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**Kiel** Institute of Animal Breeding and Husbandry

### Detecting onset of farrowing using CUSUMcharts based on sows' activity

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### Introduction







# Material & Methods

#### Data basis

125 sows, 4 days before the farrowing

#### Video footage

- analysed optical flow (OF)
- Number of changed pixels per frame





#### Passive Infrared Motion Sensor (PIR)

- One observation per minute
- Binary (motion detected yes / no)





### Material & Methods





# Material & Methods

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# Material & Methods

#### **CUSUM Control Charts**

- Cumulative Sum Control Charts
- Separately for OF and PIR and for raw data, different means and SSA trend
- 5-fold cross validation





### Material & Methods





### Material & Methods





# **Results CUSUM**





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### **Results CUSUM**





### Conclusion





Possible using mean, but alarm too late (8h a.p.)

Feasible using trend of SSA (20h a.p.)

PIR show similar results at a cheaper price



# Thank you for your attention!

