Registration of feed intake by CFIT camera – status and plans

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Aim and purpose

- To develop a 3D camera system that can measure feed intake at individual cow level at each visit
- May not:
 - Disturb daily routines on farm
 - Disturb cow behavior
- Should be same system as for identification







Efficiency complexity



We need measures of feed intake, body weight and milk yield

We need it on **the right cow**

CFIT works on identification, feed intake and body weight

System setup





Zero calibration of floor at each feeding

Identification

Colour black problems







460 HOL cows sorted by colour



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Contour -> MASK-CNN



Solution States Sta

- Change of algorithm from contour to MASK-CNN
 Including colour, patterns, contours in model
- Solution States Sta



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Estimating feed intake

Variation in DMI

0

-2

-4



⁻⁶ Yield alone cannot explain variation in DMI!

Johansen et al. JDS, 2017, 100, 8861

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36

Example of feed intake from a visit





Total is difference between red and blue

Predicting weight

www.vikinggenetics.com

Data

- 1329 measurement from 102 Jersey cows
- **460** average weight (350-650 kg)
- ◄ 400 contour variables pr visit
- Using a model that locates the points that describes weight best





Predicted vs observed





Video opportunities

Opportunities for surveillance

Behavior

Hierarchy







CFIT data used in saved feed index for Jersey and RDC

- Data send for test evaluation in NAV for all three breeds
- Equipment installed in 7 herds (5 JER, 1 HOL, 1 RDC)
- Installation in herds to have 1500 cows with registrations per breed during 2021

Sum up



- 3D camera technology can be used to identify cows, measure feed intake and weight of individual dairy cows
- Data can be used for breeding value estimation
- CFIT continues to be developed and improved for more installations