

# What sensors can do for grazing

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# Outline of presentation

- Examples automatically collected information AM systems
  - Milking robot
    - RFID
    - Milk meter
    - Conductivity
    - Blood
    - HerdNavigator
  - Activity sensors
    - Leg
    - Neck



# Information from milking robot

- As example – VMS from DeLaval

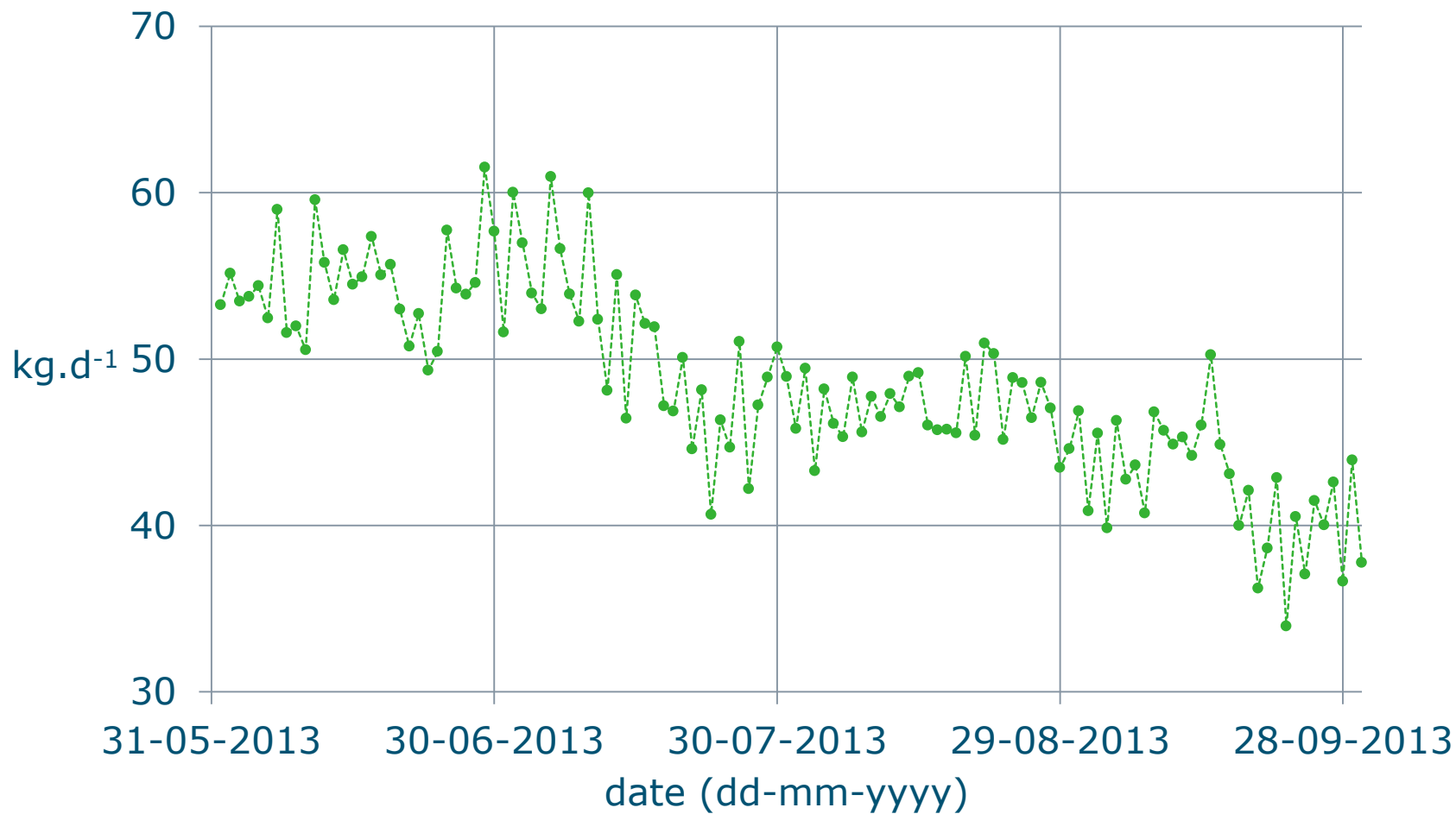


# Information from milking robot

Device	Variable	Information
RFID	Visiting time	Visiting frequency
	Milking time	Milking frequency
Milk meter	Milk yield	Production level
Conductivity sensor	Conductivity	Udder health
Blood sensor	Blood in milk	Udder health / Colostrum
HerdNavigator	Progesterone	Heat / pregnant
	Urea	Ration
	BHB	Ketosis
	LDH	Udder health
and others ...		

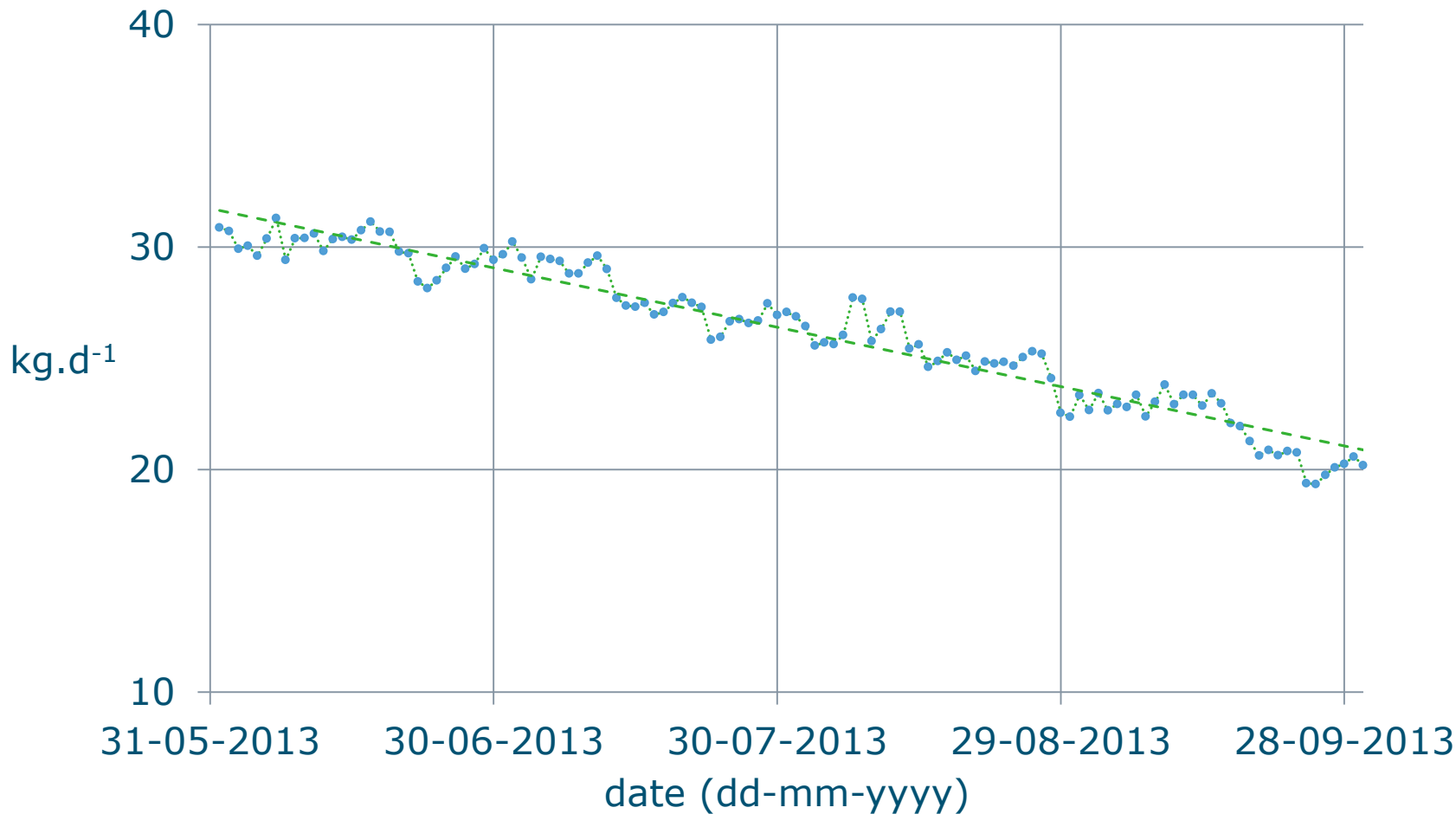
# Information from milking robot

## Daily milk yield for cow 607



# Information from milking robot

## Daily milk yield for herd (40 cows)



# Information from activity sensors

## ■ Leg mounted

- Walking (Steps)
- Lying
- Standing



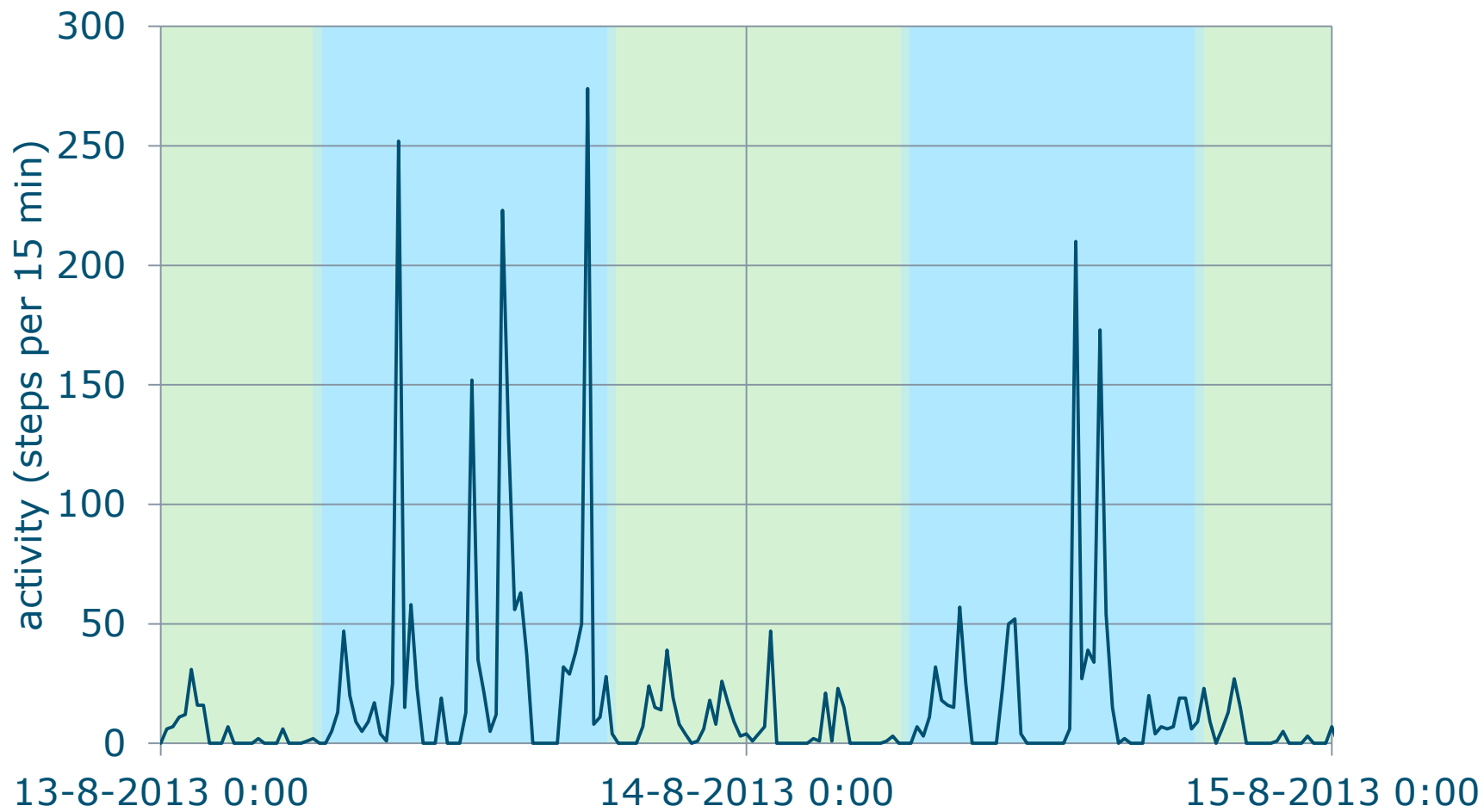
## ■ Neck mounted

- Activity
- Feeding/grazing time



# Activity sensor data (leg)

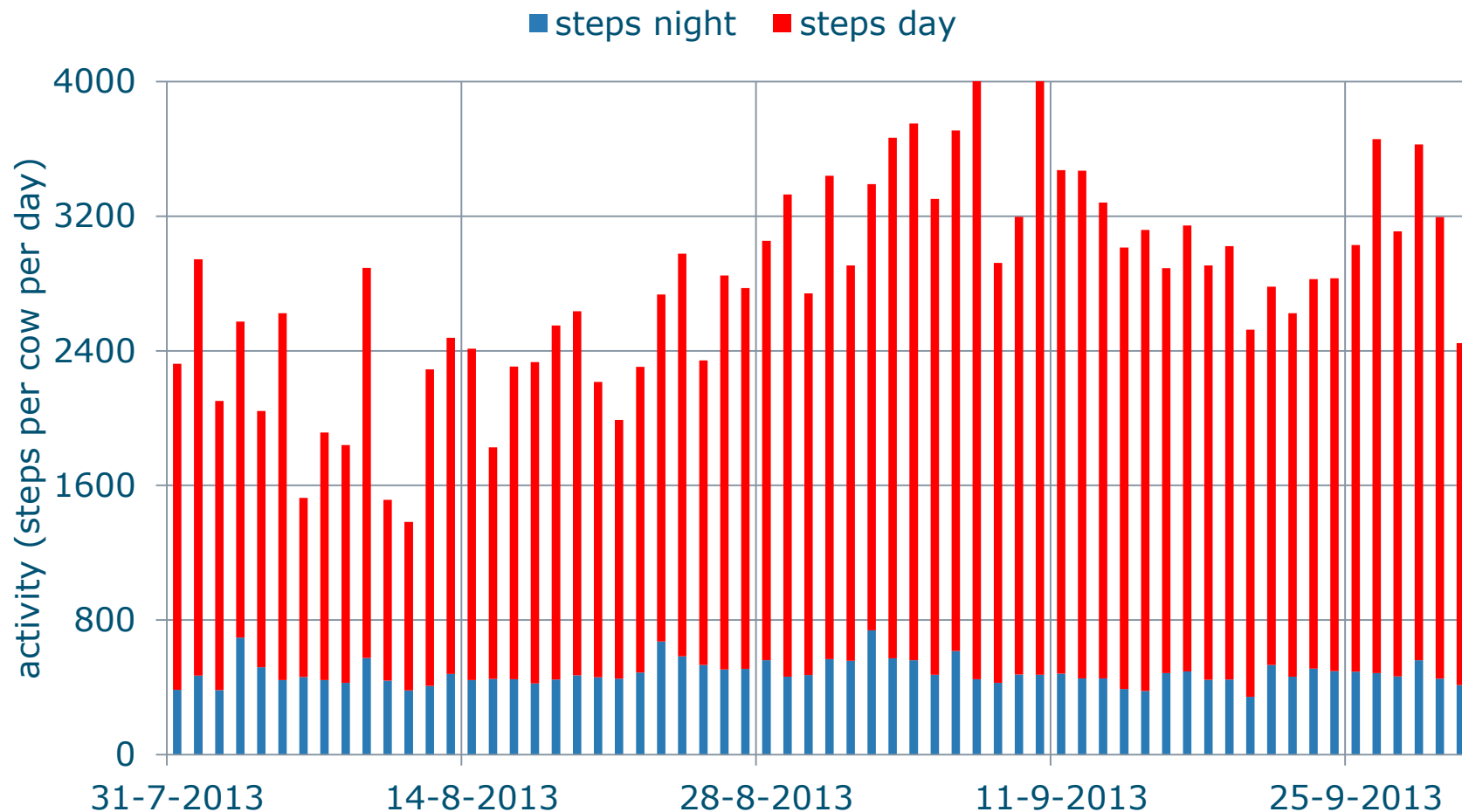
## Activity cow 607 during August 13 and 14





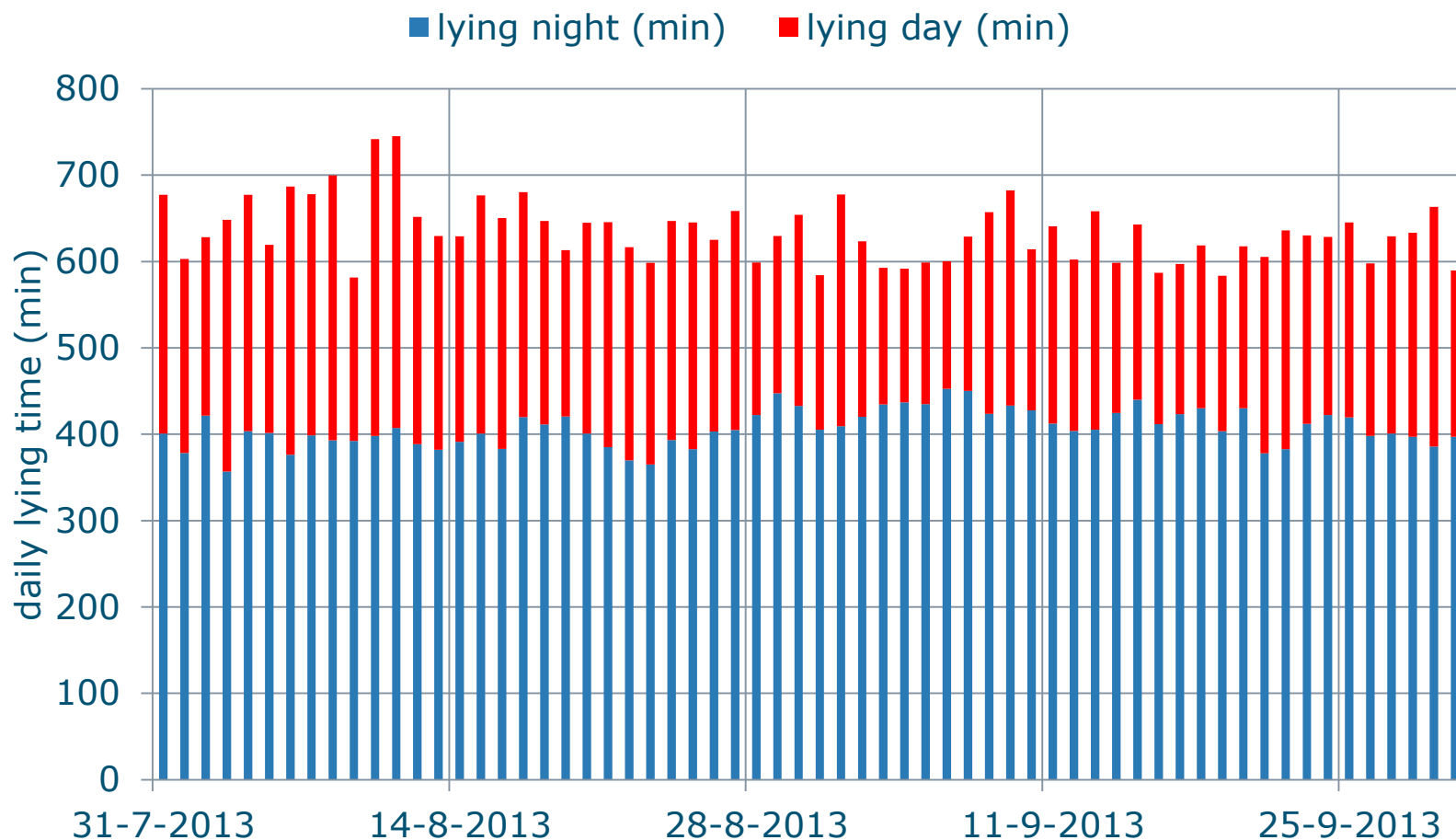
# Activity sensor data (leg)

## Average daily activity during experiment



# Activity sensor data (leg)

## Average daily lying time during experiment



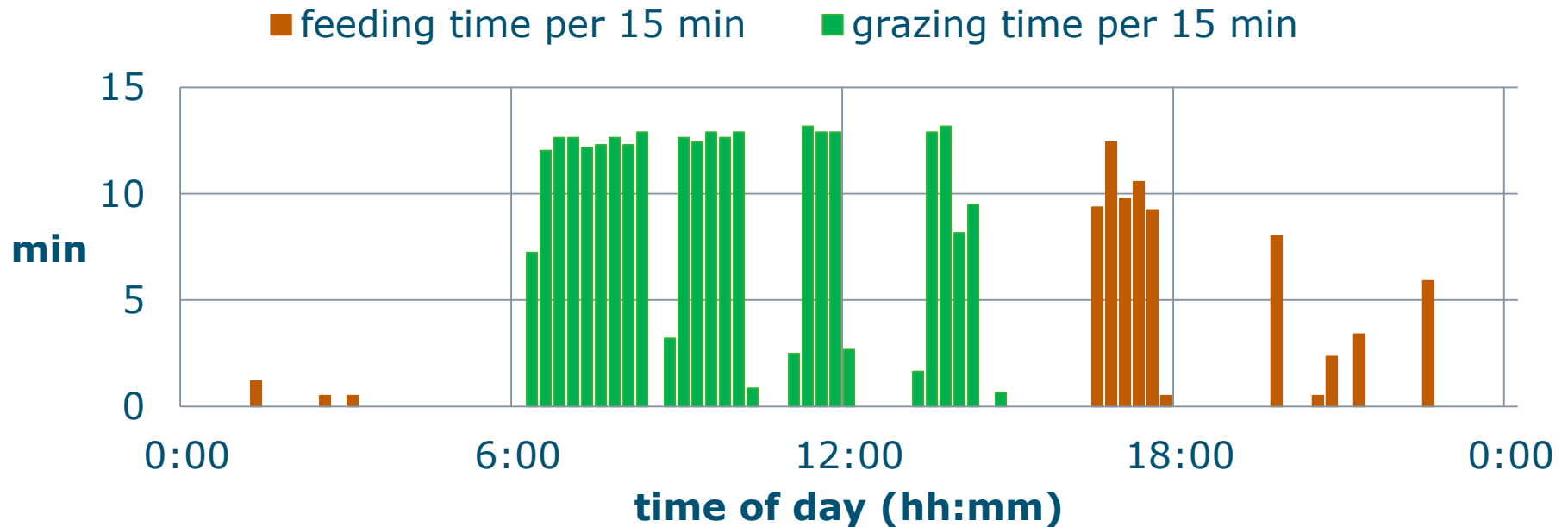
# Neck sensor data

- In 15 min windows
  - Feeding / grazing time = angle of neck
  - Activity level = movements of head



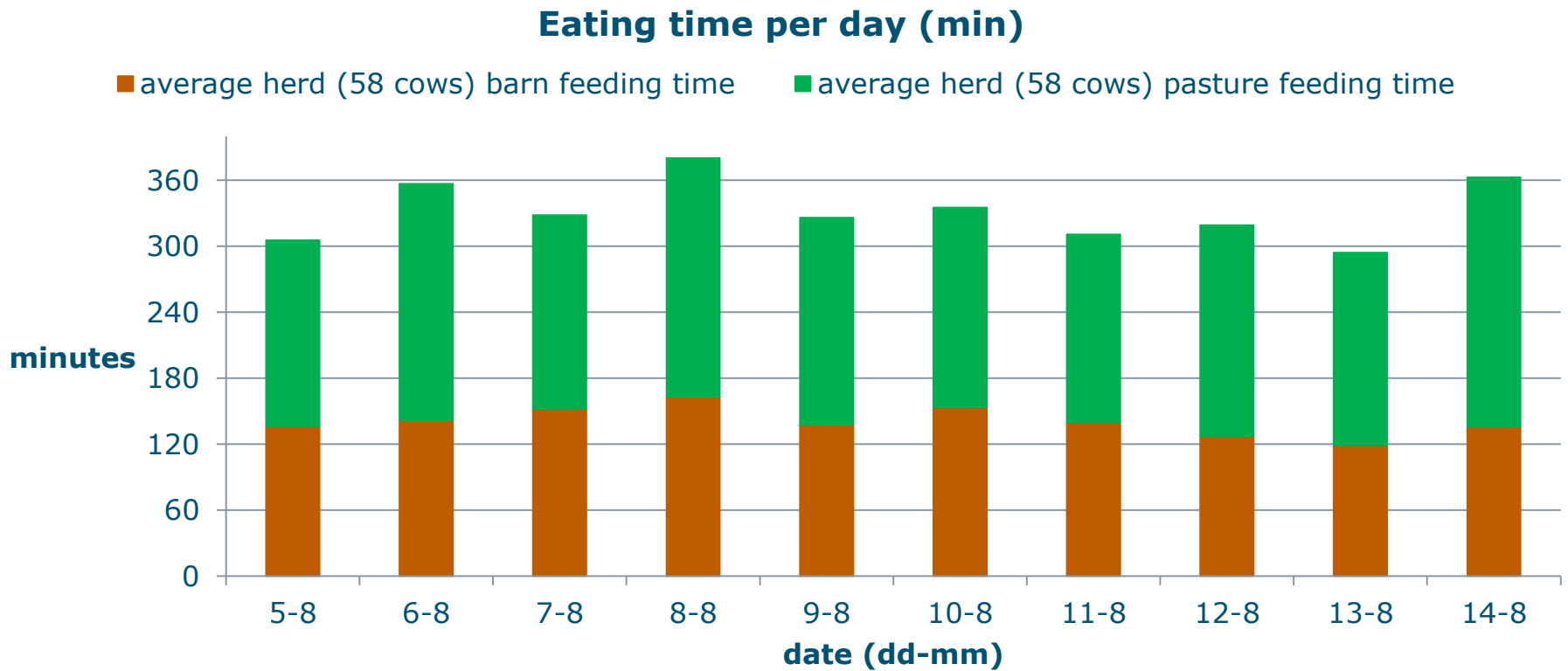
# Neck sensor data – feeding time

- Per individual cow: eating pattern over the day



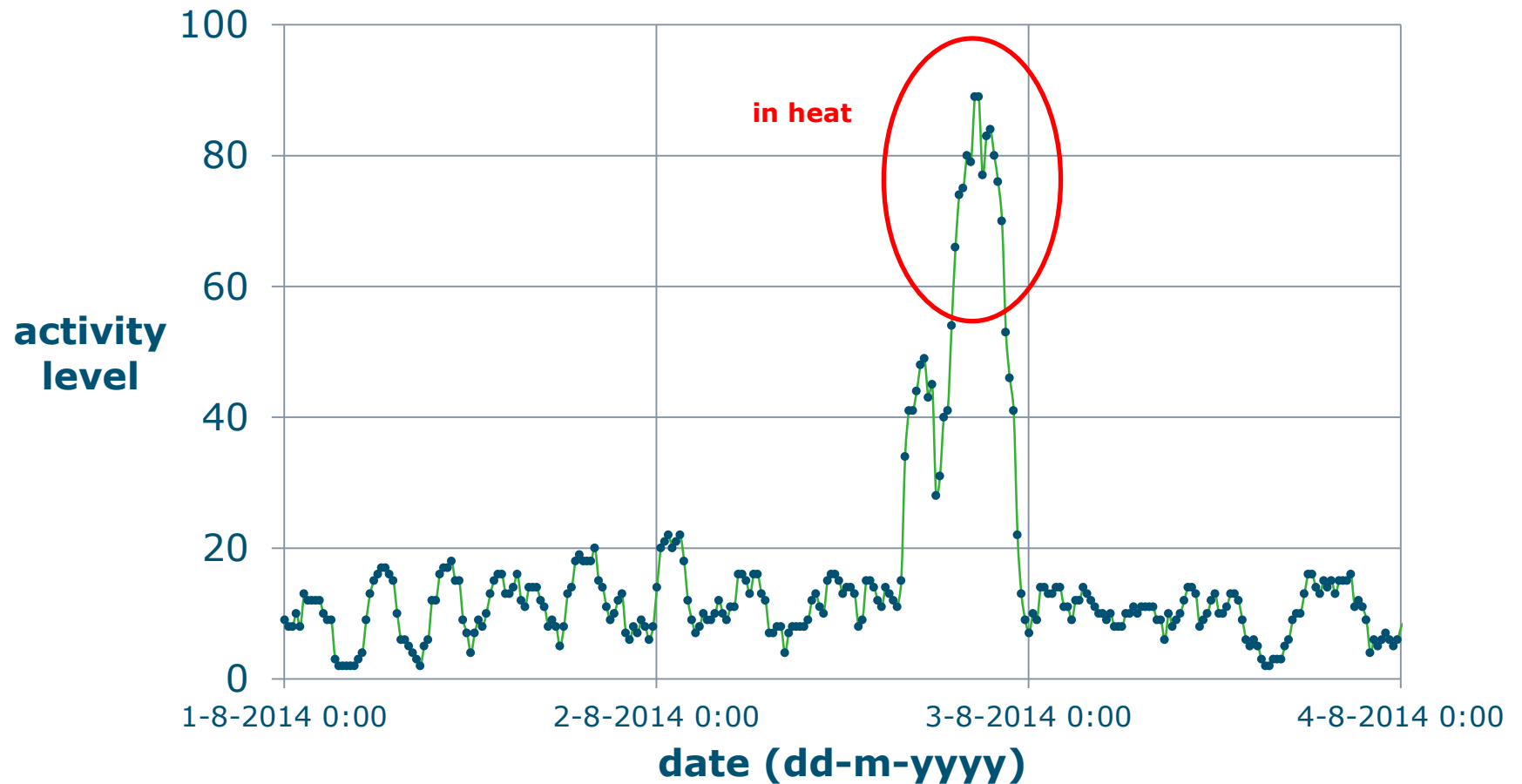
# Neck sensor data – feeding time

## ■ Eating time of herd



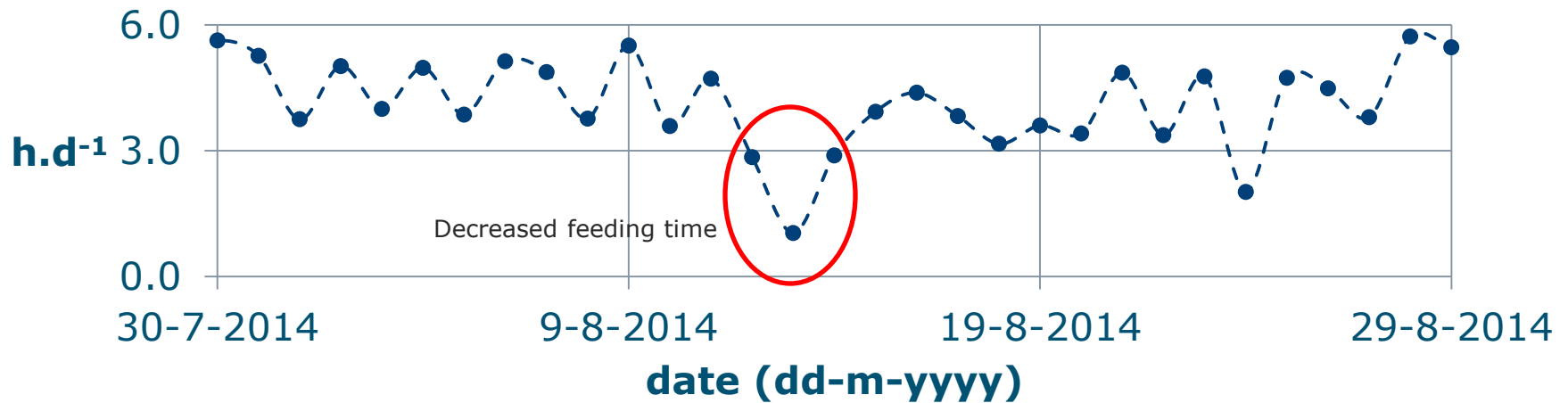
# Neck sensor data – activity

## activity from neck sensor

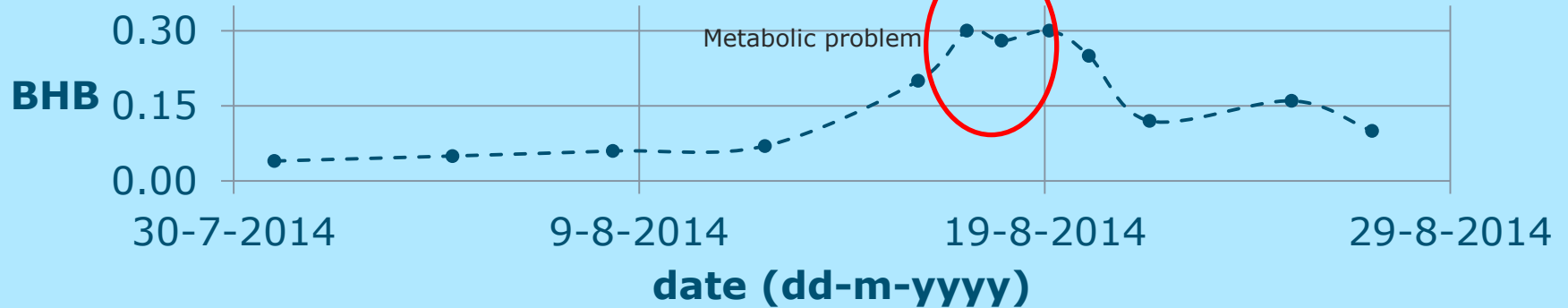


# Information from different sensors

## feeding time from neck sensor



## Beta hydroxy butyric acid information from HerdNavigator



# Discussion

How can collected sensor data be cooperated in grassland management (individual based or herd based)

