

Experiences from collection of feed and methane data from beef x dairy calves in Denmark

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Danish Crown FRONTMATEC



Goal for FutureBeefCross



Develop tools that enables to breed for better eating quality, higher feed efficiency and lower methane emission



Starting point is new registrations on 12,000 calves with a dairy dam (Holstein) and a beef sire (Danish Blue cattle, Angus or Charolais)

How to get most informative reference group

- Breeds
 - Plan: 4,000 calves of each sire breed
 - In reality: 7,500 Danish Blue, 2,500 Angus and 2,000 Charolais
 - Lesson learned: difficult to change farmer preference
- Bulls
 - Plan: few calves after each bull
 - In reality: more calves after proven bulls
 - Lessons learned: logistic challenge to get semen to AI technicians, constant focus in mating plan, weekly list to slaughter calf produces with priority on each calf



Performance test set-up

- Selecting herds by set of criteria
 - number of crossbred calvs
 - appropriate feeding system
 - motivated owner
- Equipment to measuring feed intake and methane concentration in 5 herds
 - Capacitet of 5.000 calves yearly
 - Largest herd with capacity of 1,700 calves yearly



Registrations of feed intake

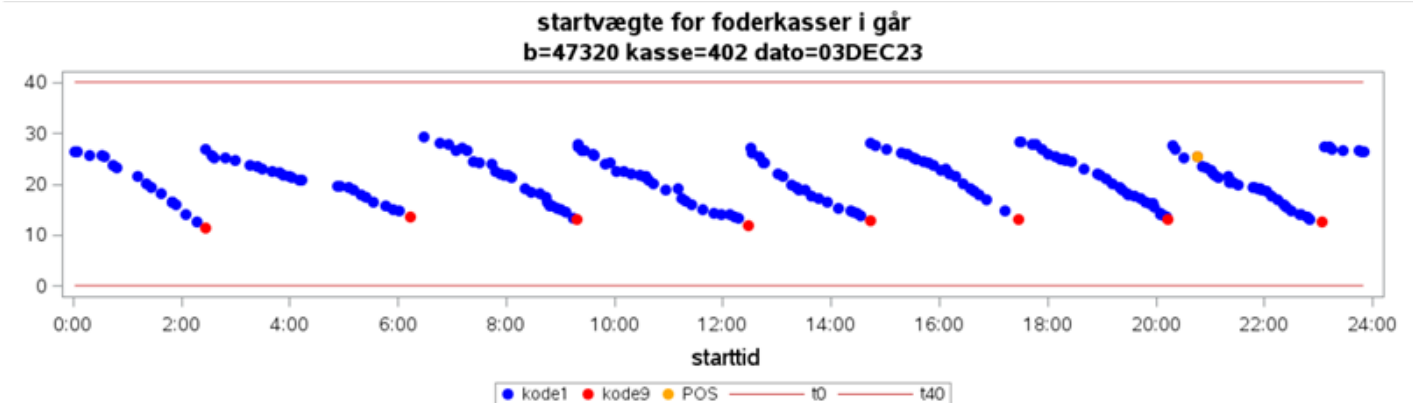
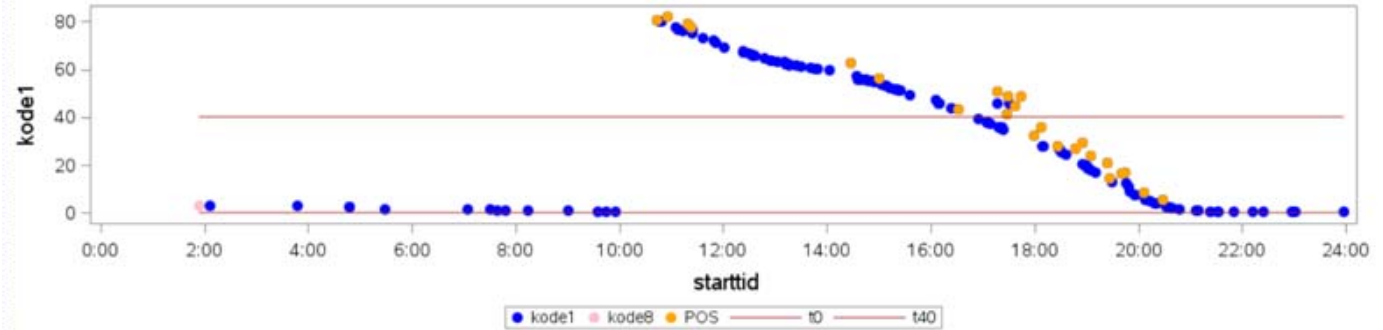
- Allfeed station by Allflex

- Two types of feed station: dry feed and TMR
- Electronic ear tag combines calf, amount of feed eaten and time
- The calves enter the trial when they are 4.5 – 6.5 months old
- Body weight is measured when the calves enter and leave the trial
 - Test period approximately 21 days



Monitoring feed intake

- Daily alarm lists – last 24 hours
- Criteria:
 - Fewer data points
 - Missing data points
 - Unidentifiable calves
 - No removable of feed over time
- Typical reasons:
 - Antenna failures
 - Moist in load cells
 - Defective valves
 - Rodent attack on wires

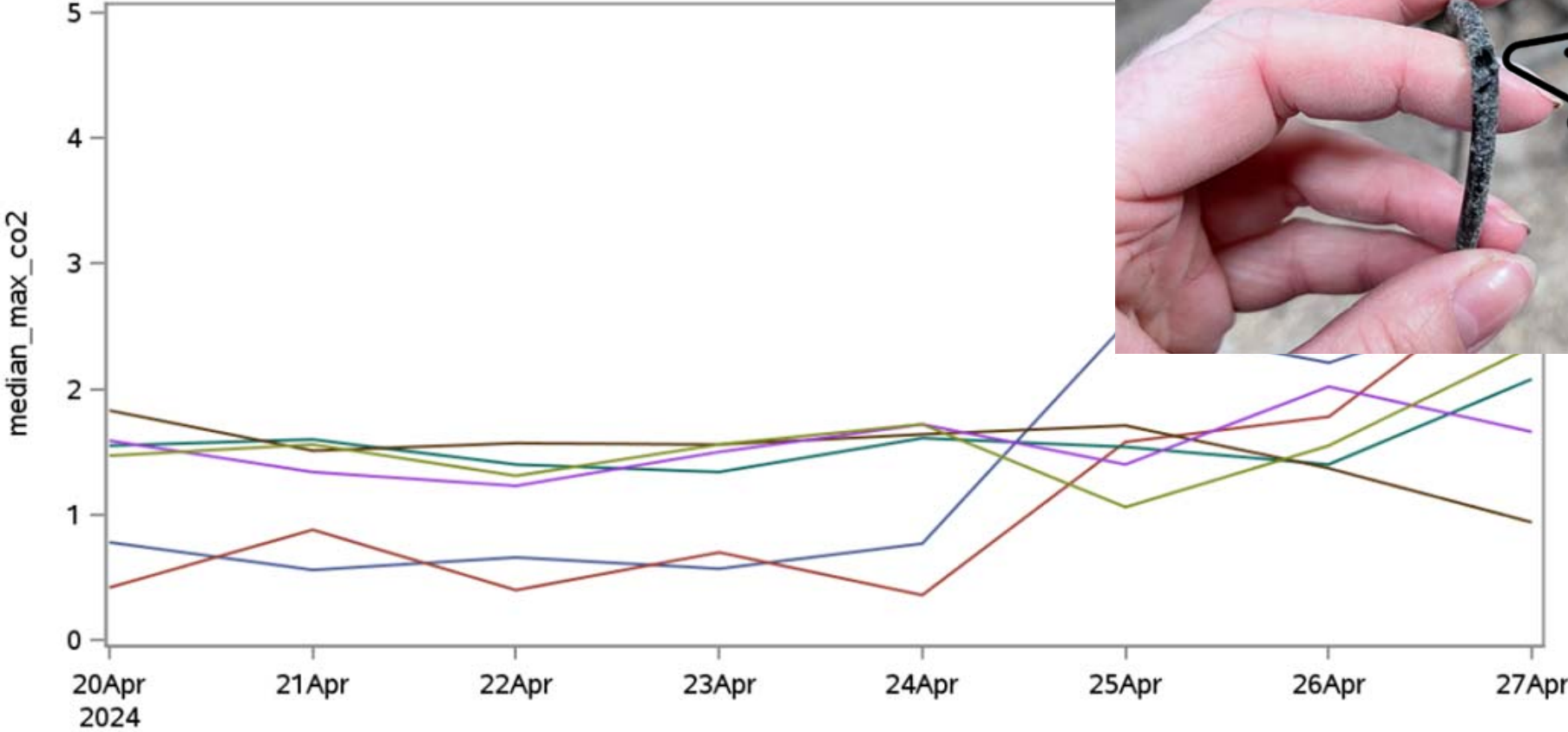


Registrations of methane concentrations

- Methane is measured by the sniffer method (records per 2 second)
- Guardian equipment used to measure methane and carbon dioxide
- Filters in dry feed bins, are located in the front
- Multiplexer used to optimize the efficiency of the equipment
- Feed computer merge feed- and methane data

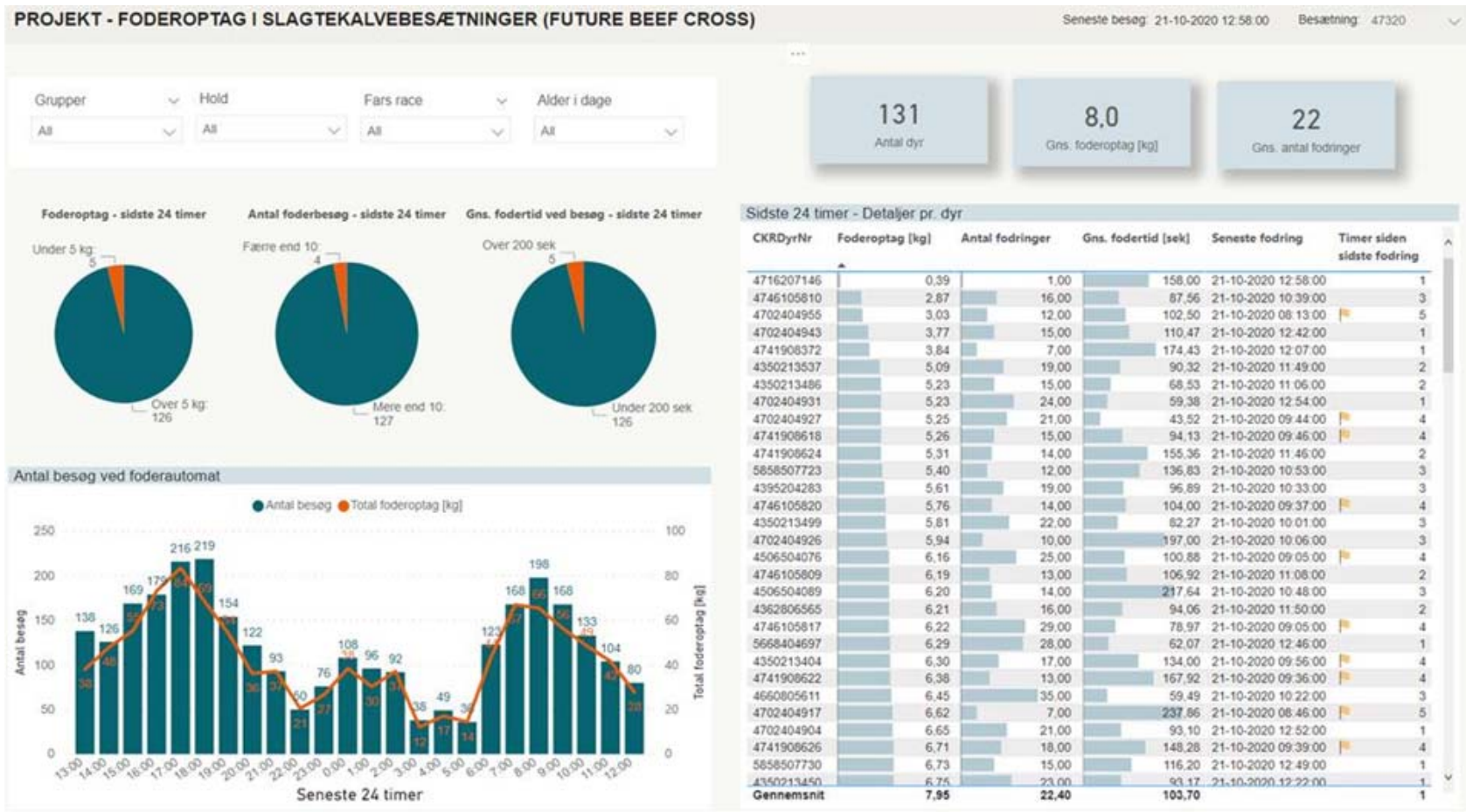


Monitoring methane concentration



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Motivating slaughter calf producers

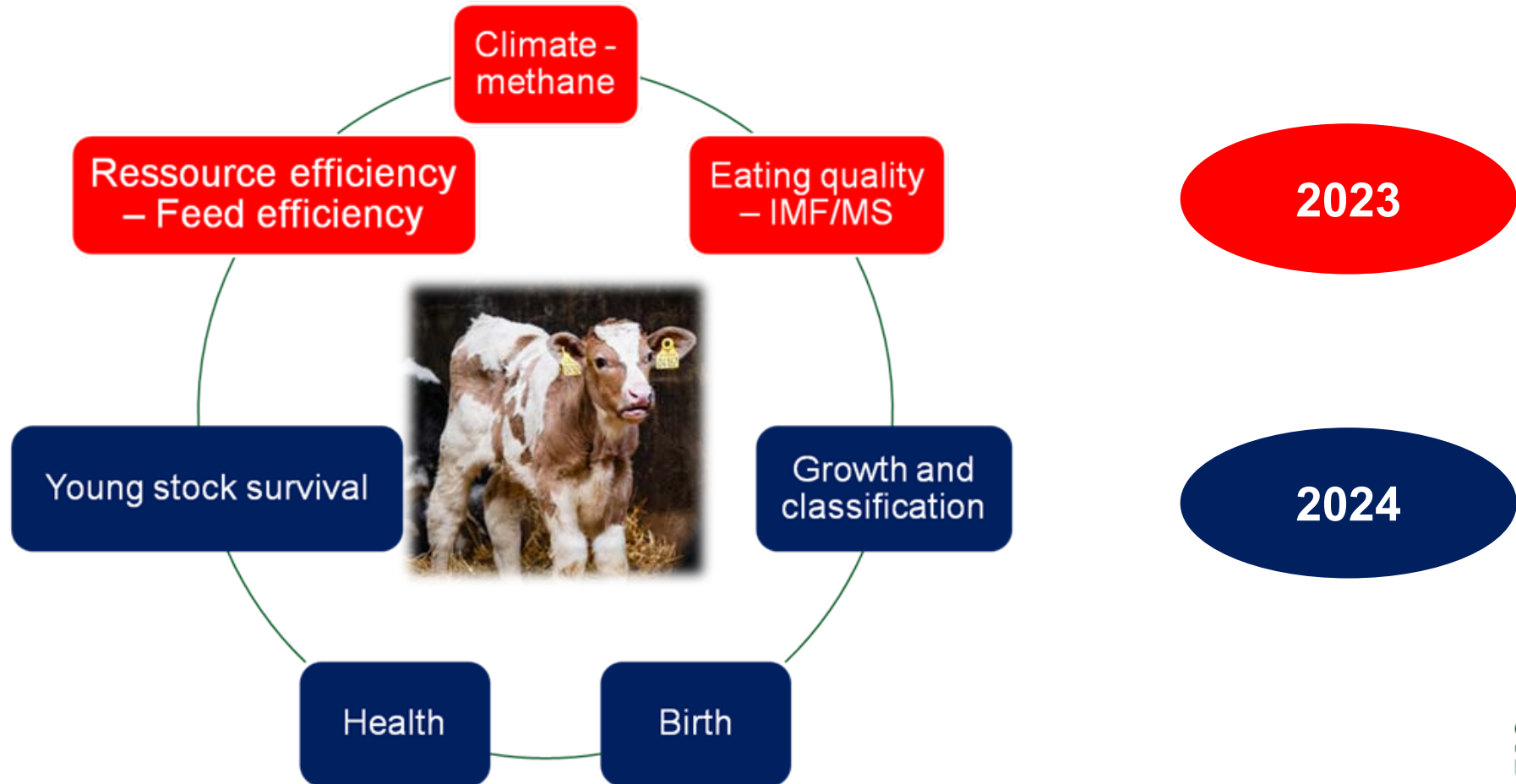


Challenges – but not too bad

- Estimated heritability for median daily CH₄/CO₂ ratio: 0.35 (SE 0.09)
- Estimated heritability for TD model genetic RFI: 0.20 for the cumulated age period 200-260 days

Offspring of 10 best vs. 10 worst tested Danish Blue bulls
~ ½ kg less feed per day
~ 8% less feed with same daily gain

Genomic breeding values to design future slaughter calves – focus on economy and sustainability



Perspectives

- FBC traits are even more important traits today than in 2019
 - Huge challenge to initiate registration of new traits
 - Data collections requires on-going attention.
- New traits worldwide – huge potential
- Important tools to create genetic improvement
 - Better economy for producers and license to produce

