

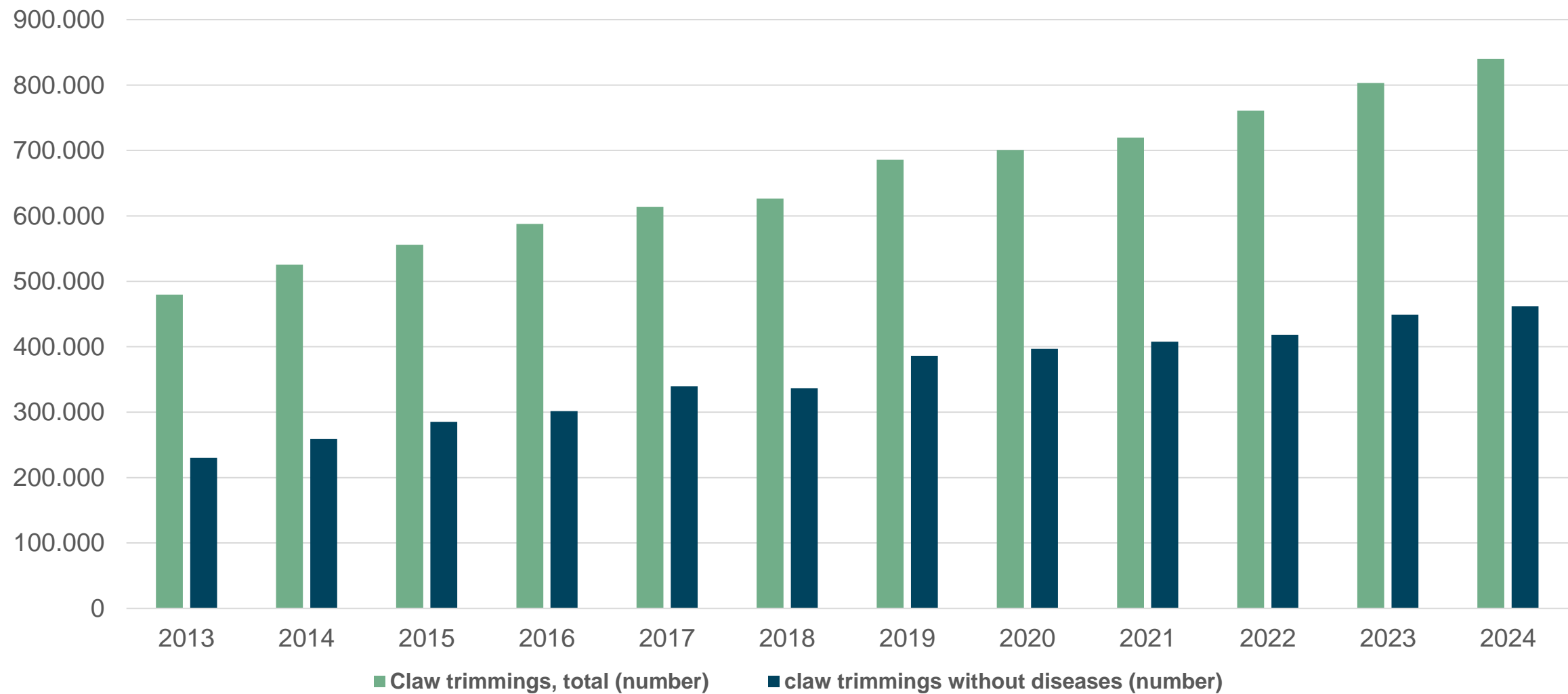
Using camera technology to record claw lesions

Peter Raundal, SEGES Innovation

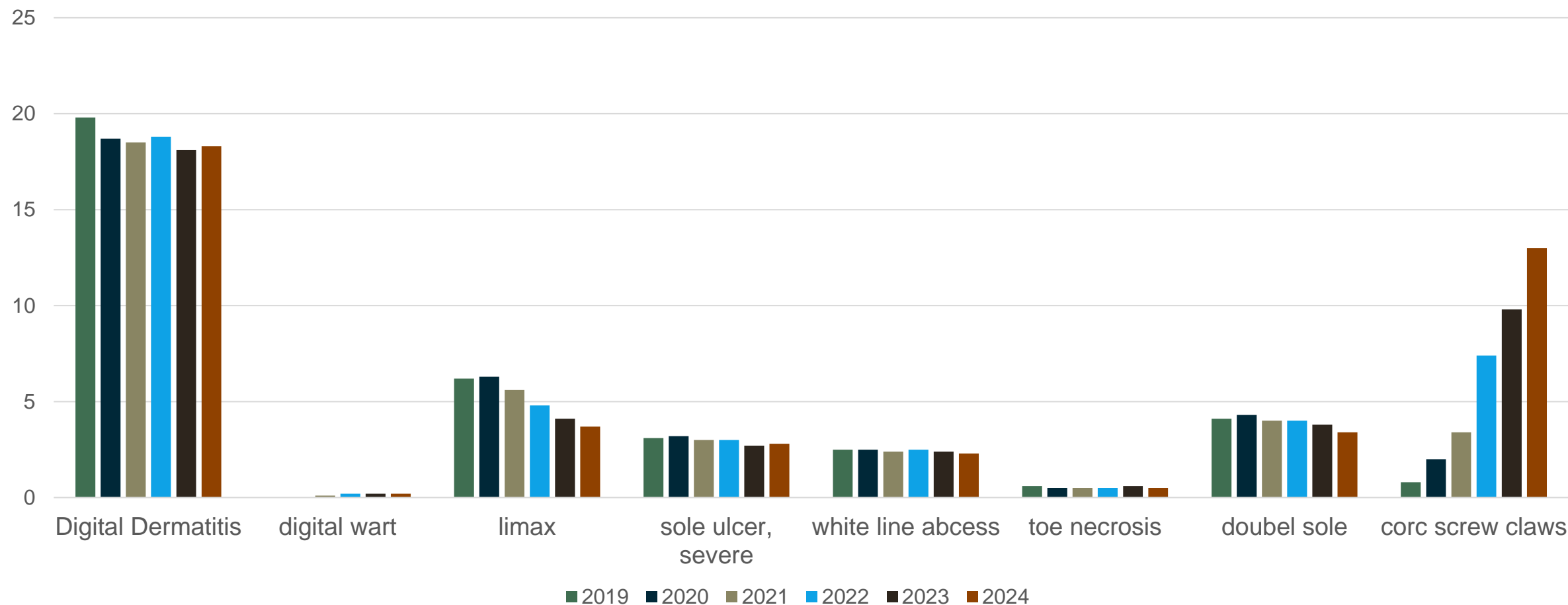
Nordic lameness research network meeting

June, 4th., 2025 - Finland

Number of claw trimming recordings in Denmark



Lesions, pct. of trimmed cows

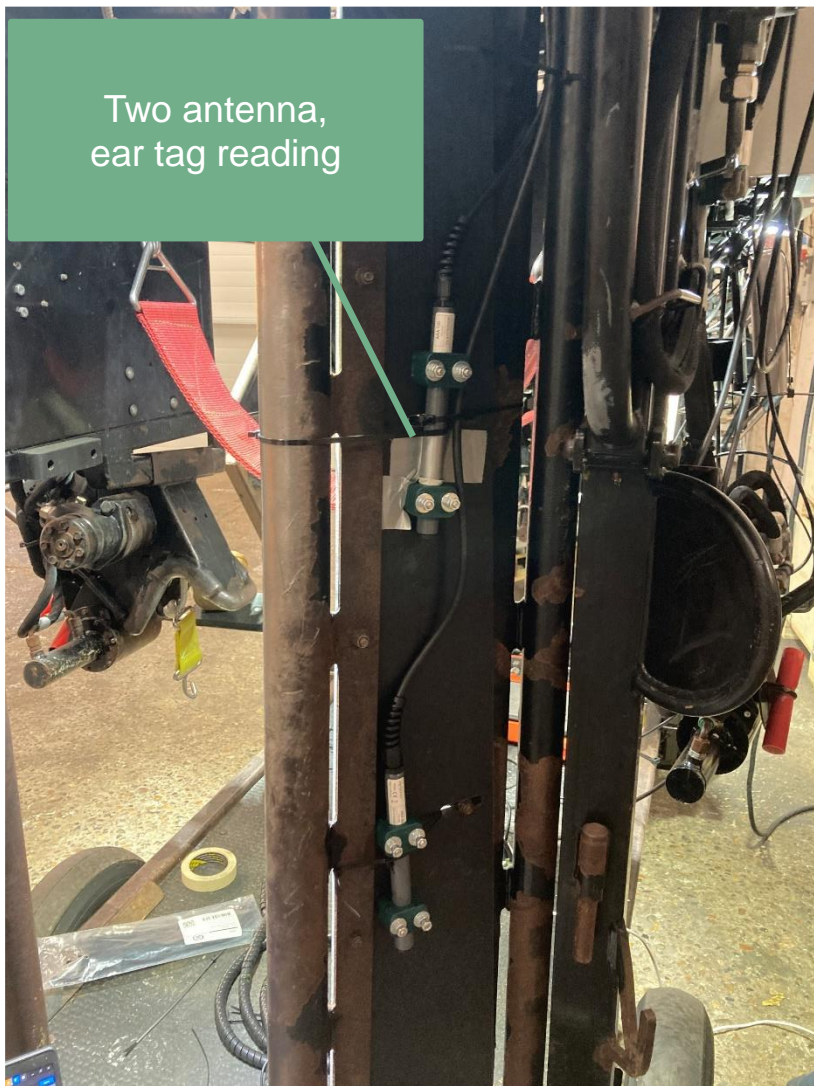
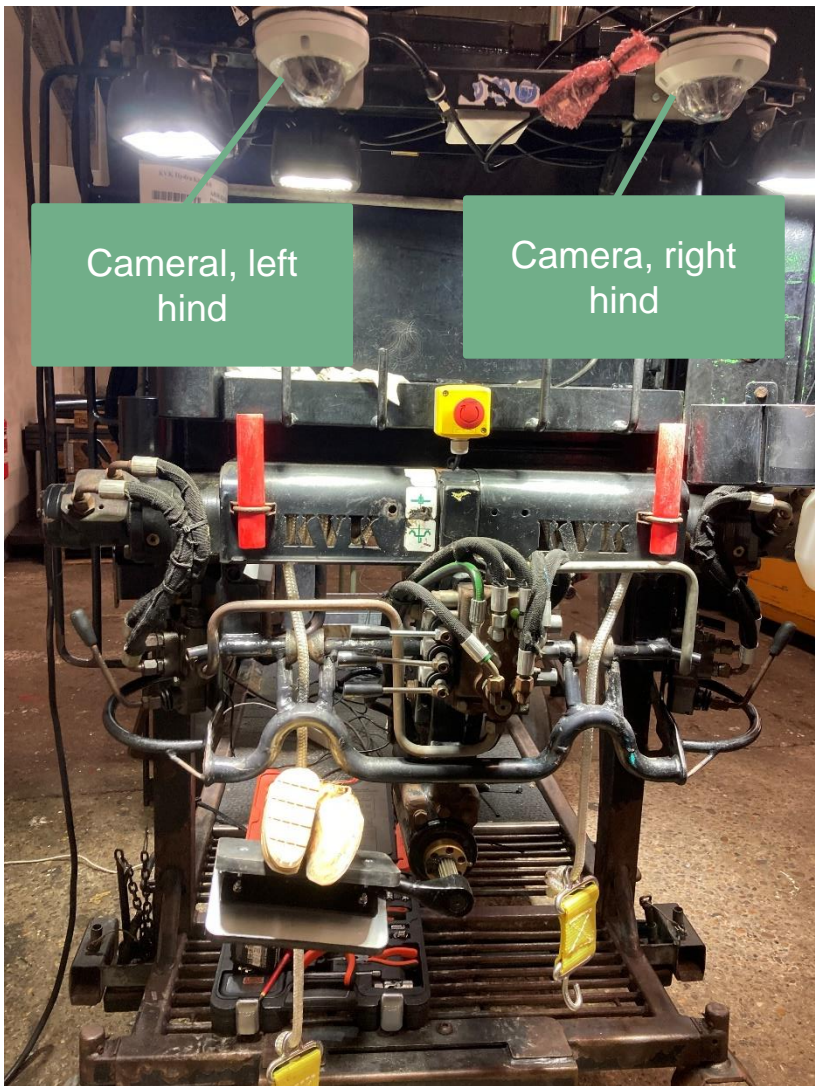
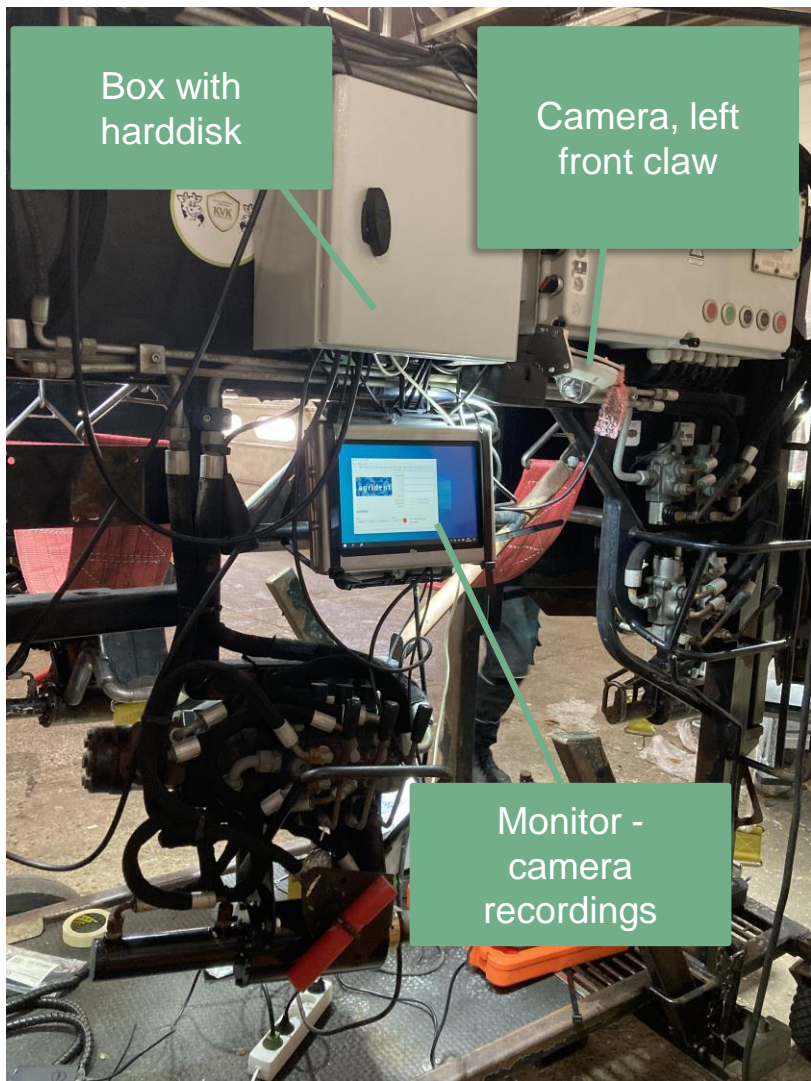


Using camera technology to record claw lesions

- Manual recordings. Time consuming and variation between claw trimmers
- Project: Using cameras and AI to automatical recordings:
 - Trimming
 - Lesions
 - Treatments – bandage/blocks
- Collaboration between
 - KVK
 - University of Copenhagen
 - SEGES Innovation

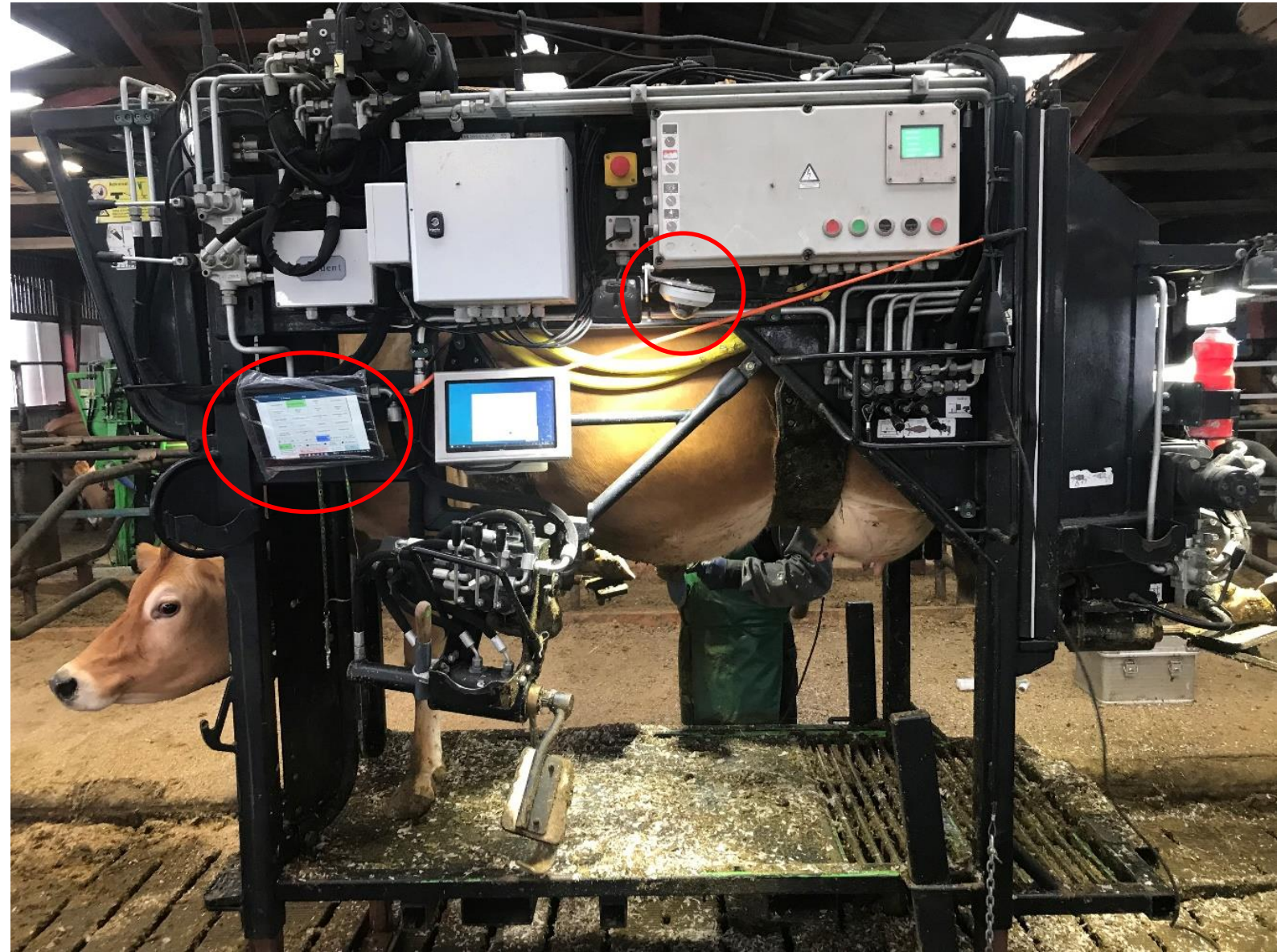
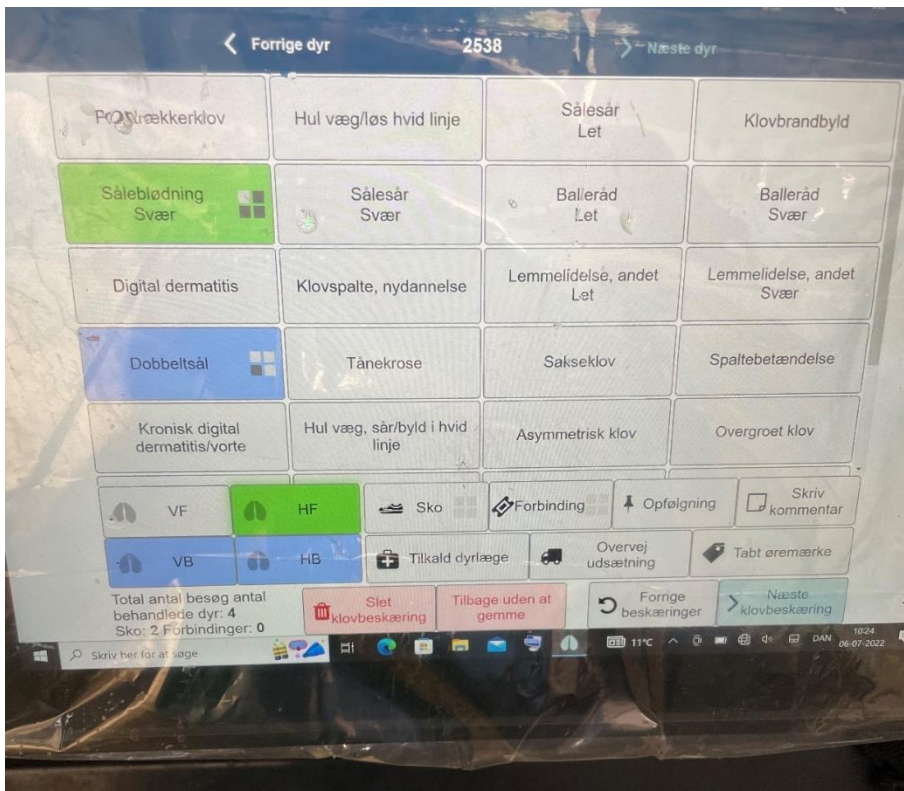


Mounted on four trimming chutes

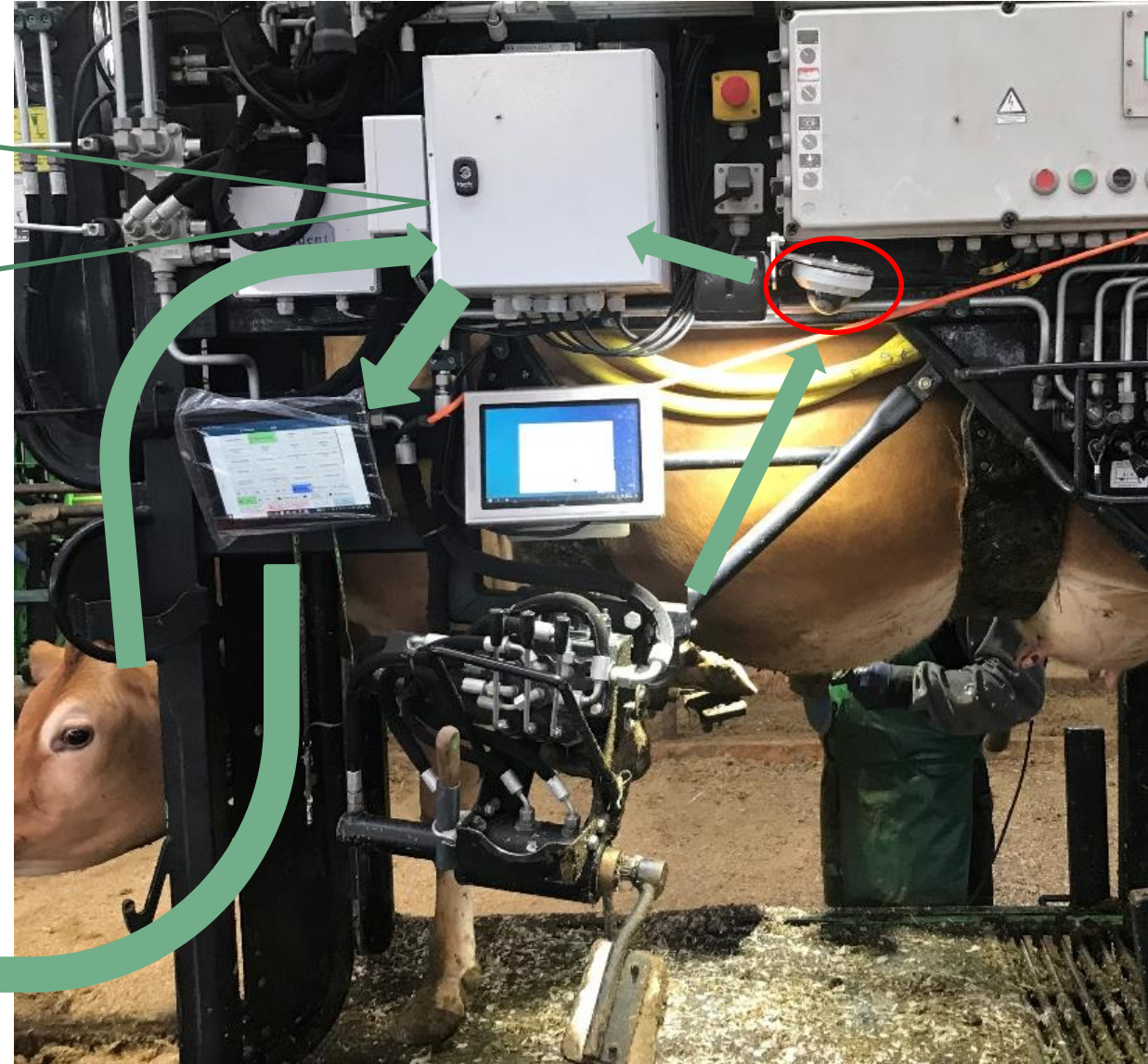
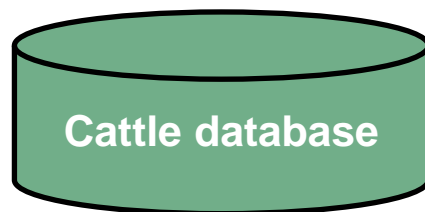
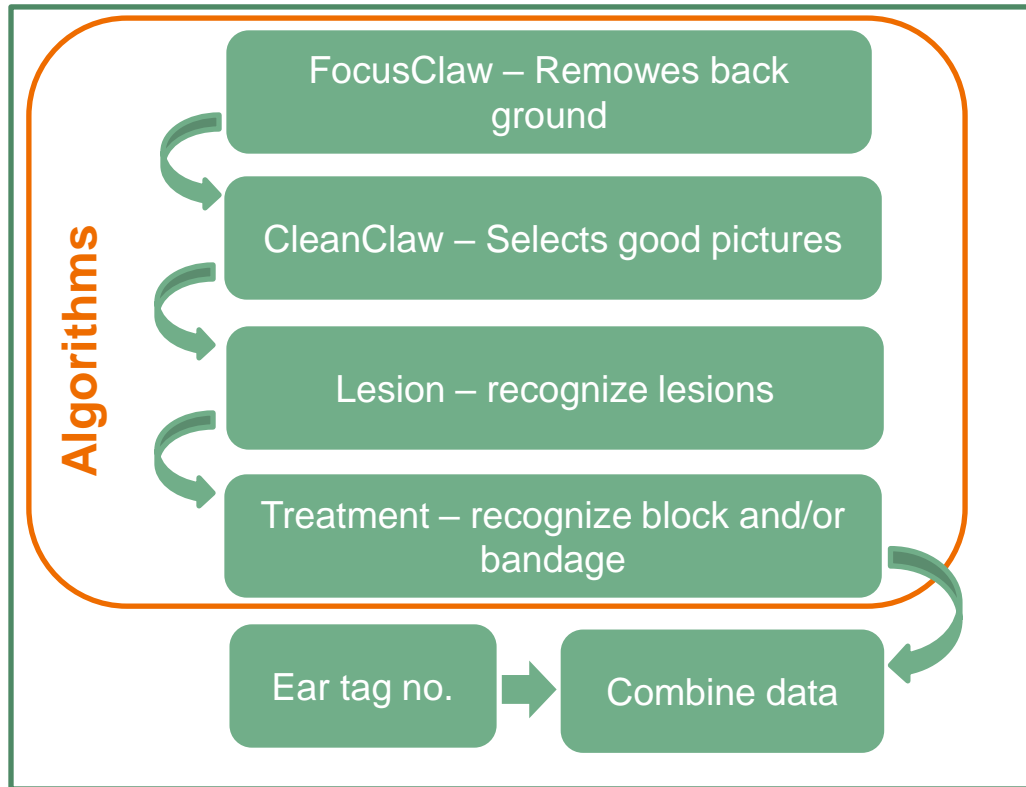


Better recordings using AI

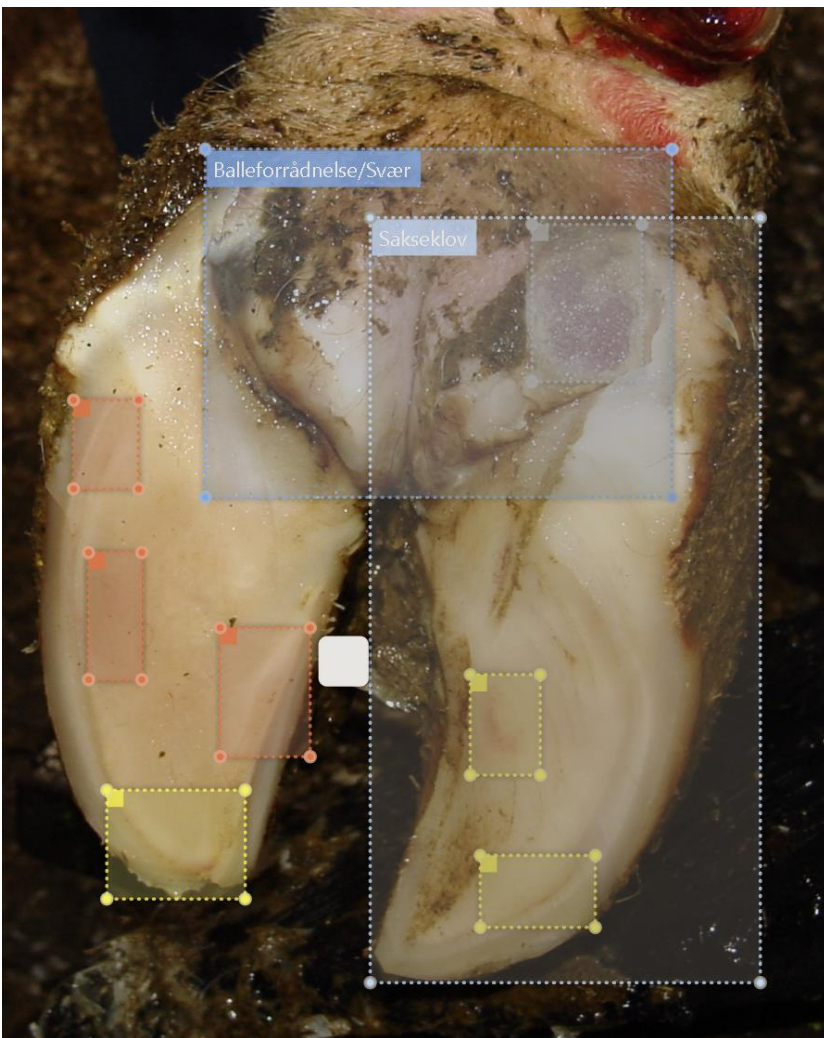
Output:
same data as today going into NCA



How it works



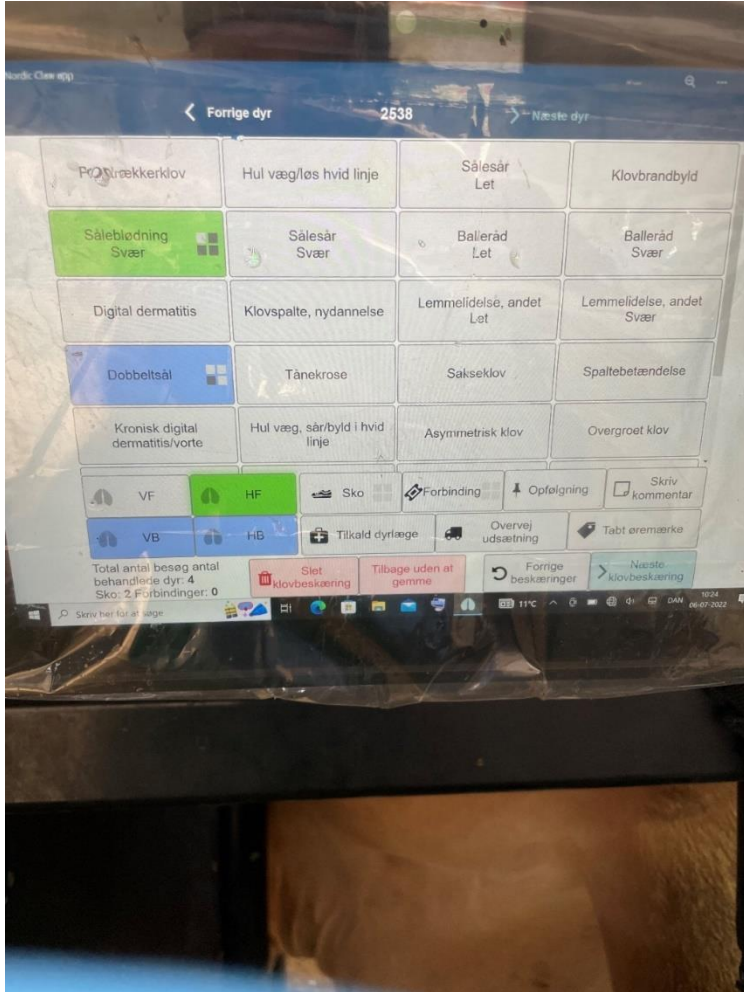
Annotations



AI at work, current results



Editing recordings

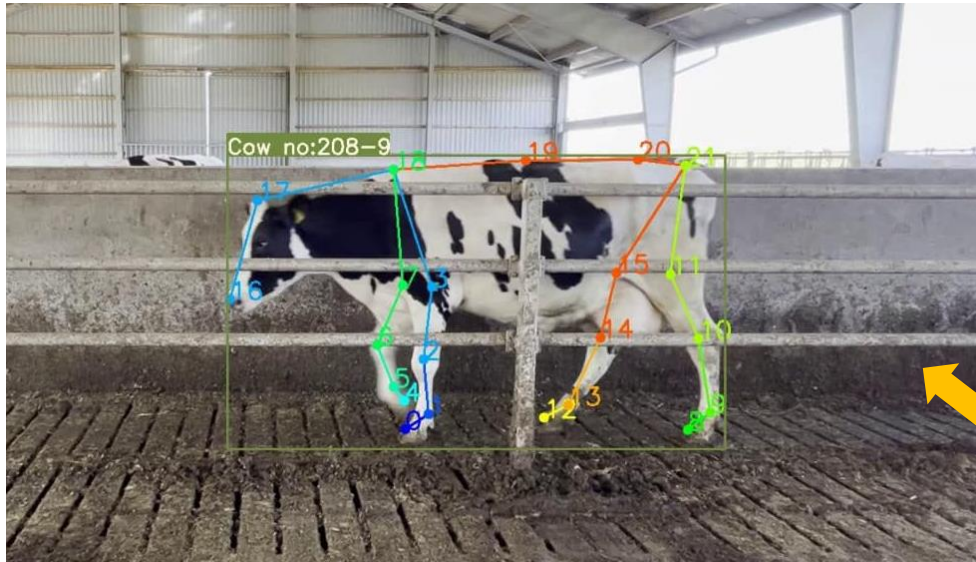


- Key board function: transfer data to NCA
- Show on NCA as if manually recorded
- Editing as to day
 - Remove
 - Change
 - Add
- Pres 'Next trimming' to save data
- Reports and upload as today

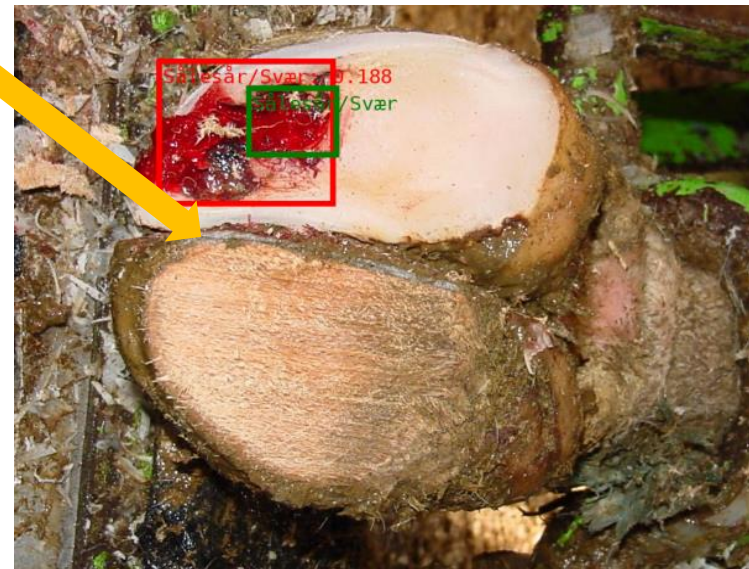
Problems

- Quality of pictures
 - Switched type of camera
 - Moist - fogged lens
 - High turn over in Data Science personel
-
- What does trimmers say:
 - Bit sceptical
 - Cameras are in the way
 - Voice respons

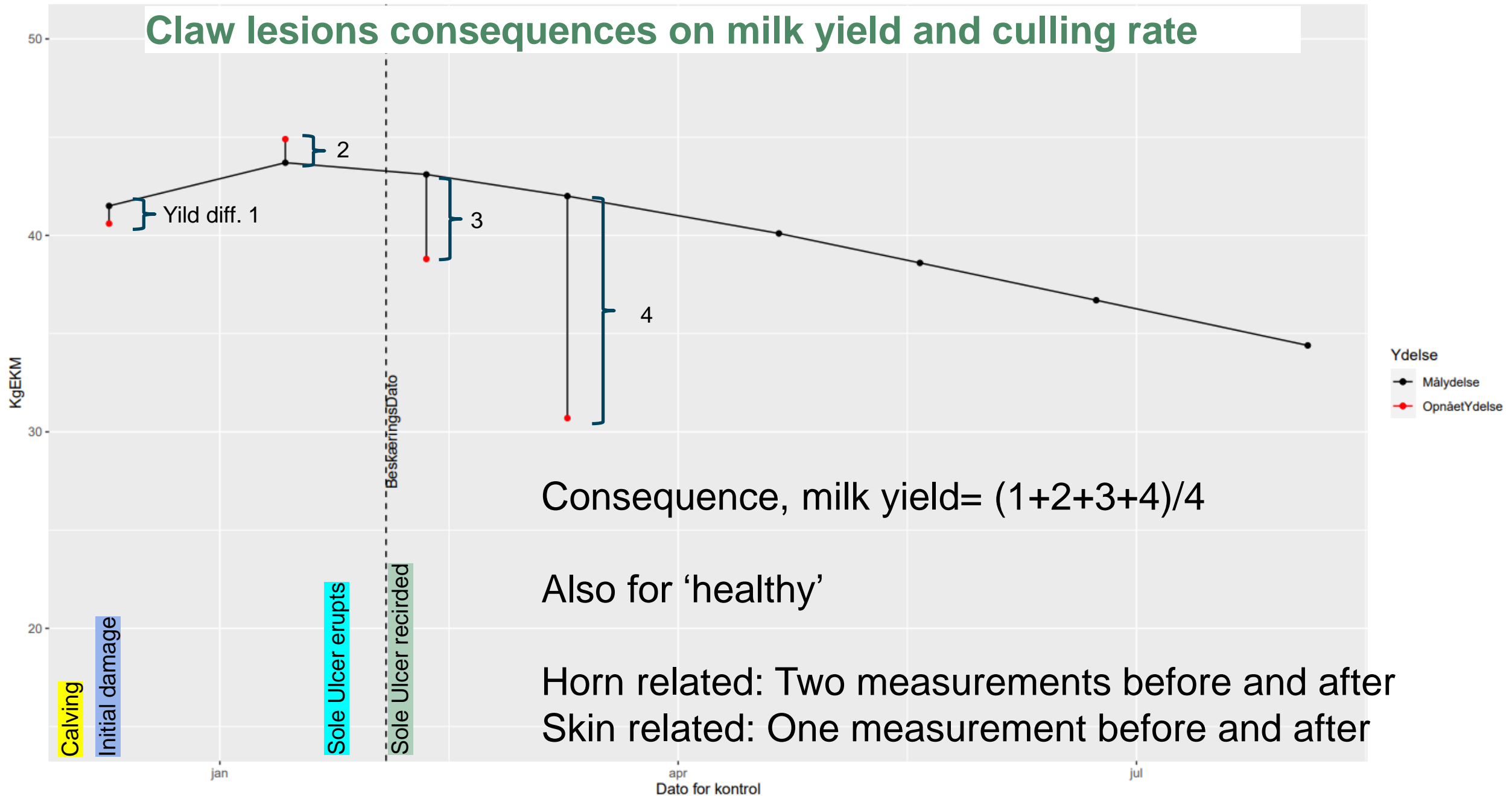
Future: Combining cows gait with claw lesions early stage



(BoviWalk)



Claw lesions consequences on milk yield and culling rate



Consequence on milk yield and risk of culling – compared to 'healthy' cows

Claw lesion	Kg. ECM/day (≥ 2. parity)	Risk of culling 60 days post lesion recording
Skin related (Ex phlegmone)	+ 0,1 til -0,8	1.0 til 1,2
Horn related (Ex sole hemorrhage)	- 0,7 til - 1,7	1,1 til 3,2

Development of categories for severeness of lesions					
Group	Category	Current name	New Category	Alternative 1	Alternative 2
Skin related	Disease	Phlegmone	Disease, severe		
	Disease	Heel Horn Erosion	Condition	HHE, mild = Condition	HHE, Severe = Disease, mild
	Disease	Mild dermatitis	Condition		
	Disease	Interdigital hyperplasia	Disease mild		
	Disease	Digital dermatitis	Disease mild		
	Disease	Chronic dermatitis	Disease mild		
Horn related	Disease	Sole Ulcer	Disease	SU, mild = Disease mild	SU, Severe = Disease Severe
	Disease	Sole Hemorrhage	Condition	SH, mild = Condition	SH, Severe = Disease mild
	Disease	Toe necrosis	Disease Severe		
	Disease	Axial fissure	Disease Severe		
	Disease	Vertical horn fissure	Disease Severe		
	Disease	Double Sole	Disease mild		
	Disease	White Line fissure	Disease mild		
	Disease	White line abcess/ulcer	Disease Severe		
	Disease	Chronic laminitis/	Disease Severe		
Abnormal claw	Disease	Asymmetric claws	Condition		
	Disease	Thin Sole	Condition		
	Disease	Corck Screw Claw	Condition		
	Disease	Overgrown claw	Condition		
	Disease	Scissor claw	Condition		
Trauma	Disease	Trauma	Disease		
Trimming		Claw trimming			
Symptoms		Lameness			

Definition of categories - suggestion

Category	Affects the cow..	Treatment	Prognosis
Condition	indirectly by increasing the risk of other diseases		
Disease, mild	to a lesser extend	Often	Variates, good-reserved-poor
Disease, severe	moderate to severe	Always	Often poor

Development of categories for severeness of lesions

Group	Category	Current name	New Category	Alternative 1	Alternative 2
Skin related	Disease	Phlegmone	Disease, severe		
	Disease	Heel Horn Erosion	Condition	HHE, mild = Condition	HHE, Severe = Disease, mild
	Disease	Mild dermatitis	Condition		
	Disease	Interdigital hyperplasia	Disease mild		
	Disease	Digital dermatitis	Disease mild		
	Disease	Chronic dermatitis	Disease mild		

Development of categories for severeness of lesions

Group	Category	Current name	New Category	Alternative 1	Alternative 2
Horn related	Disease	Sole Ulcer	Disease	SU, mild = Disease mild	SU, Severe = Disease Severe
	Disease	Sole Hemorrhage	Condition	SH, mild = Condition	SH, Severe = Disease mild
	Disease	Toe necrosis	Disease Severe		
	Disease	Axial fissure	Disease Severe		
	Disease	Vertical horn fissure	Disease Severe		
	Disease	Double Sole	Disease mild		
	Disease	White Line fissure	Disease mild		
	Disease	White line abcess/ulcer	Disease Severe		
	Disease	Chronic laminitis/	Disease Severe		

Development of categories for severeness of lesions

Group	Category	Current name	New Category	Alternative 1	Alternative 2
Abnormal claw	Disease	Asymmetric claws	Condition		
	Disease	Thin Sole	Condition		
	Disease	Corck Screw Claw	Condition		
	Disease	Overgrown claw	Condition		
	Disease	Scissor claw	Condition		
Trauma	Disease	Trauma	Disease		
Trimming		Claw trimming			
Symptoms		Lameness			

Thanks