Type traits

Possibilities – collecting and using AMS data

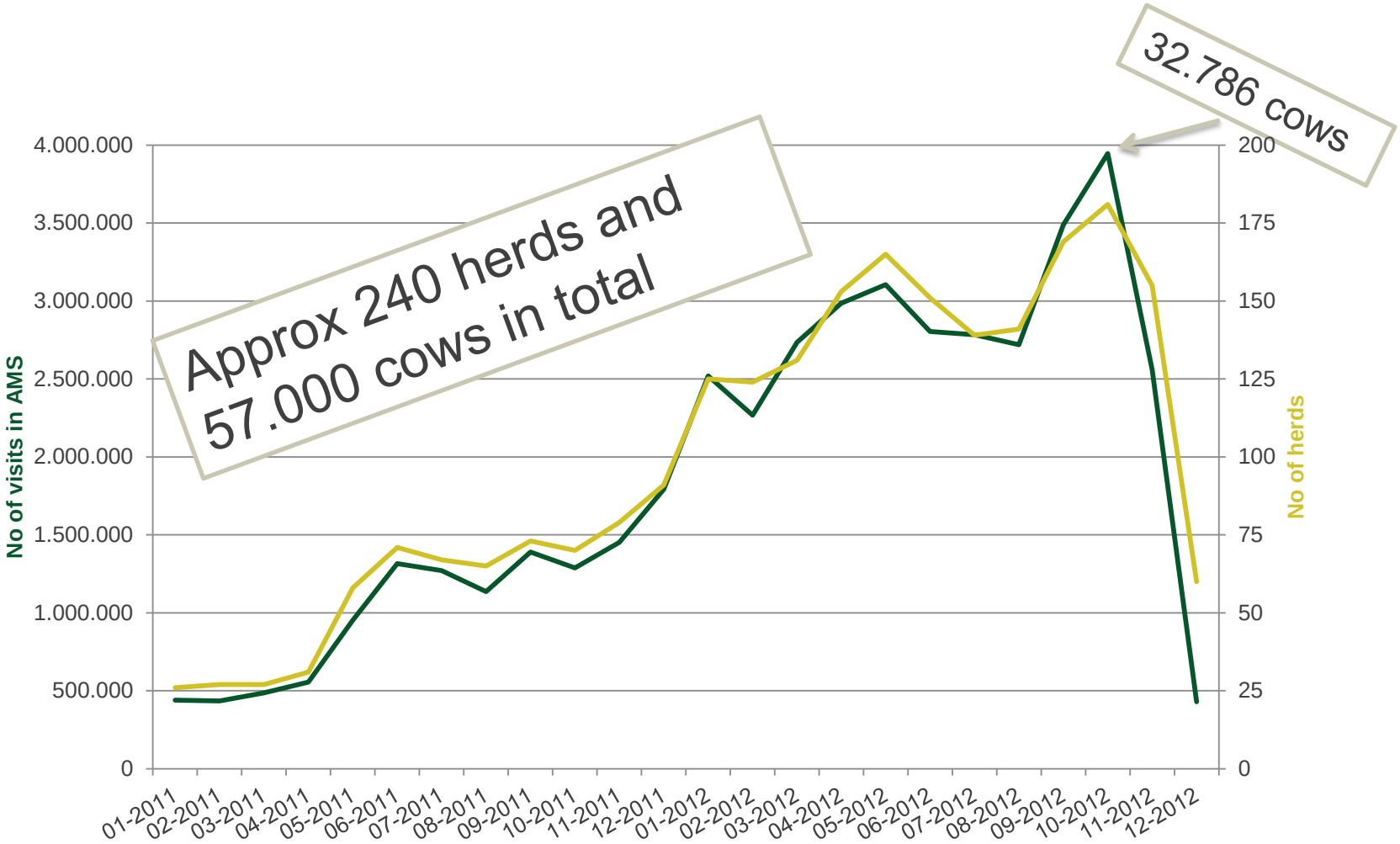
Outline

- Background
- Data collection
- Udder conformation

Background

- **Collecting data from AMS**
  - More difficult than expected and not yet successful for other than Lely systems
- **Define an optimal cow for AMS**
  - Technical improvements solved some problems
  - Breeding for NTM is also beneficial for AMS herds (improved milk ability, health, fertility etc.)
- **Utilize data to improve traditional breeding values**
  - Big potential – lot of data!

Data collection from AMS herds

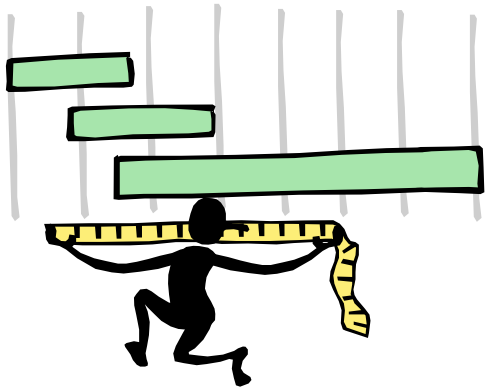


Data collection from AMS herds

- Collected by technicians in connection with milk recording (6 or 11 times a year)
- No extra work for technician
- Software used for extraction can easily be shared with Sweden and Finland
- Data are subsequently transferred to the national cattle database
- At present only data from Lely's milking robots
  - But work is on-going with Delaval
- Long-term strategy is real time transfer of data
- Help for possibility to collect data from DeLaval is needed!

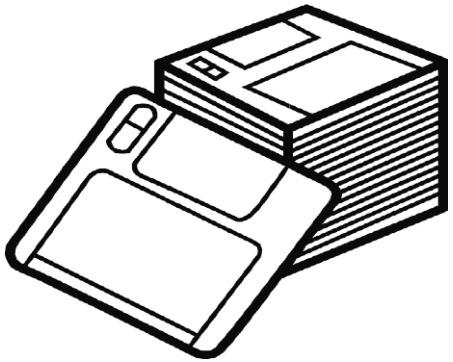
Advantages of data from milking robots

- Repeated measurements of a variety of traits
- Objective measurements
- Measured on all cows in milk
- Measured over more lactations



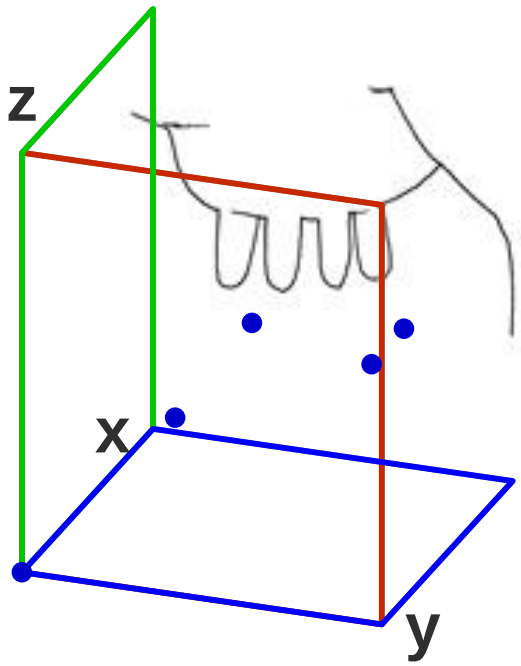
How to handle repeated measurements

- Great many observations
- Average of the variable in question over a period of time



- Presumably more sophisticated methods to utilize the information further

Udder conformation

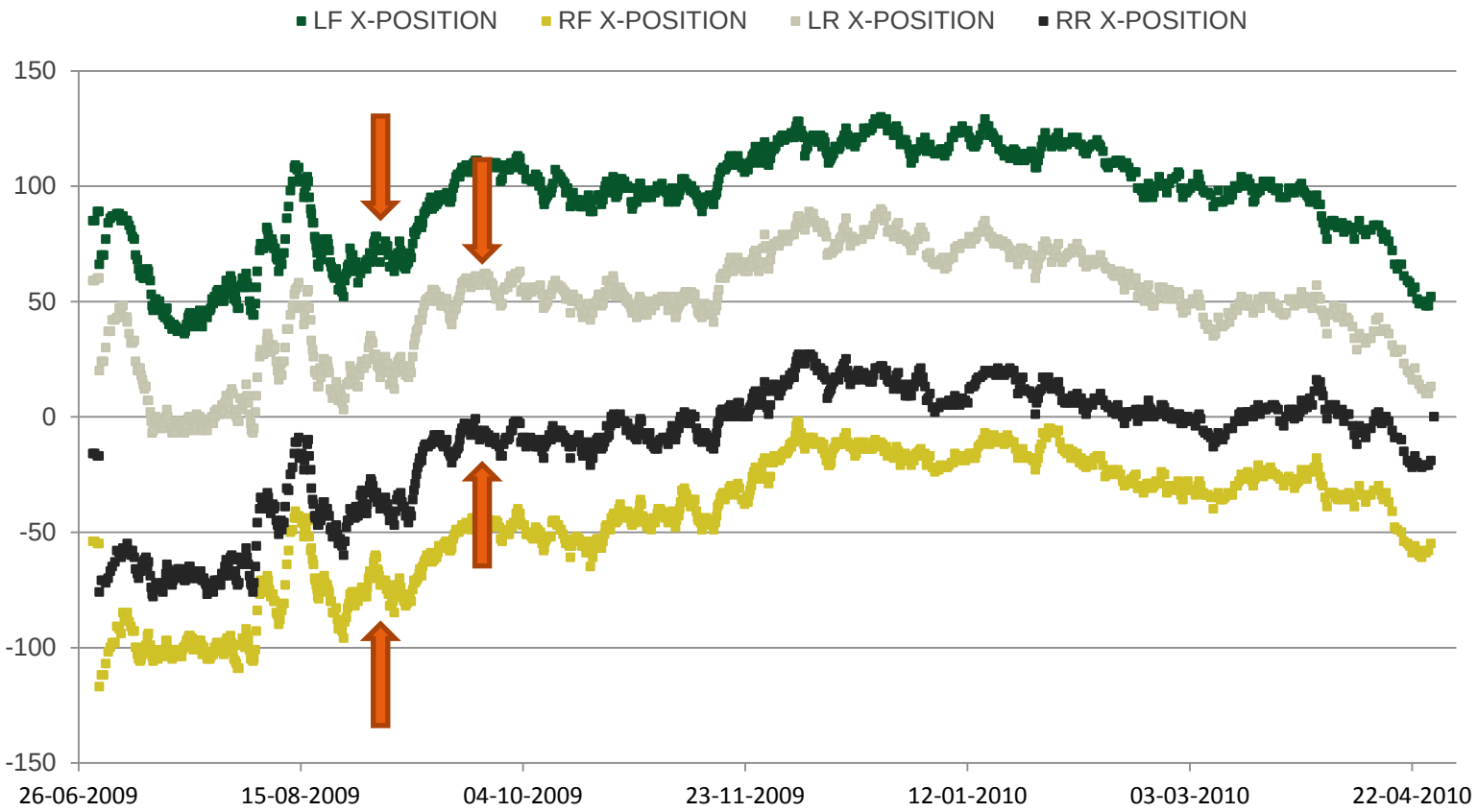


Teat co-ordinates

- Front teat placement
- Rear teat placement
- Distance, front - rear
- Udder balance
- Udder depth

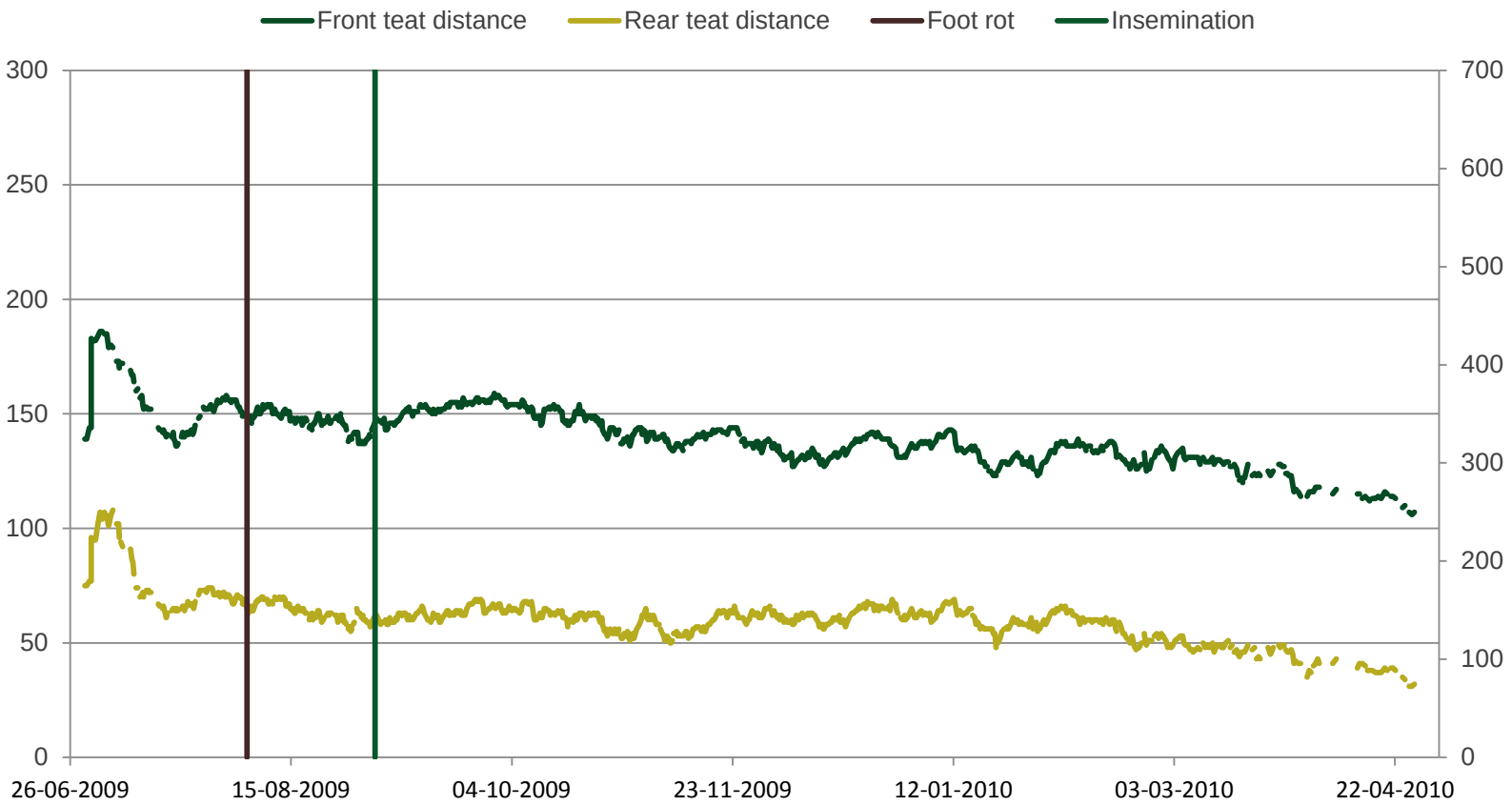
Example of X coordinates

1st parity cow



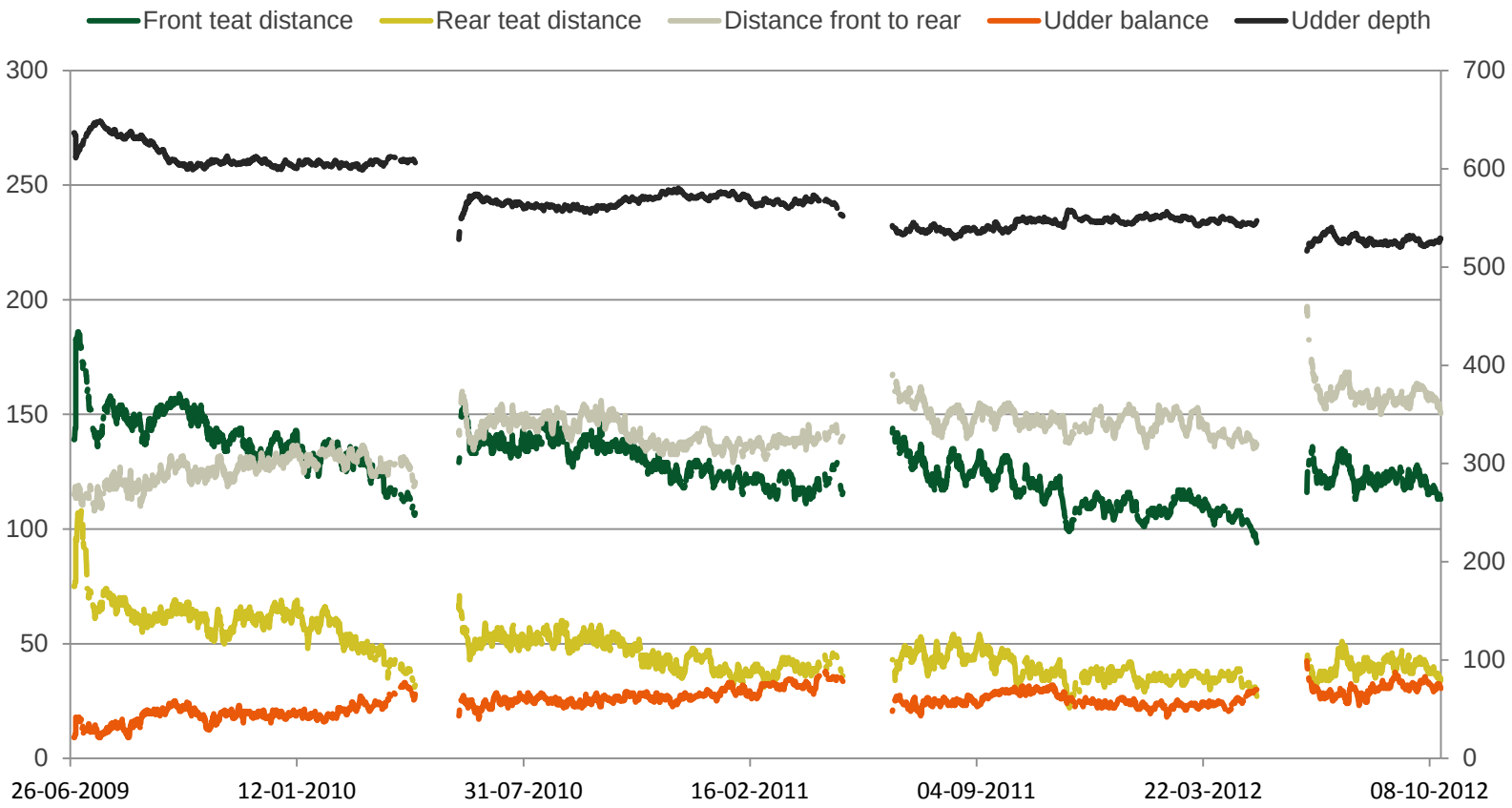
Calculated front and rear teat distance

1st parity cow



All udder traits

1st to 4th parity



Is udder conformation from AMS and traditional classifications comparable?

- A study on variance components was conducted in spring 2012
- Aim was to investigate to what degree udder conformation based on AMS data is comparable to traditional udder conformation traits
- Study based on Danish data:
  - 2,591 cows with AMS data (avg. of obs. 30-60 DIM)
  - 102,818 classified cows
  - 1,480 having both

Is udder conformation from AMS and traditional classifications comparable?

- The model was chosen to contain similar fixed effects as used in routine evaluation for udder traits:
  - Herd-year-season*
  - Age at calving
  - Month of calving
  - Classifier-2 month period**
  - Distance calving to classification**

*Only Herd-year for AMS data
**not used for AMS data

Heritabilities and genetic correlations

Trait	h^2 (S.E.) - AMS	h^2 (S.E.) – CLA	r_g (S.E.)
Front teat placement	0.46 (0.06)	0.31 (0.01)	0.92 (0.04)
Rear teat placement	0.38 (0.05)	0.32 (0.01)	0.94 (0.04)
Distance, front - rear	0.46 (0.09)	-	-
Udder balance	0.44 (0.07)	0.22 (0.01)	0.90 (0.04)
Udder depth	0.65 (0.06)	0.42 (0.01)	0.94 (0.02)

- High heritabilities
  - AMS> Classifiers assessments
- High genetic correlations

Conclusion – Udder conformation

- Teat co-ordinates from robots will be included as supplement to traditional classification in the genetic evaluation
  - NAV implementation is planned to start this year
- Earlier registrations from AMS in many cases
- Cheap way to get phenotypic information on important udder traits in later lactation
- More reliable indices for later lactations
- More reliable indices for cows not classified
- Data can be used to set deviation codes in the insemination plan programme