PigWatch
early automated detection
of tail biting and aggression

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Pig Watch

Early warning system for aggression and tail biting

anihwa
Animal Health and Welfare ERA-Net

DMRI
- Own abattoir
- Conventional pig farming

WUR
- Animal – human interactions
- 'Pig signals'

FLI + FBN
- Farmer network
- Pig behaviour research

INRA
- Haemoglobin scoring
- Movement sensors
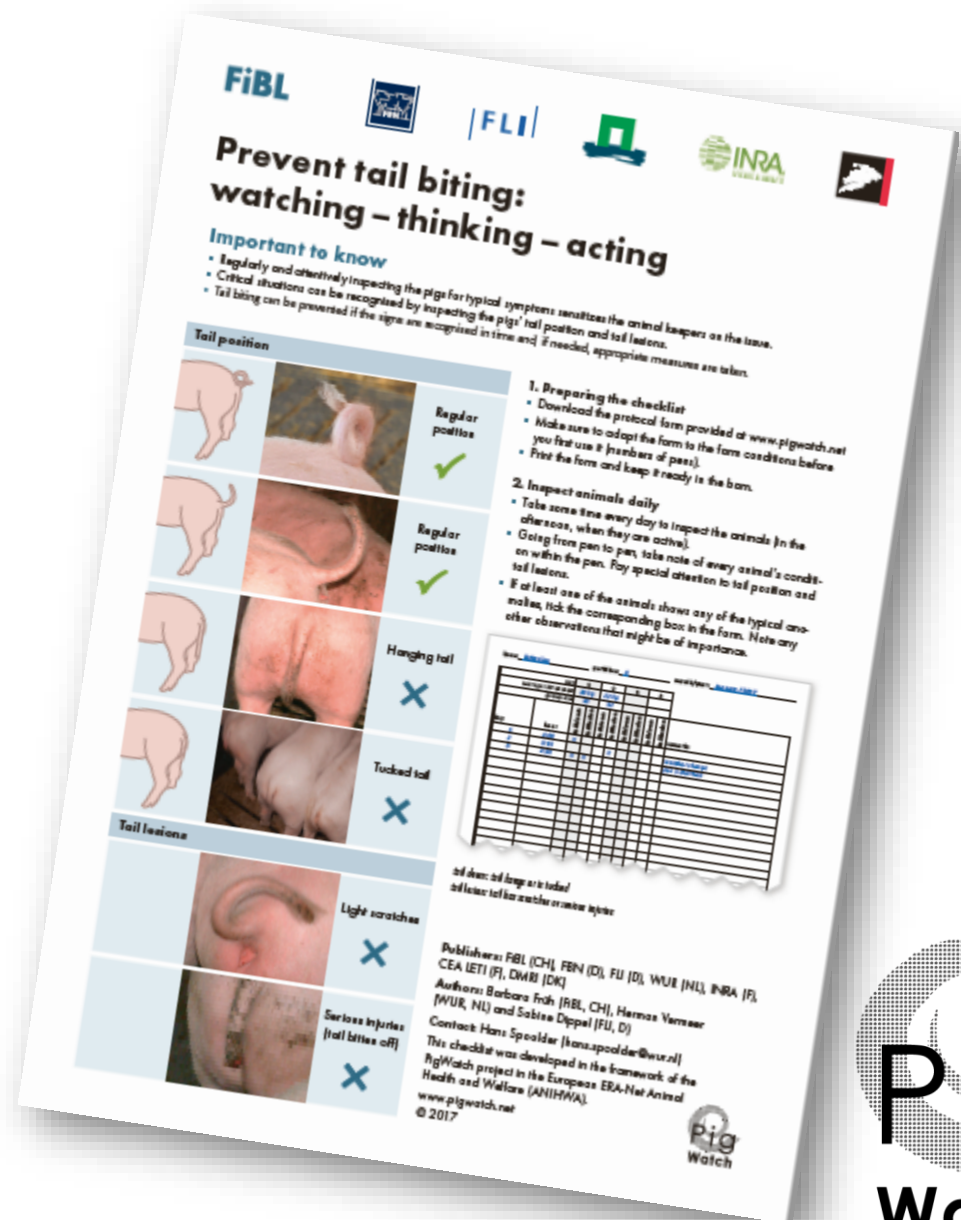
FiBL
- Management 'long tails'
- Communication

Ambition

PigWatch will

1. train farmers to identify warning signals by observing their animals ('Eye of the Farmer')

2. develop multi spectrum camera analyses to detect the presence of blood and hence detect lesions or abnormalities on live pigs

3. develop electronics for activity monitoring that can be included in the ear tag of the pigs

4. develop a camera system for automated lesion and tail length assessment in the slaughter line

1. Eye of the Farmer: protocol

- Newsletters
- Book: 'Pig Signals'
- Quizes
- Video's

1. Eye of the Farmer: video's

https://pigwatch.net

2. Camera system detecting fresh blood
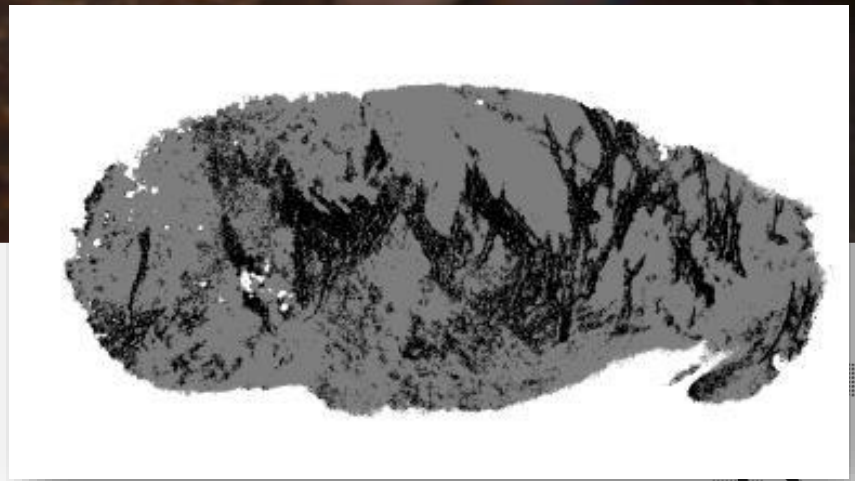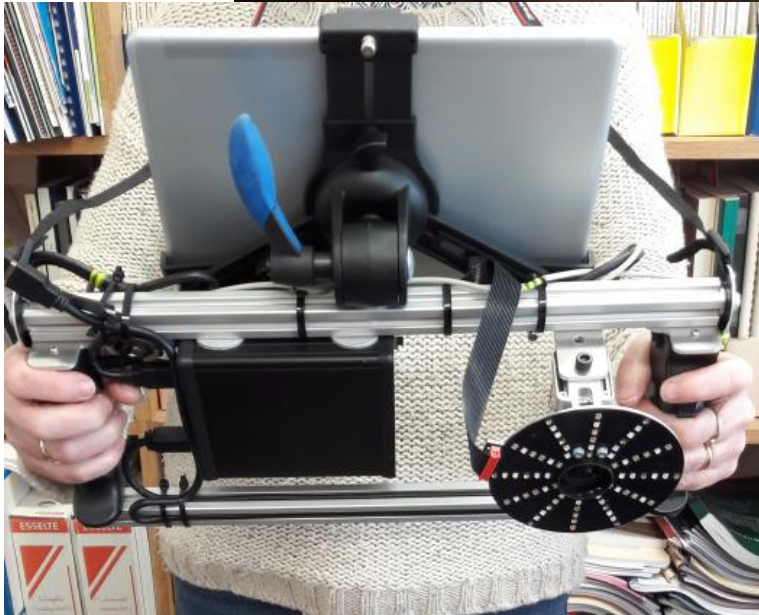
3. Activity monitoring through ear tags

- Main characteristics:
- Light, water proof and chew resistant
- Tri axial accelerometer
- Micro-controller
- Bluetooth Low Energy
- Power supply

- Data records:
- Android app
  - To connect to sensors
  - Data collection / formatting
- Data stored on smartphone
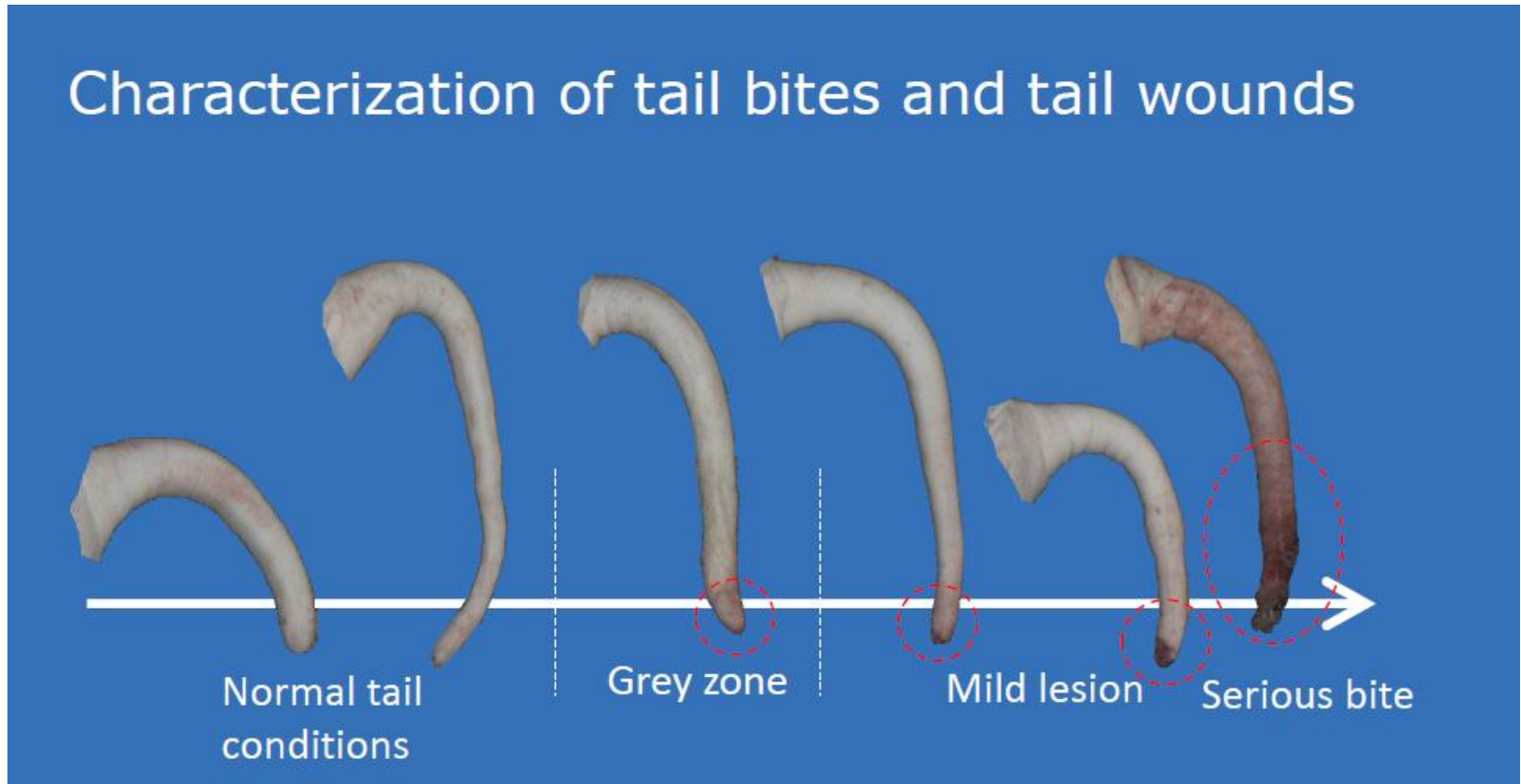
3. Activity monitoring: conclusions

- **Present results:**

- Strong diurnal variation of behavioural activity

- Two sub peaks of activity: early morning and early afternoon

- **Improvements:**

- Better connection between ear tags and the storage system

- Better quality of the algorithm to detect specific behaviours

4. Tail length and lesions

4. Tail length and lesions: equipment

TailCam equipment
Guiding bars for turning carcasses
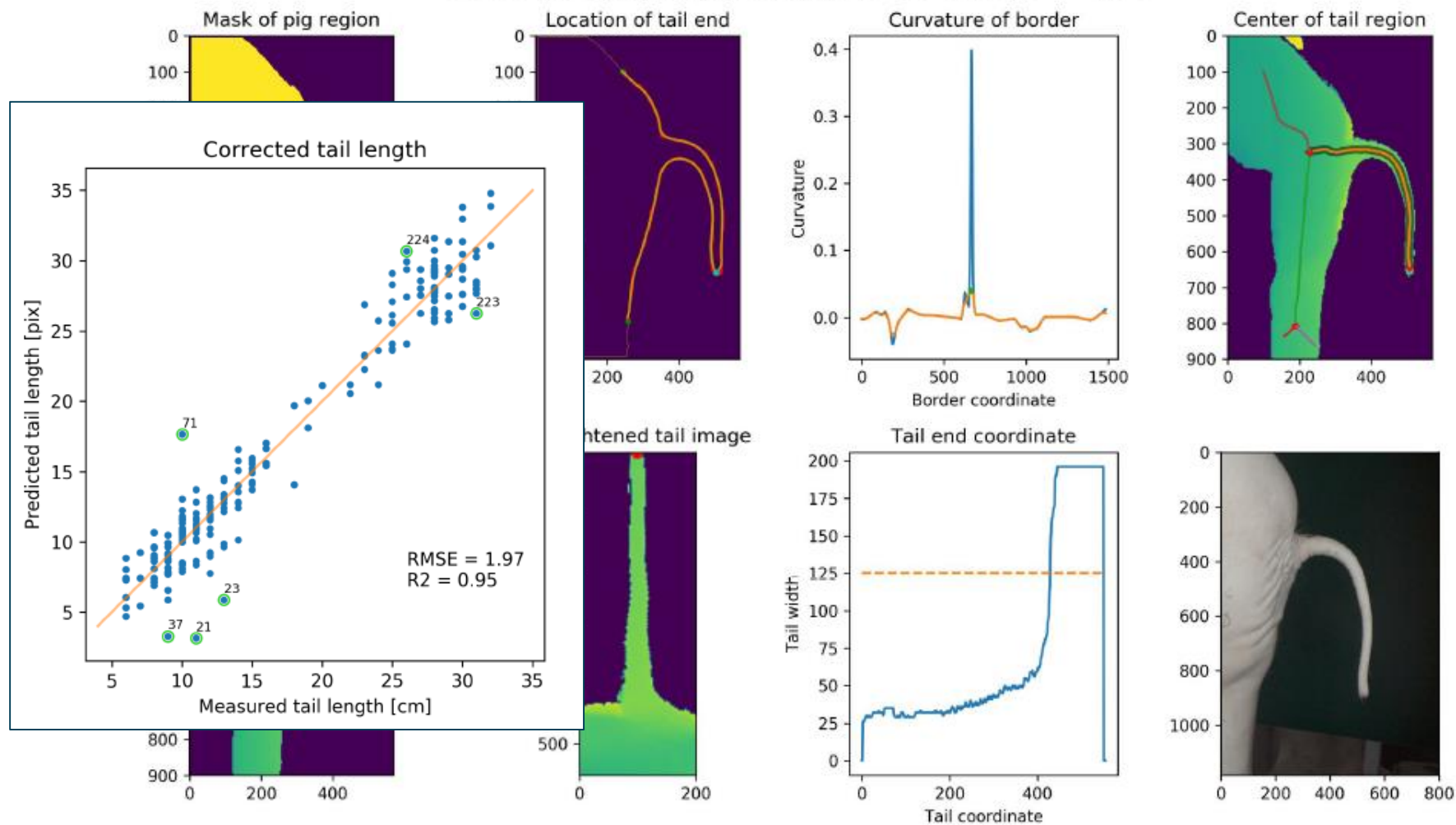Camera and lights

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4. Tail length and lesions: positioning

4. Tail length and lesions: positioning

Steps in tail length analysis for cowId = 120
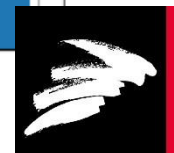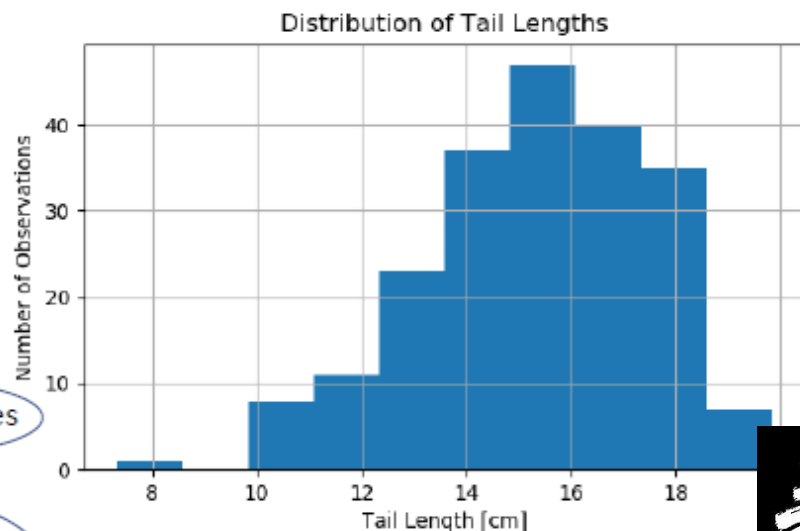
4. Tail length and lesions: reports

- Moderately docked
- Small scratches
- Mild lesions

Basic Information	
Number of Pigs	209
Start of Period	2017-12-14 08:28:05
End of Period	2017-12-14 08:57:49
Mean Tail Lenght	15 cm
Std. Tail Length	2 cm
Fraction of Small Lesion	24.88 %
Fraction of Lesion	0.0 %
Fraction of Too Short Tails (<10cm)	0.48 %
Fraction of Very Short Tails (<5cm)	0.0 %

Actual tail bites

Arbitrary limits, can be adjusted

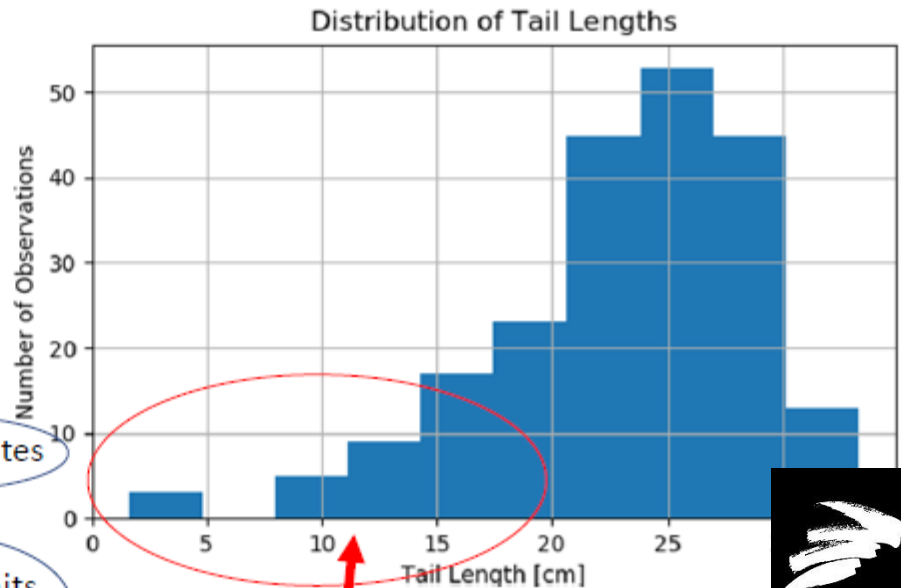Distribution of Tail Lengths

4. Tail length and lesions: reports

- Long tails
- Large number of shortened tails
- Relatively many 'small lesions'
- Herd with moderate tail biting problem

Basic Information	
Number of Pigs	215
Start of Period	2017-12-14 12:33:13
End of Period	2017-12-14 13:07:05
Mean Tail Lenght	23 cm
Std. Tail Length	6 cm
Fraction of Small Lesion	49.77 %
Fraction of Lesion	3.72 %
Fraction of Too Short Tails (<10cm)	1.88 %
Fraction of Very Short Tails (<5cm)	1.41 %

Actual tail bites

Arbitrary limits, can be adjusted

Distribution of Tail Lengths

Number of Observations / Tail Length [cm]

Overrepresentation of short tails
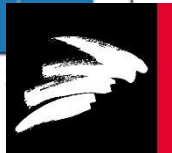
4. Tail length and lesions: opportunities

- Unprecedented, easily accessible, completely representative data

- One-page overview of tail length distribution for all pig producers

- Longitudinal monitoring of tail biting in a farm

- Investigation and documentation of compliance with quality assurance or tail docking regulation

- Identification of herds where intervention is needed

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