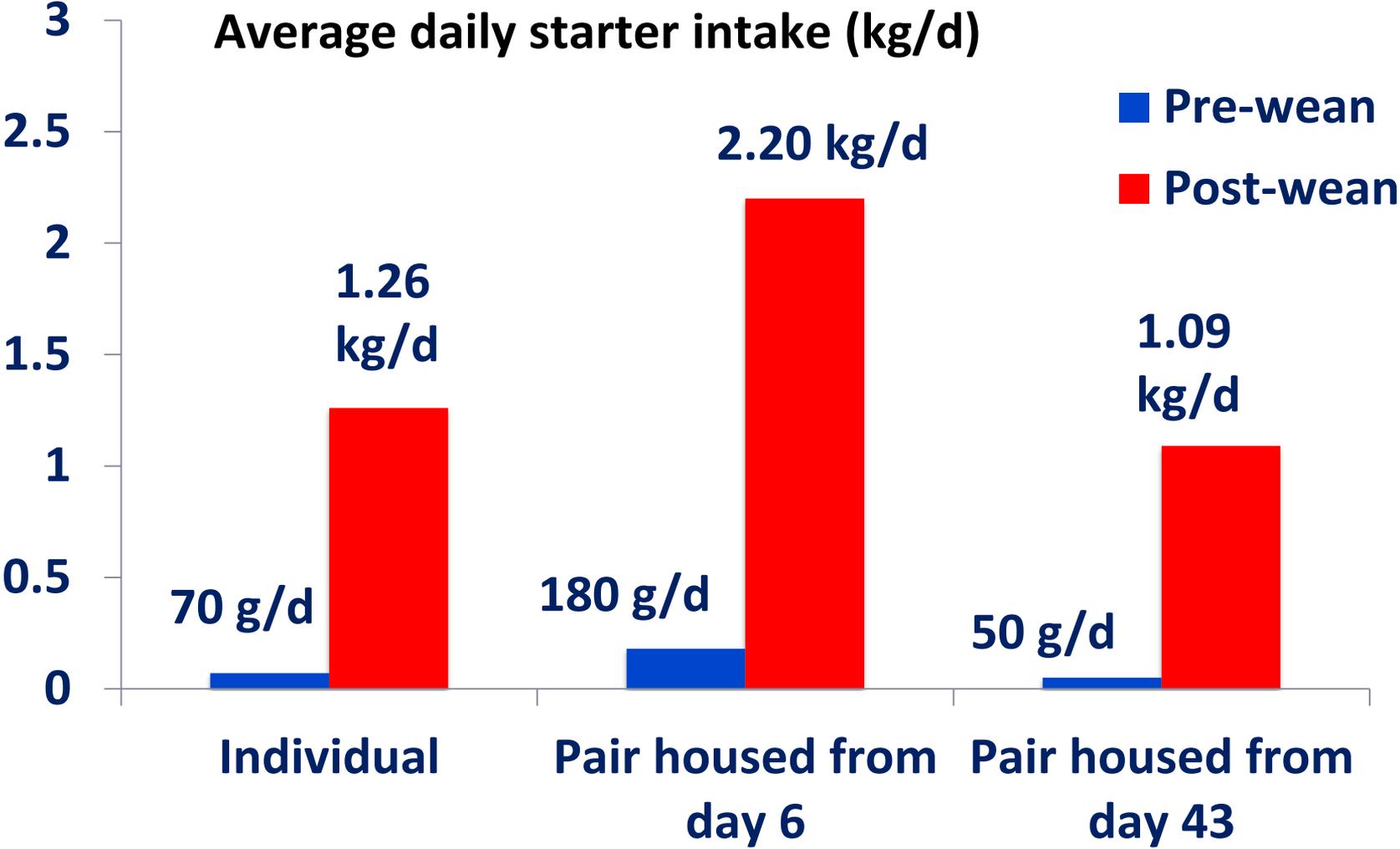
Weaned gradually between d50 and d55



Early pair housing improves weight gains



Early pair housing improves starter intake



Pair housing improves calves' learning and social abilities

Calves housed:

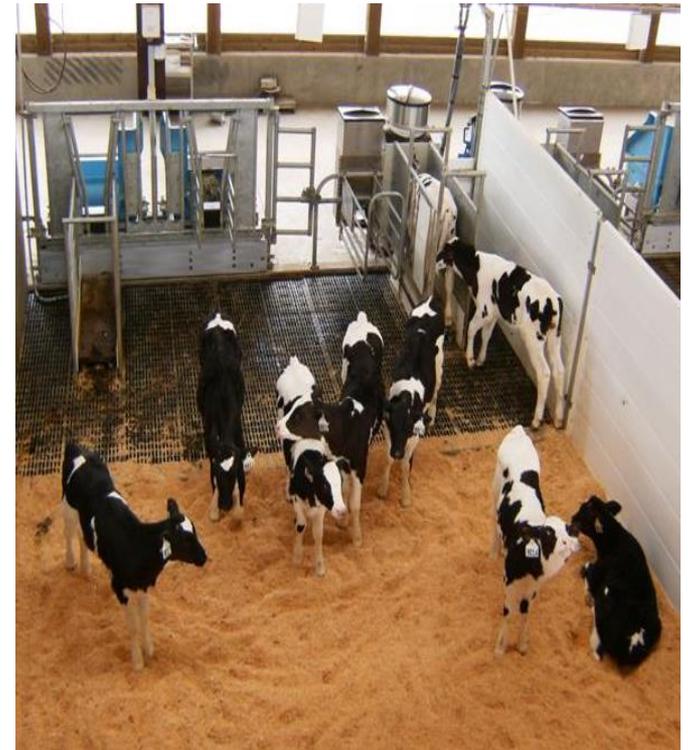
- a. Individually from birth
- b. Pair housed from day 6 after birth

Feeding: 8 L/d of whole milk

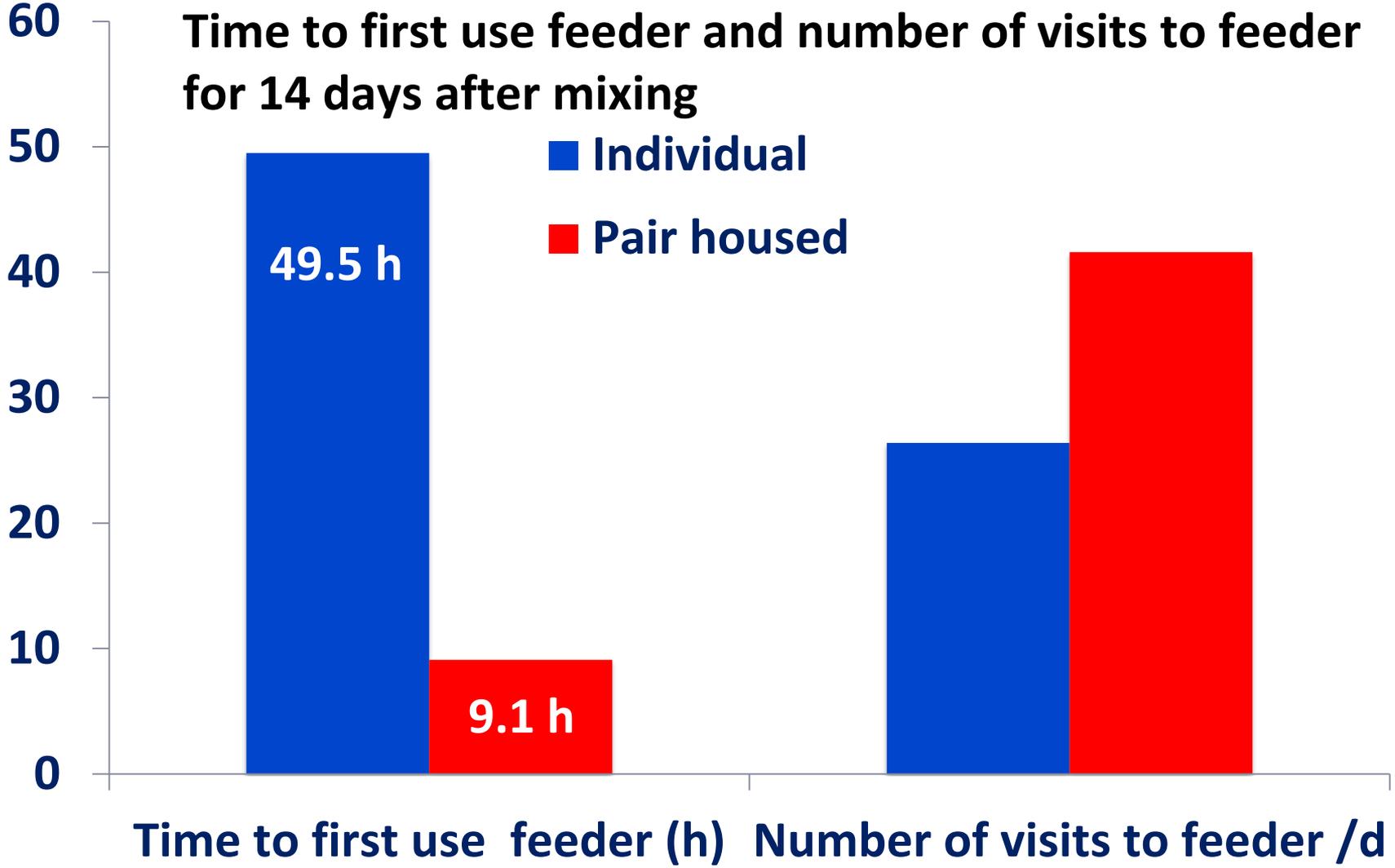
Calf starter *ad lib*

Weaned gradually between d50 and d55

Mixed into groups of 6 calves on d56

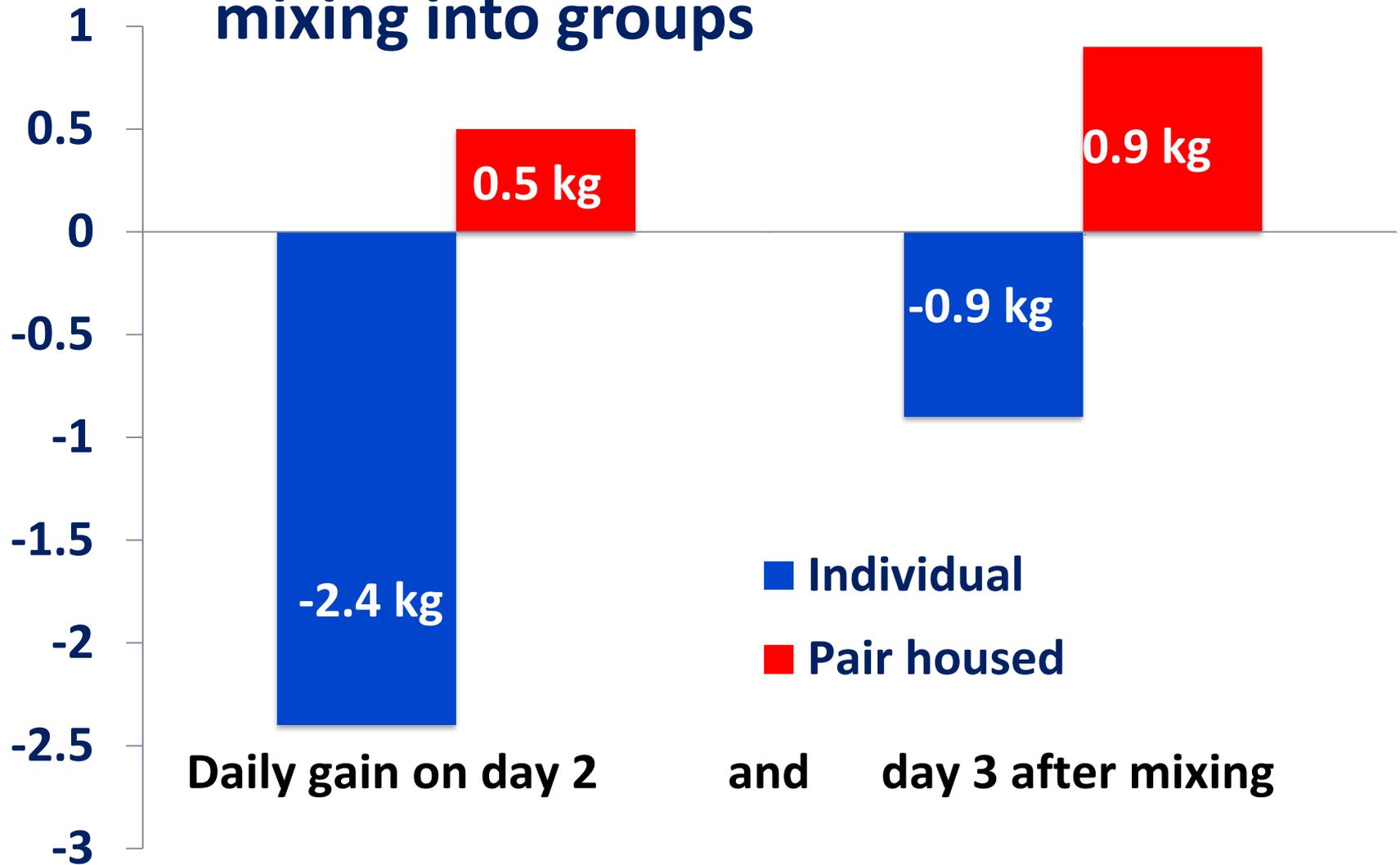


Pair housing helps calves *LEARN* to use grain feeders



De Paula Vieira et al. 2010. J. Dairy Sci. 93:3079

Pair housing improves weight gain after mixing into groups



De Paula Vieira et al. 2010. J. Dairy Sci. 93:3079

Early pair housing (before 6 d of age):

- Improves intake of solid feed
- Improves weight gain
- Improves calves' learning abilities and preparedness to live in groups



Housing calves outdoors in pairs

Gérer les veaux en paire



Q: Why do some calves cross suck?



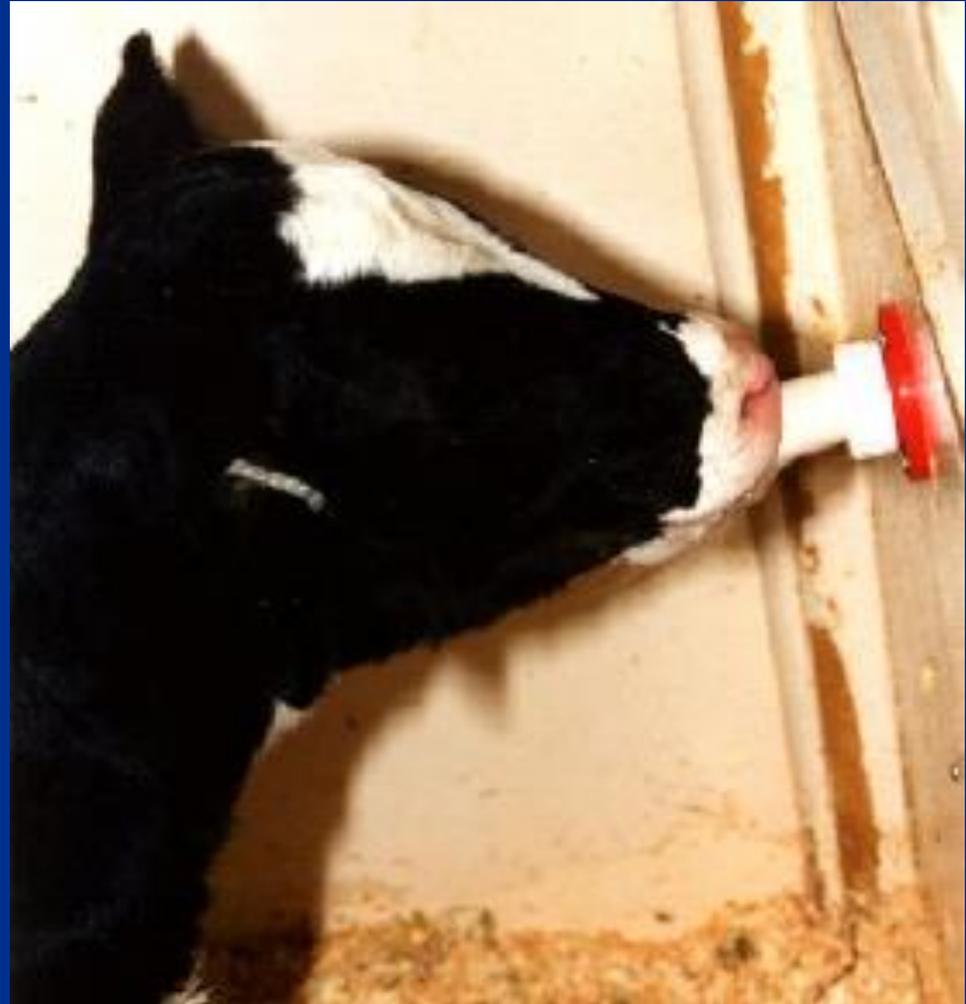
One of the concern about pair or group housing is controlling cross sucking between calves

Sucking motivation: natural history and motivating factors

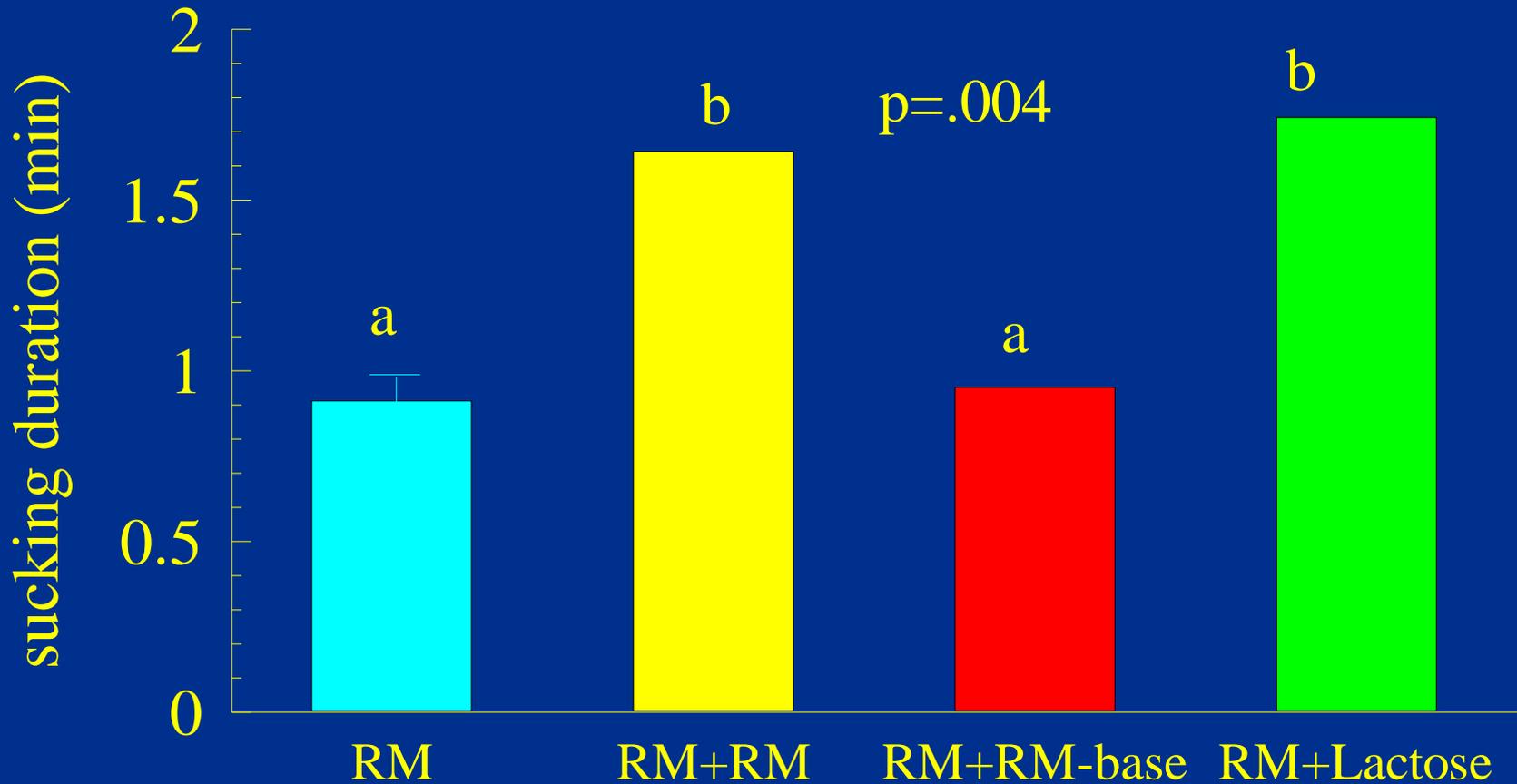
1. Calves nurse to survive and bond with their dam
2. Taste of milk (especially lactose) stimulates sucking
3. Cross-sucking occurs around milk delivery and is infrequent after weaning off milk
4. Sucking a teat satisfies sucking motivation

**-Liquid placed in
calf's mouth**

**-calf sucks a dry
teat**



Increasing milk concentration on sucking duration

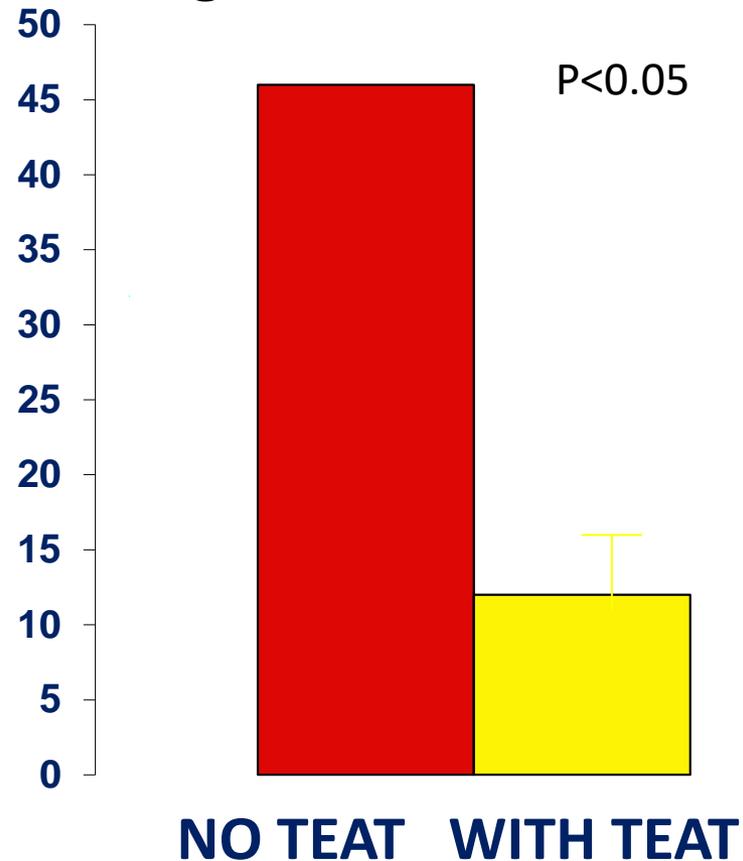


RM=reconstituted milk Base contains lactose + minerals etc.

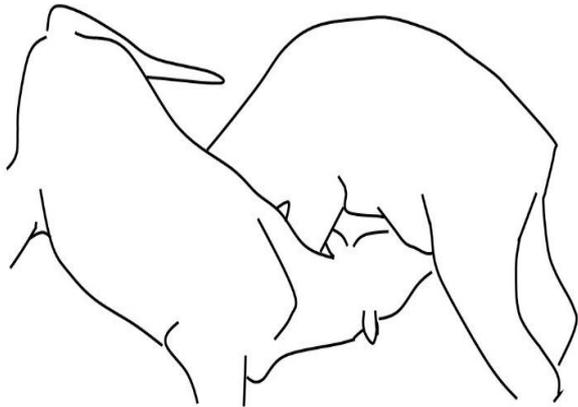
If calves can suck a teat after milk meals, cross-sucking is reduced



% observations of cross-sucking

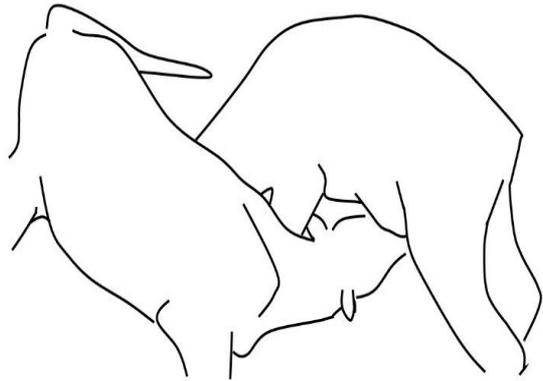


Q: Why do some calves ~~cross-suck~~ allow cross sucking?



**After weaning, 75 % of cross-sucking is on a “preferred” calf.
Often mutual cross-sucking**

Take home message



When calves drink a large amount of milk via a teat only a few cross-suck for more than 1-2 minutes a day.

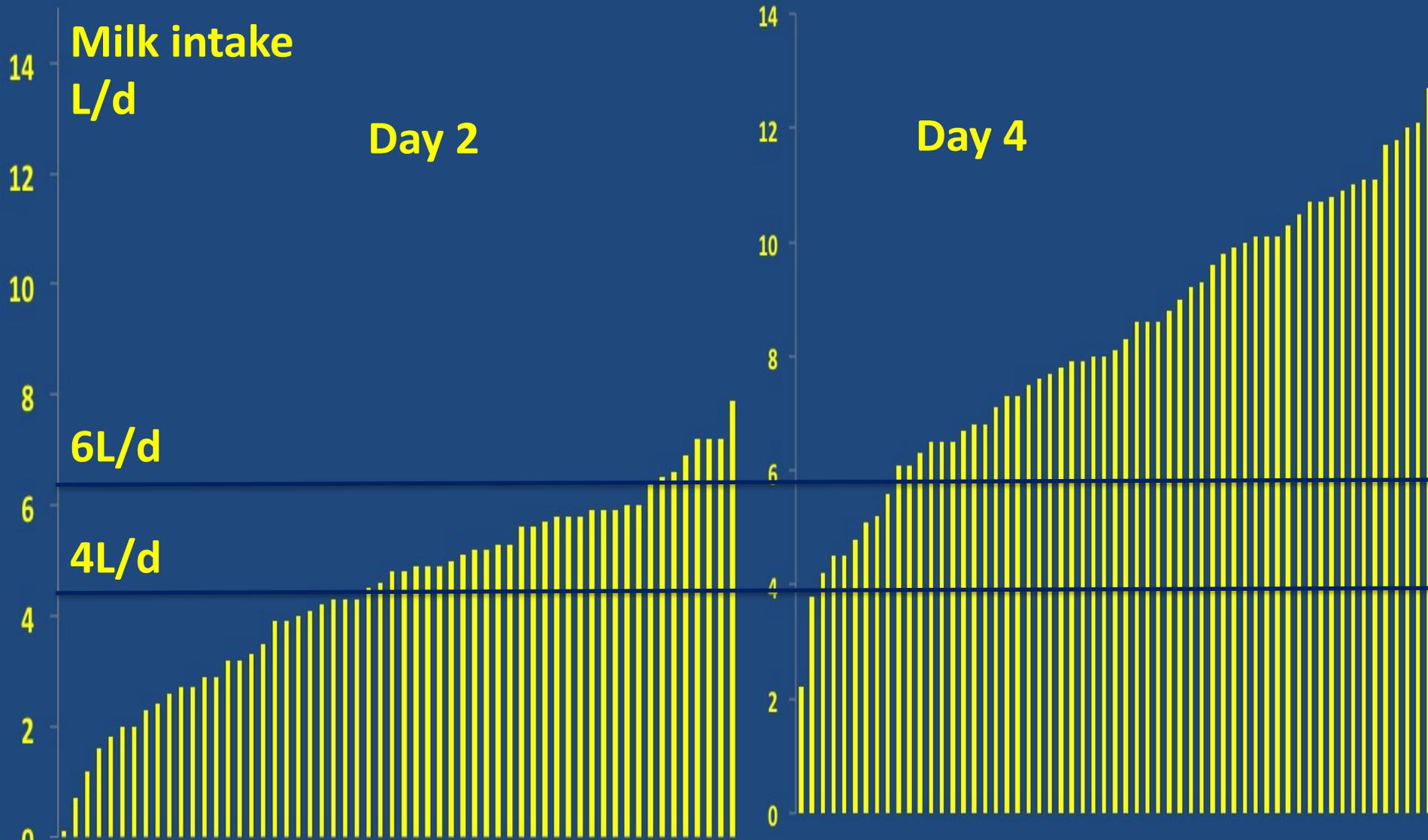
After weaning this is usually due to mutual cross-sucking on a preferred partner.

No evidence that this increases the risk of mastitis

The importance of feeding calves large amounts of milk or replacer

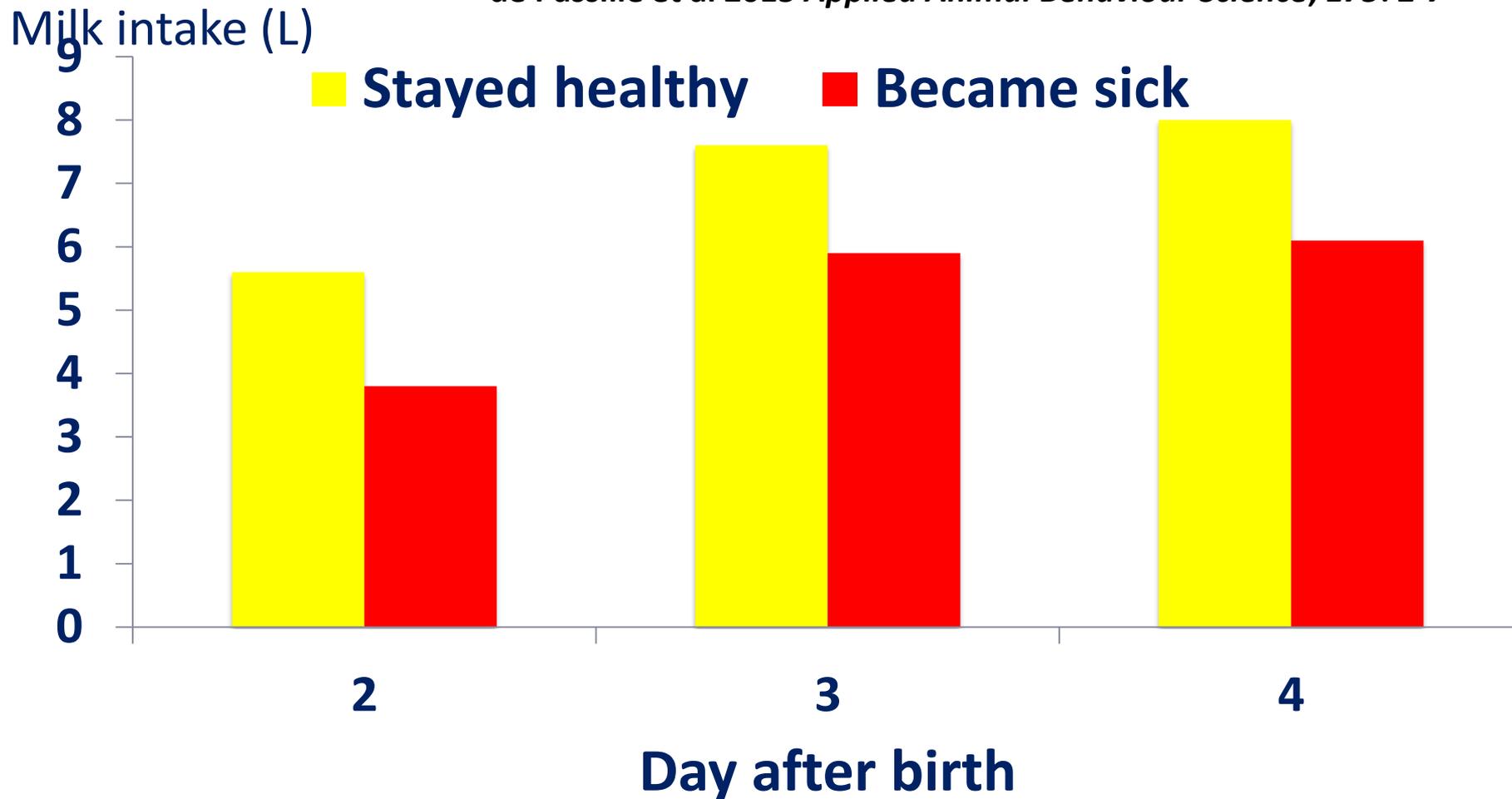
- High pre-weaning weight gain are associated with high first lactation milk production
- Calves show signs of hunger when fed the traditional 4 – 6 L/d
- Selection of cows for high milk production has resulted in calves with a large appetite?

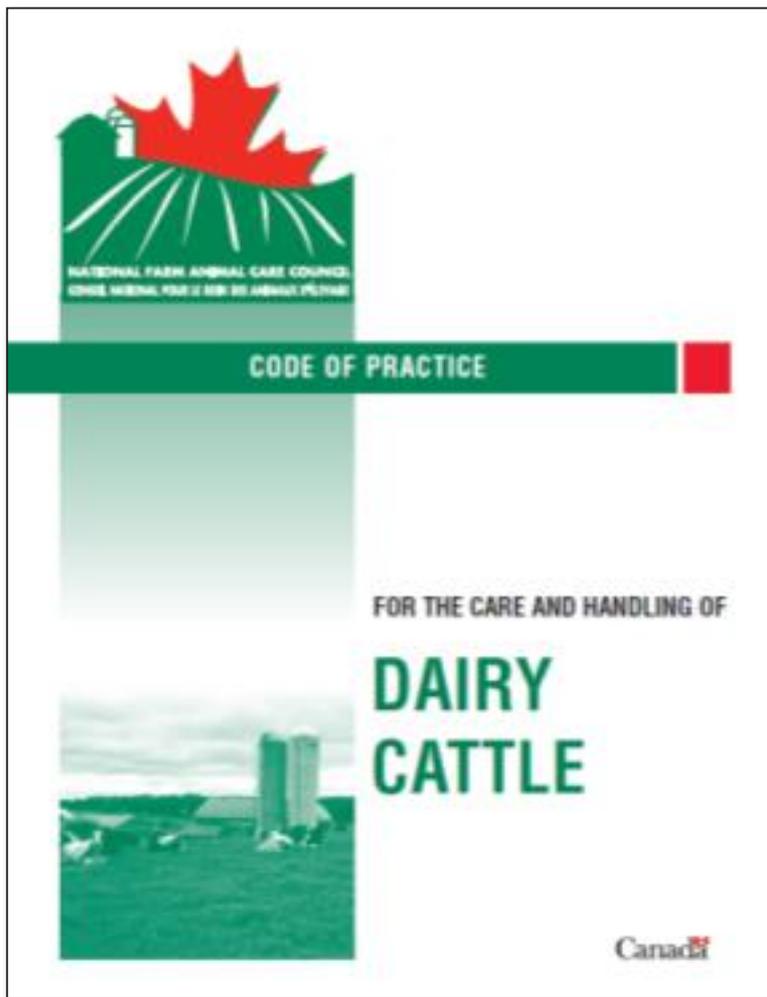
Even very young calves drink large amounts of milk but there are large differences between calves



Calves that become sick from day 10 – day 28 drank less milk during the 4 days after birth

de Passille et al 2015 *Applied Animal Behaviour Science*, 175: 2-7





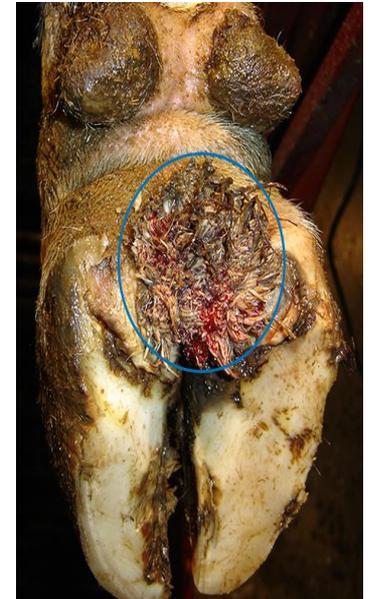
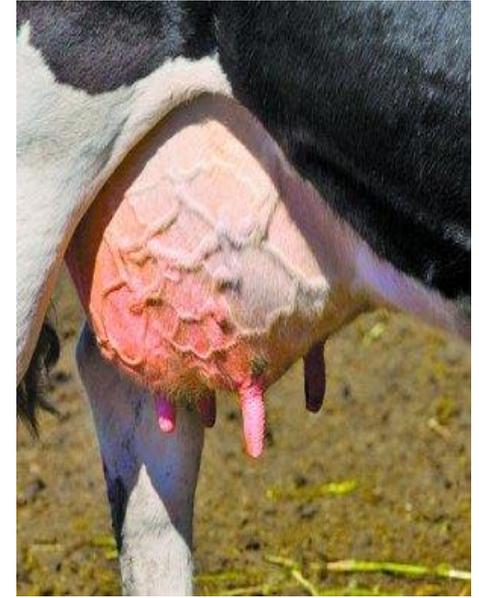
Requirement: Calves must receive a volume...of milk or milk replacer to maintain health, growth and vigour

Recommended best practice: provide whole milk or milk replacer to calves ad libitum

offer calves a minimum of 20% of body weight

Group housing with an automated feeder facilitates feeding larger amounts of milk





Many problems are associated with dirty environment...



Alison Vaughan

PhD

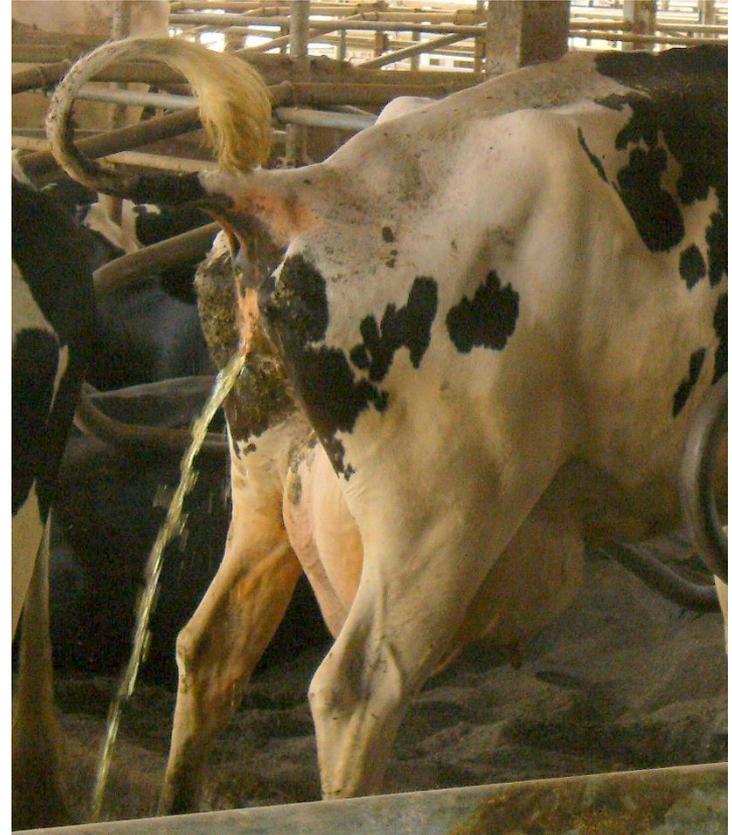
“Practical applications of the learning abilities of cattle”



**UNIVERSITY OF
SASKATCHEWAN**



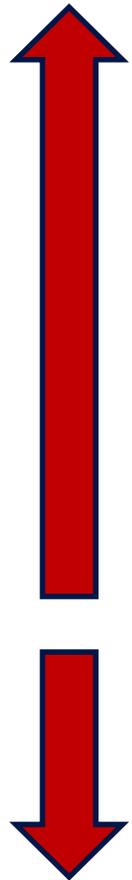
30kg feces



15kg urine

Per day!

Accumulation of urine and feces



Preparation time at milking

Clinical mastitis

Lameness

Disease transmission

Risk of slips and falls

Cow comfort

Air quality



Manure management

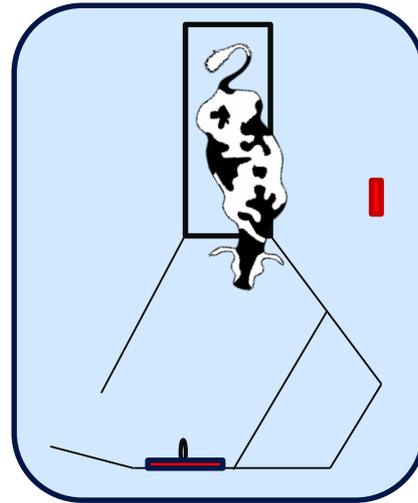


**Why
not
toilet
train
cows?**



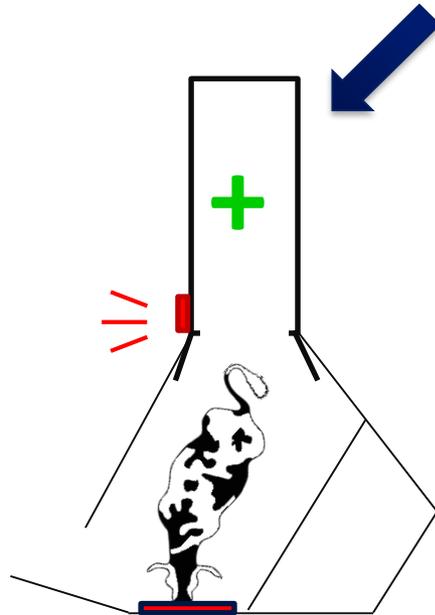
Operant conditioning

1. Training



Calf given a diuretic

Each calf had a yoked control saline

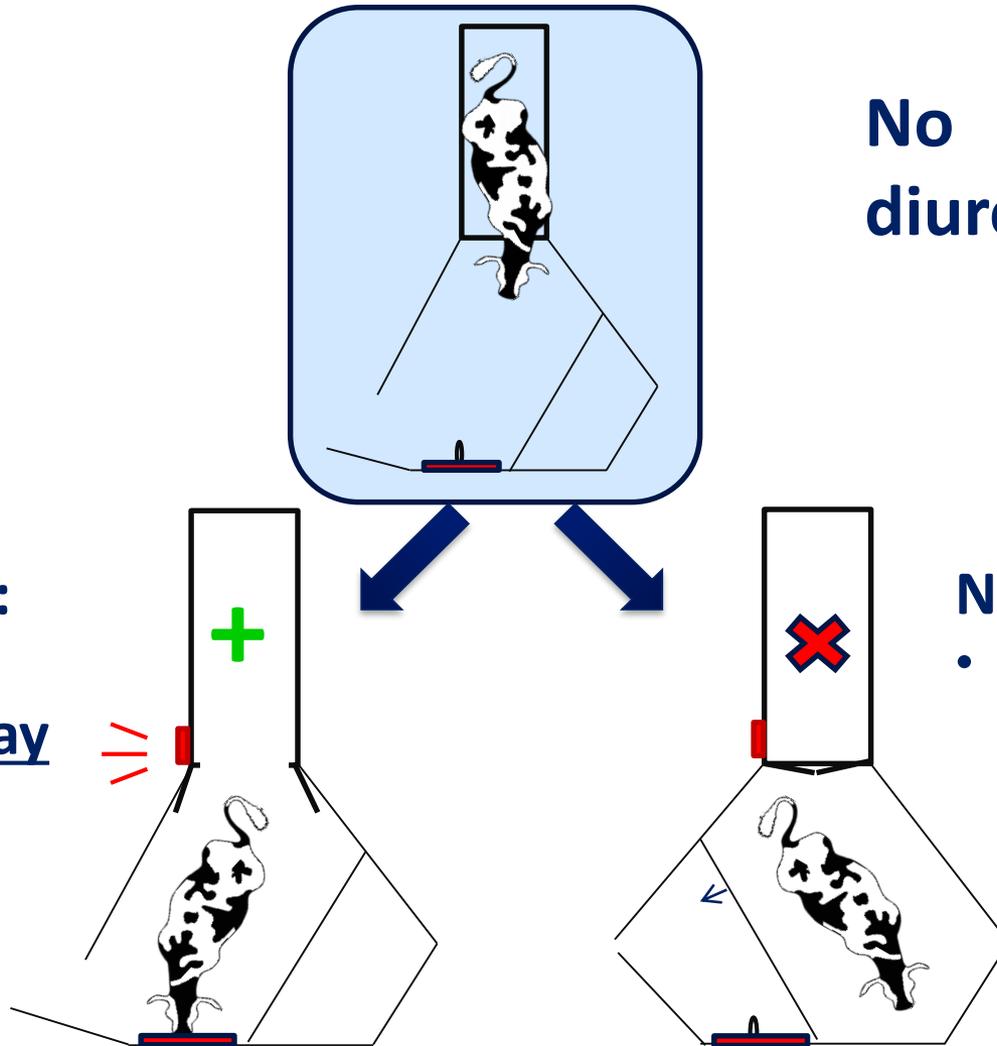


When the calf urinated it was released and given a milk reward

Operant conditioning

2. Testing

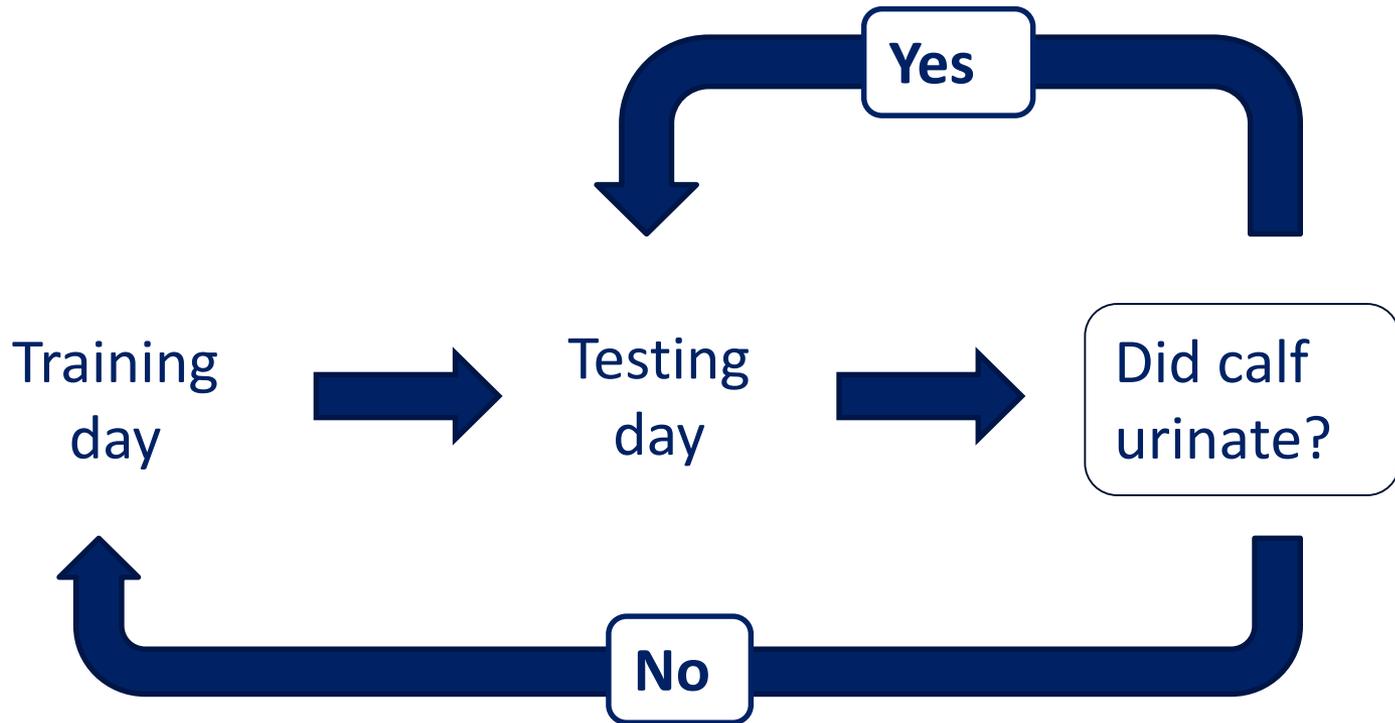
Upon urination:
• Next day was another test day



No
diuretic

No urination:
• Next day was a training day

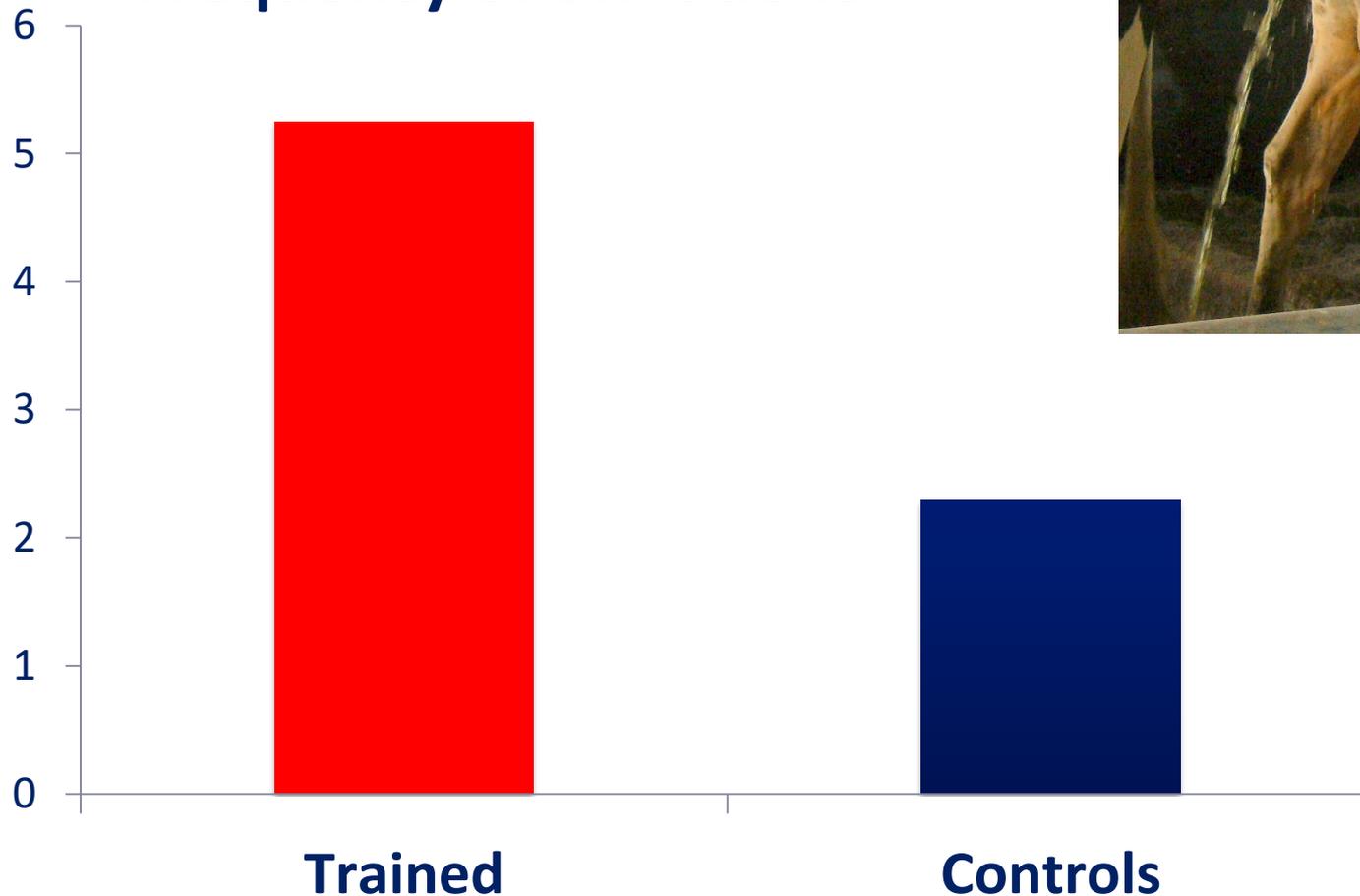
Overview



Trained calves urinated more often in the stall than the the yoked controls



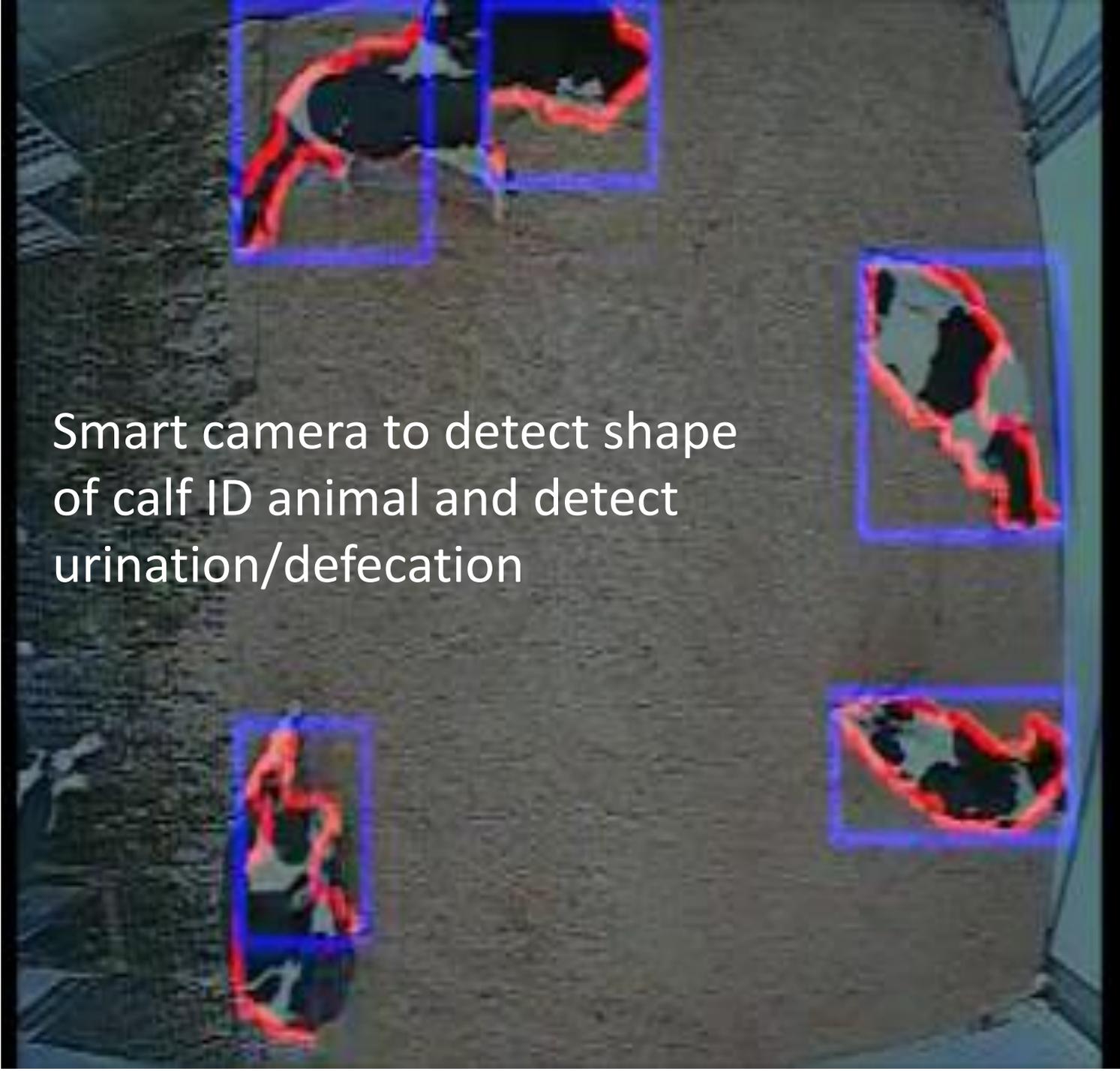
Frequency of urinations



Calves can learn to urinate in one place

- **Training is rapid** but would be too much work for producers
- So, we have been exploring tools **to train calves automatically**
- If some cant learn, perhaps those are the heifers that are sold
- **Needs more research**
- **Would totally change housing and management**

Smart camera to detect shape
of calf ID animal and detect
urination/defecation



Training calves to use a colour cue to locate food



Teaching calves to use colour to predict outcomes

- I will show you 2 videos:

1) calf comes in to test area having seen
the + color = colour predicting there is milk in the teat

2) Calf comes into area where it sees
the – colour = color predicting no milk in teat

Rewarded situation: calf response



Unrewarded situation: calf response

