
Access to data
- possibilities in the future
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Good registrations are still the fuel in breeding for animals with higher genetic potential

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Agenda

- Temperament and follow up from webinar
- Innovative use of new technology

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Temperament – registration from different sources

Temperament – more than one trait

- Milking temperament
  - Different trait in AMS and milking parlour?
  - Time from 1. to last teat cup is attached (AttTime)
  - Number of times AMS tried to put on teat cups (NoAtt)
  - Farmer classification (paper, app, or ?)
- Handling temperament
  - Recording from AI technician
  - Recording from classifiers (Class)
  - Farmer classification (paper, app, or ?)

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Temperament – registration from different sources

Temperament – consists of more trait

- Milking temperament
  - Different trait in AMS and milking parlour?
  - Time from 1. to last teat cup is attached (AttTime)
  - Number of times AMS tried to put on teat cups (NoAtt)
  - Farmer classification (paper, app, or ?)
- Handling temperament
  - Recording from AI technician
  - Recording from classifiers (Class)
  - Farmer classification (paper, app, or ?)

Same traits?

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Heritabilities and genetic correlations 0-100 days in milk

Trait	Class	AttTime	NoAtt
Class	0,15		
AttTime		0,36	0,91
NoAtt			0,26

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Heritabilities and genetic correlations
0-100 days in milk

Trait	Class	AttTime	NoAtt	Temp
Class	0,15			0,84
AttTime		0,36	0,91	-0,29
NoAtt			0,26	-0,37

Shorter time = calmer temperament

Fewer attempts = calmer temperament

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Follow up on Temperament webinar 2021

Nothing has been done in Sweden and Finland mainly because the problem with the fewer registrations is primarily in Denmark

A meeting has been held with VikingDanmark (Yield Control) regarding using the yield control assistents to gather registrations but this option is not applicable

Which leaves us with two options:

- Have the classifiers do the registration (if the farmer or worker is unavilable)
- Implement a possibility for the farmer to do the registration in DMS/EasyCow

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Innovative use of new technology

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Innovative use of new technology

- Image recognition and artificial intelligence (AI)

- Lab analyses

- App's

- Other on-farm equipment

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Genomic test have more possibilities
Multiple traits

Genomic test – information on genome

- Parent verification and genomic evaluation
- Diseases and genetic traits (HH1, CVM, polledness, coat color, kasein)
- Potential use: eating quality, double muscling

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App's – making easier and more precise recording

- Easier to make demos – test before making final solution
  - Use inputs from users
- Potential use:
  - Easier recording – no pen and paper needed
  - Better quality data – committed farmers in fewer herds

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App to link eartag number with TSU number

Link

Objective:
-Do registrations when taking the samples
-Minimize possibility of errors

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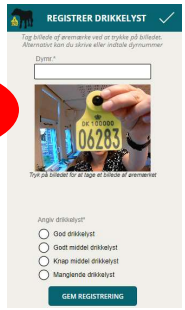
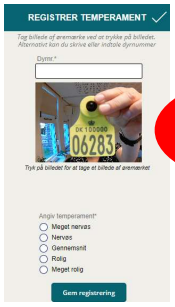
More reliable registrations of existing traits with app solutions
Temperament and ability to drink

- Easy to register – when you are in the situation

Will be tested together with Danish Jersey

Ability to drink in calves





Temperament in calves and cows

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Potential indicator traits with novel laboratory tests
Multiple traits

Milk spectra

- Absorption of infrared light at different wavelength
- Principle: different processes in animal leaves different chemical substances in milk
- ”Blackbox” detection of chemical substances in milk
  - Training dataset is essential
- Present use: content of fat and protein and types of fatty acids
- Potential use: methane emission, occurence of diseases, quality traits

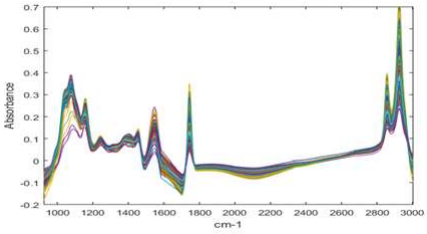

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Image recognition technology is commercially available

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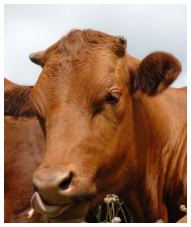
Basic idea behind image recognition and AI

Training dataset

Training algoritm

Question: What animal
Answer: cow



Predict new picture

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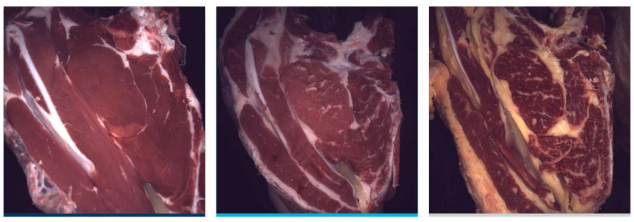
Camera to record new phenotypes
Eating quality

- Intramuscular fat is good indicator of tast and tenderness
- Expensive lab tests – need to find inexpensive indicators
  - Training dataset with 500 chemical tests and pictures
- Need to get high precision



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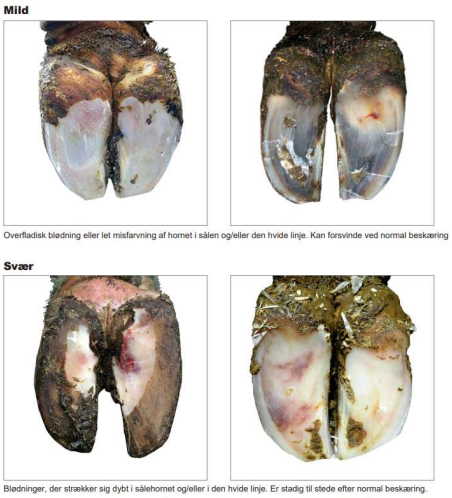
Camera to record improved phenotypes
Claw diseases

- Difficult to register objectively
  - Improved accuracy
- Camera on claw trimmers box
- Use existing AI algoritm software

Sole haemorrhage



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Other traits – potential use of cameraes

- Meat color
- Animal behaviour – an indicator of disease (ex. pneuemonia), digital dermatitis, heat or calving
- Conformation
- Weight – a measure of maintenance requirement
- Shape of the back - a measure of lameness
- Pelvic measure in carcass – a measure of calving ability

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Different devices on farm
Methane in dairy cows

- Sniffer method or Green Feed
- Trade off between accuracy and number of records

GreenFeed installation

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Different devices on farm
Methane and feed in slaughter calves

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Different devices on farm

Multiple indicators of disease in dairy cows

Activity and rumination

Milk and milk components

Better indicators of disease

?

Water consumption

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- Need to put more focus on phenotyping to be front runners
- Technology gives possibilities for both new and existing traits
- Future phenotypes might be costly/impossible to achive
- Possible to motivate farmers to do phenotyping that is not mandatory?

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