



**Does moment 1st insemination
represent moment 1st heat?**

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- Material and method
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Introduction

- Importance of estrus detection
- Usability of information for breeding values
- What is Ovalert®?



What is Ovalert[®]?

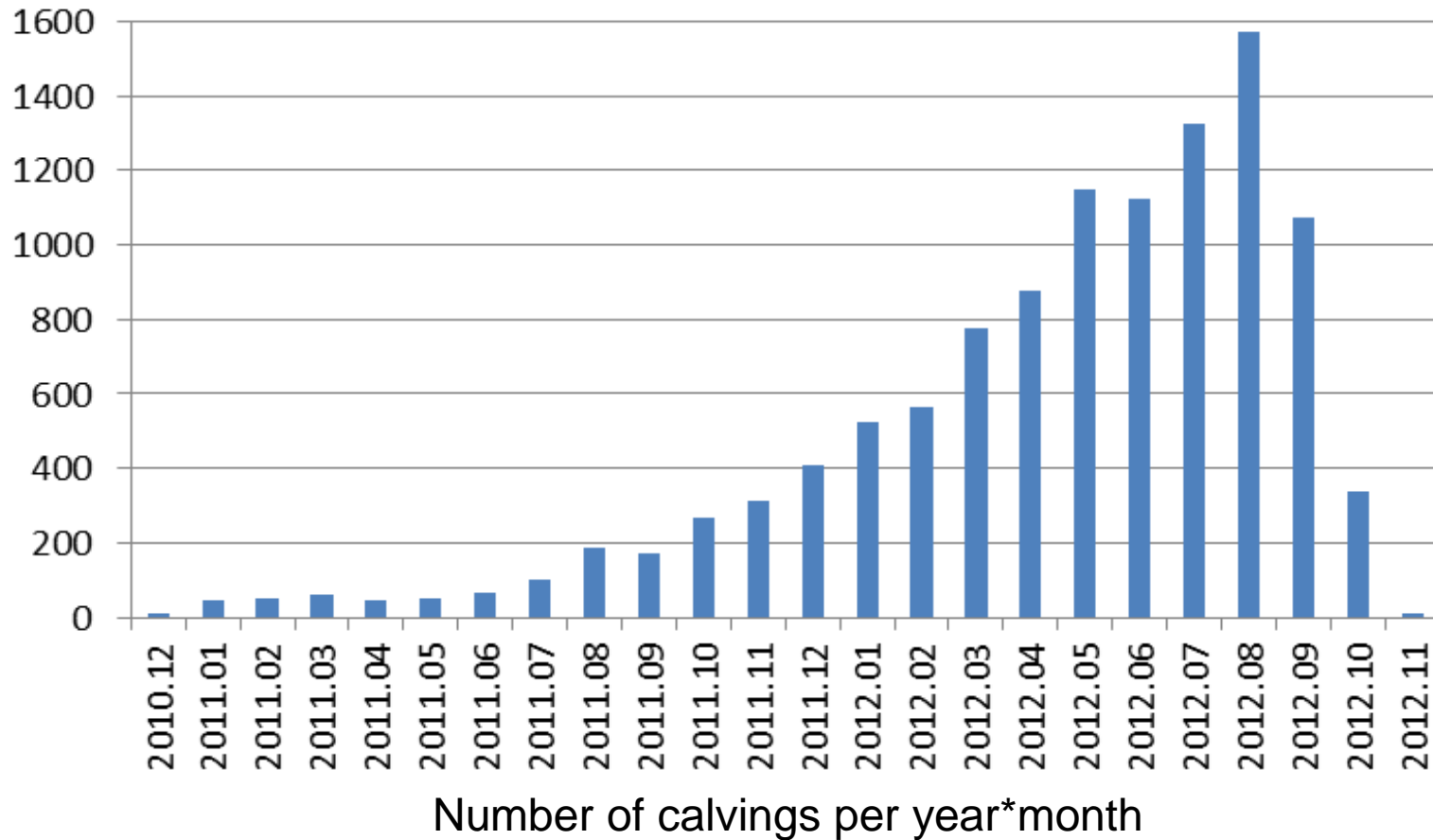
- The activity (leg or neck movement) of the individual cow is measured and registered in periods of two hours
- The measured activity is compared with two hour data, collected during previous days
- Is the measured activity over several periods significantly higher?
 - Farmer receives an alert



Material and method

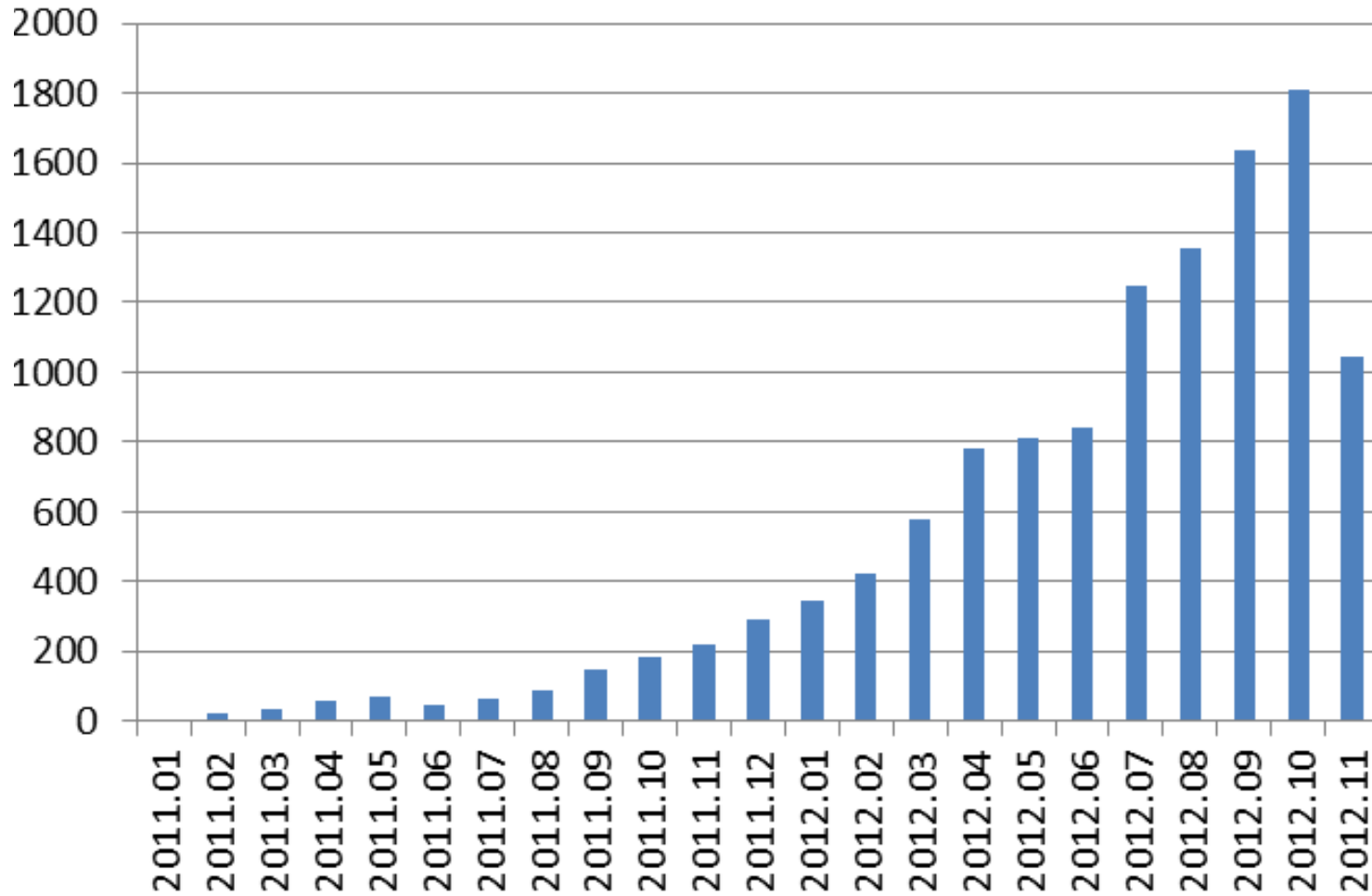
- Data recorded between 22-01-2011 and 23-11-2012 (n=12,081)
- Information about:
 - Moment of calving
 - Moment of first estrus detection
 - Interval calving to first estrus detection (HEAT)
 - Interval calving to first insemination (ICI)

Material and method



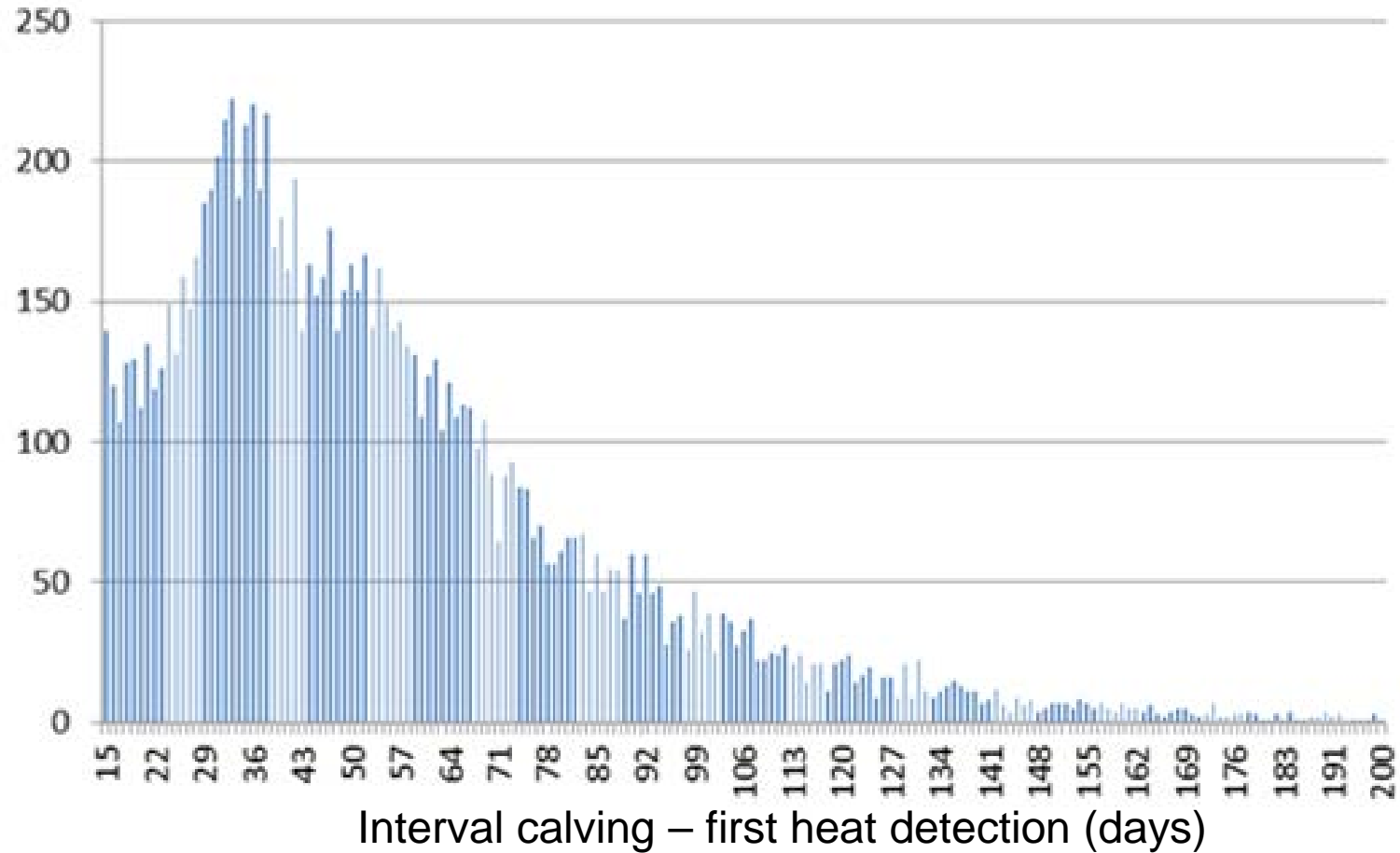
- Increase because more farmers started using Ovalert®
- Last months showed a decline: not all data of those months were available at the moment the dataset was created

Material and method



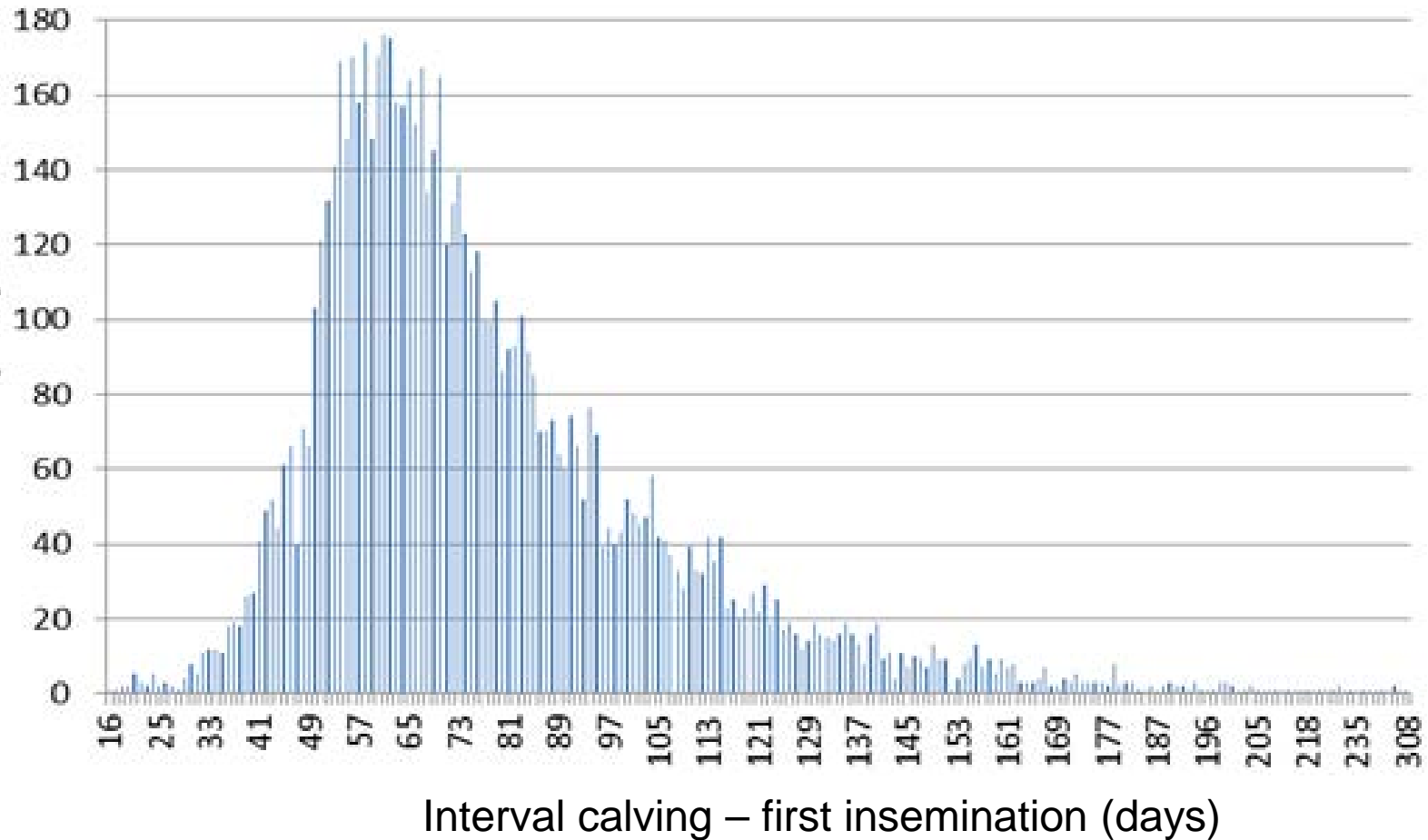
HEAT observations per year*month

Material and method



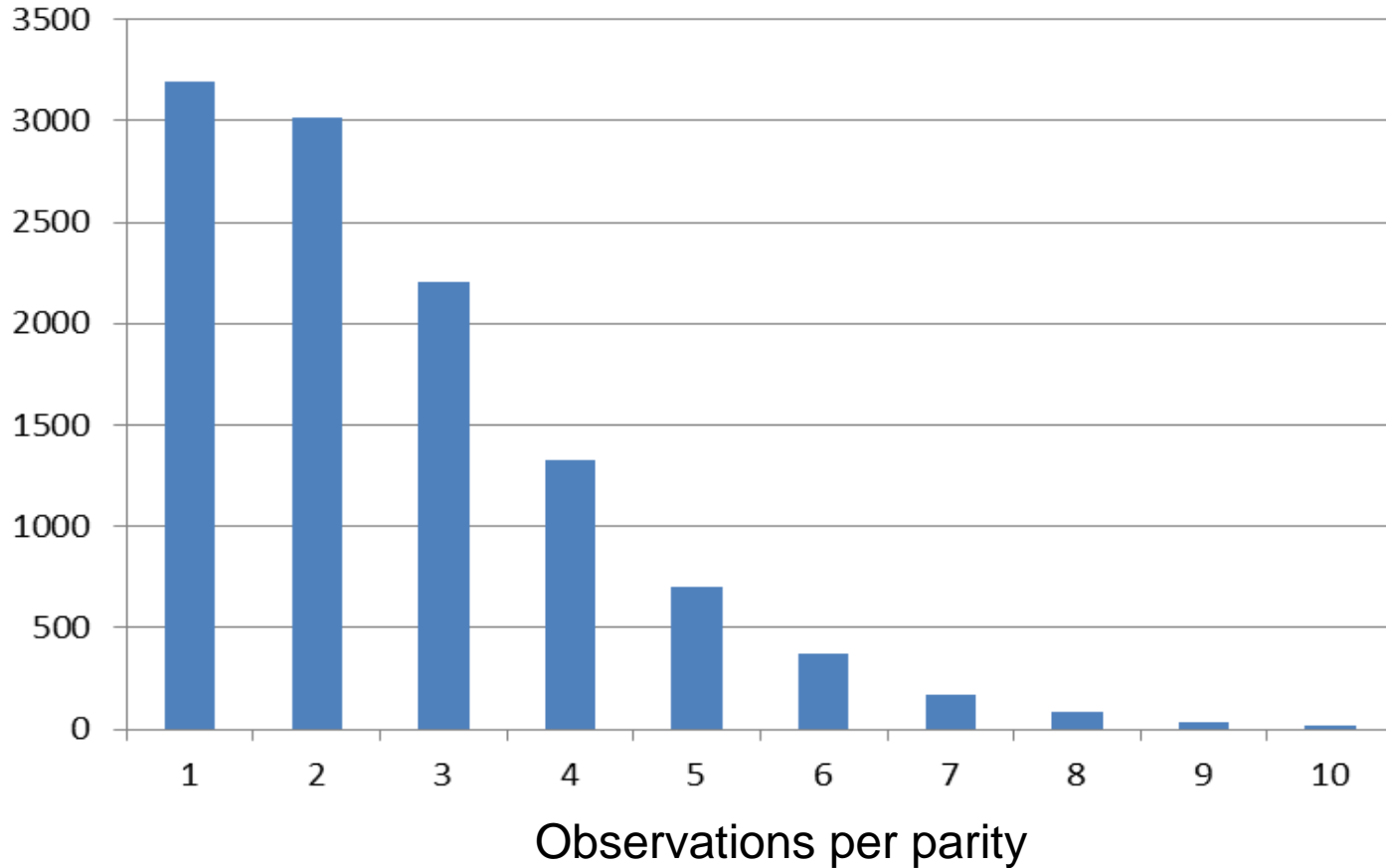
- Average of 55 days

Material and method



- Average of 78 days

Material and method



Material and method

- First ovulation expected more than 14 days after calving, therefore:
 - Records with HEAT of ≤ 14 days removed from dataset (n=967)
 - Records with ICI of ≤ 14 days not included in the estimations (n=5)
- HEAT records from > 150 days were set to 150 days to reduce the effect of extreme values on the genetic parameter estimations (n=166)

Material and method

- Heritabilities and genetic correlation estimated in ASReml

$$\text{HEAT} = \text{parity}_i + \text{herd}_j + \text{calf_season}_k + \text{animal}_l + e_{ijkl}$$

$$\text{ICI} = \text{herd}_j + \text{calf_season}_k + \text{animal}_l + e_{jkl}$$

Where,

parity_i = parity of the cow

herd_j = herd number of the cow

calf_season_k = year.month of calving

animal_l = animal

e_{ijkl} = residual

Results

Trait	h ²	SE	SD (days)	Number of records
HEAT	0.06	0.016	6.63	11,114
HEAT - par1	0.07	0.017	7.30	3,191
HEAT - par2	0.07	0.017	7.32	3,018
HEAT - par3	0.07	0.017	7.50	2,204
ICI	0.10	0.024	8.24	11,114

- Genetic correlation between HEAT and ICI of 0.95 (se = 0.06)

Conclusion

- Heritability:
 - HEAT 0.06
 - ICI 0.10
- St.dev. 7-8 days
- High genetic correlation between first heat and first insemination

**Does moment 1st insemination
represent moment 1st heat?**

YES