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TechCare: Exploring the use of Precision Livestock Farming for small ruminant welfare management

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Outline

1. TechCare & ClearFarm
2. TechCare approach
3. What’s next?

TechCare & ClearFarm

SFS-08-2018-2019 Improving animal welfare
Scope B Precision Livestock Farming

Integrating innovative TECHnologies along the value Chain to improve small ruminant welfARE management

The TechCare project

5 key steps

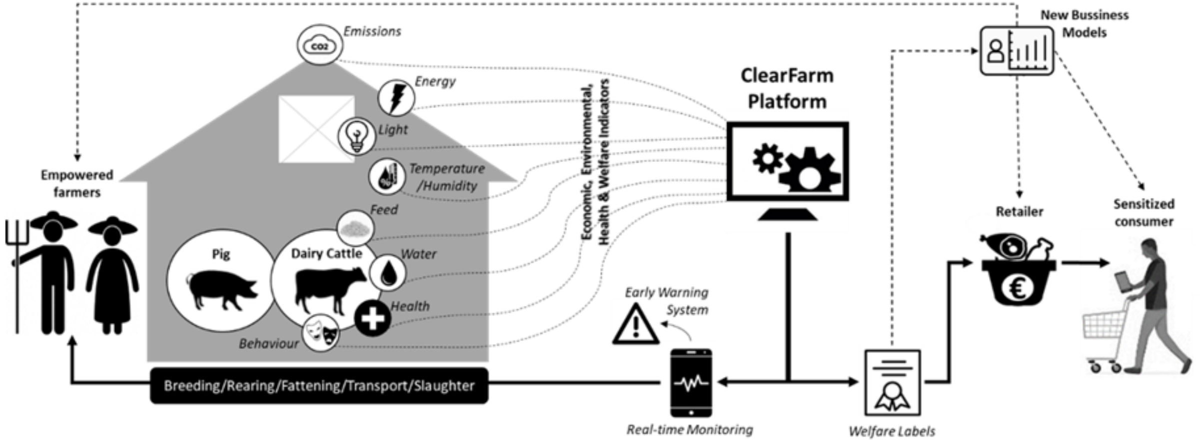
1. Prioritise welfare challenges and issues
2. Identify potential innovative technologies solutions
3. Validate the solutions in different and real conditions (pilots and commercial farms)
4. Define appropriate business models
5. Communicate widely the results to the small ruminant sectors and beyond

2 main outputs

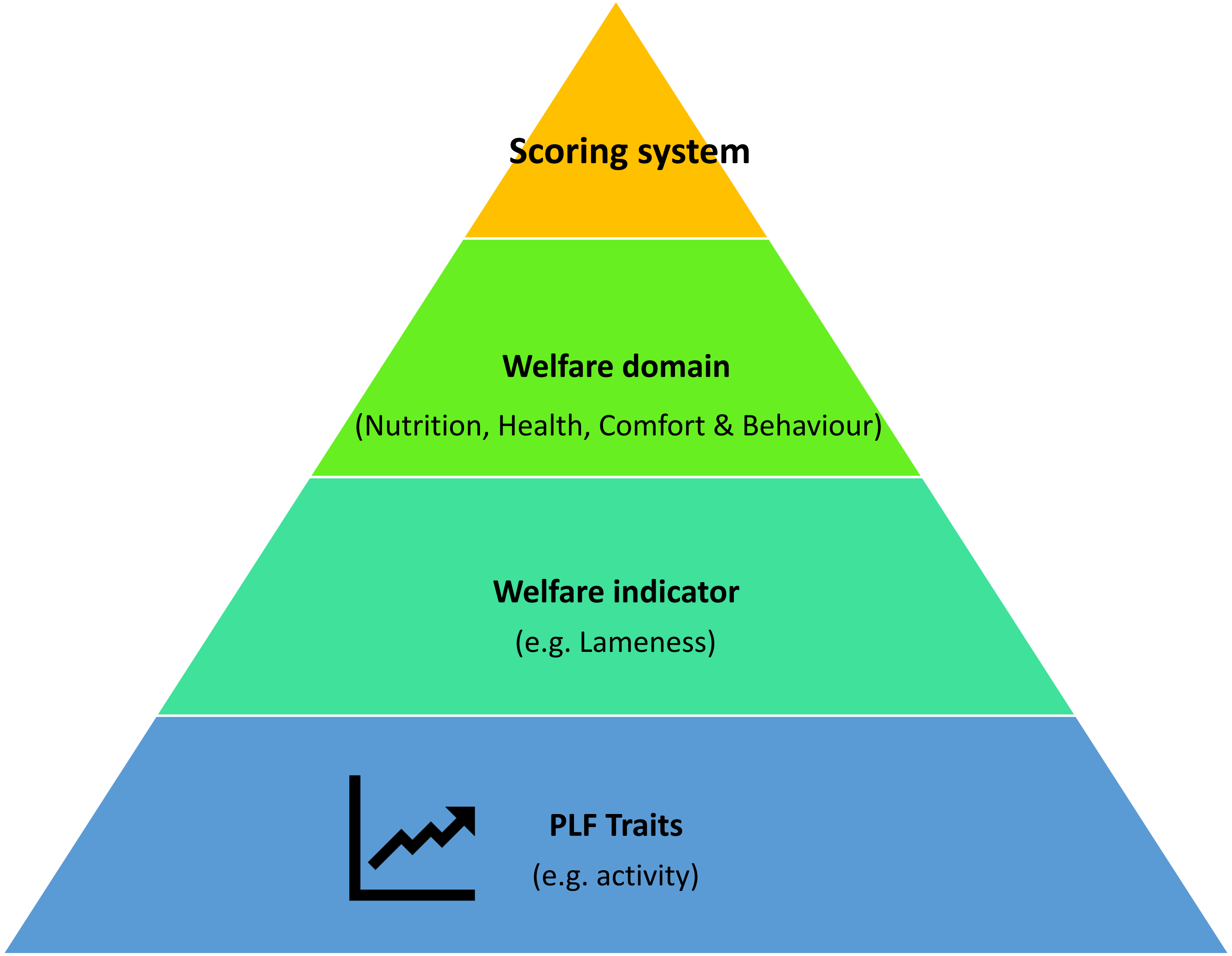
1. Ready to use PLF solutions for small ruminant welfare management across Europe (tested and validated)
2. Guidelines/blueprints for adapted solutions that are not ready yet to be widely adopted or deployed at larger scale

The ClearFarm project

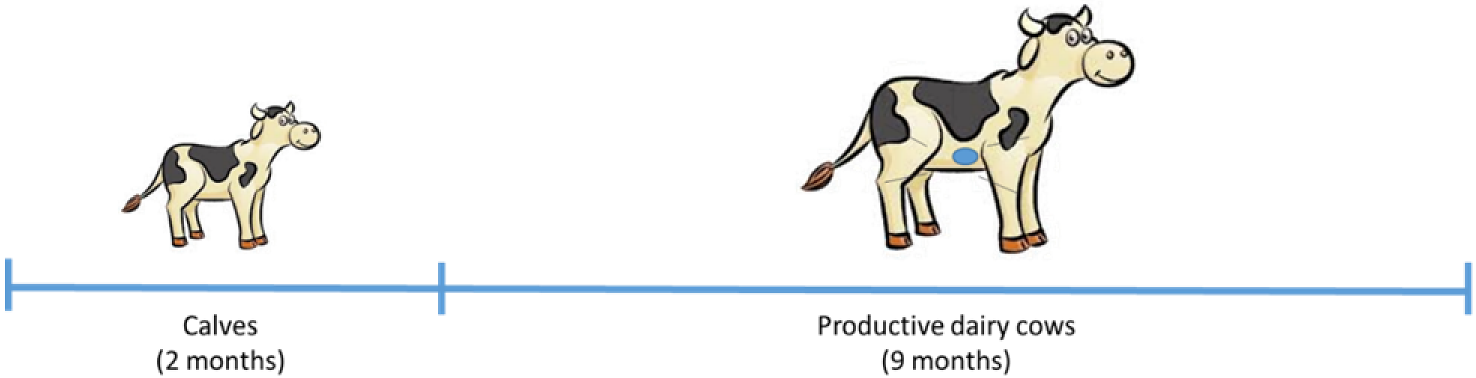
UAB Universitat Autònoma de Barcelona

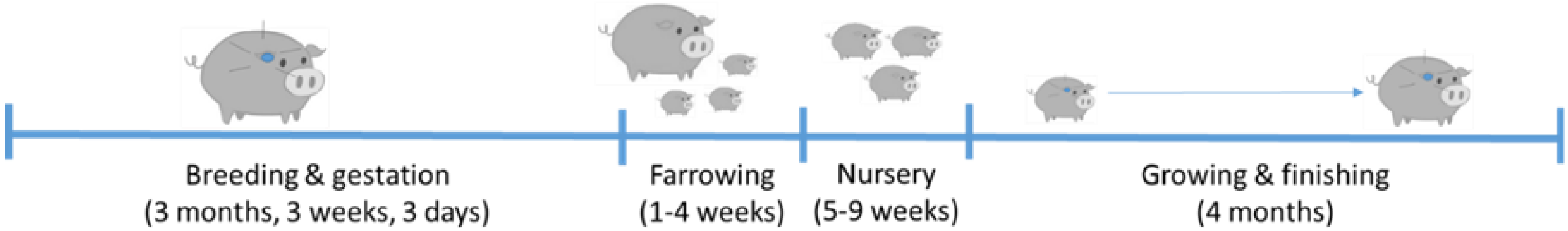


Welfare assessment by domains



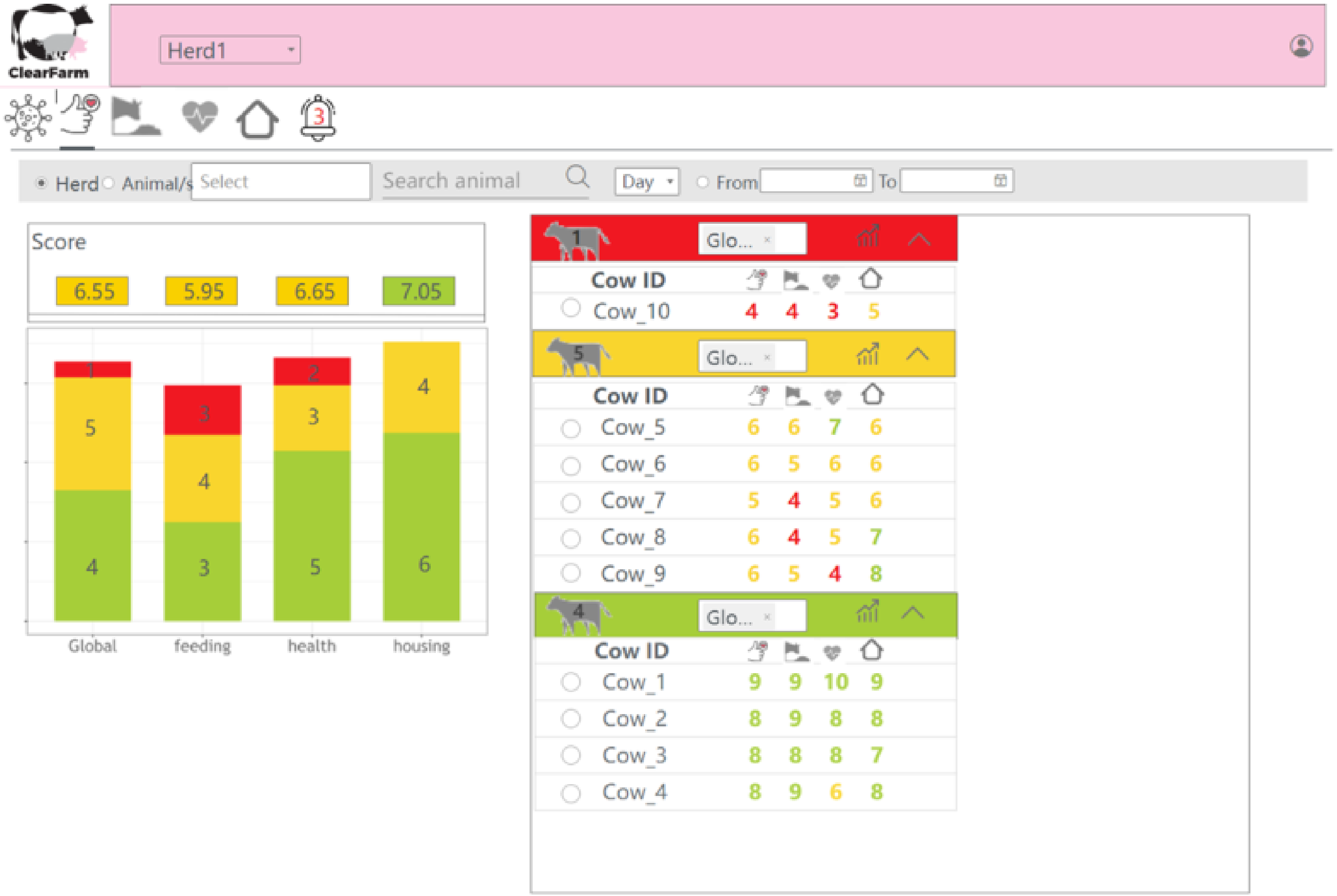
The ClearFarm project





The ClearFarm platform

ClearFarm



www.clearfarm.eu

@ClearFarmEU

ClearFarm

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1. Prioritisation of welfare issues for sheep & goats

Overall welfare priorities (all sheep)	
1	Nutritional issues
2	Mastitis
3	Gastrointestinal parasites
3	Lameness
5	Ectoparasites
6	Inadequate water supply
6	Reproductive disorders

Overall welfare priorities (all goats)	
1	Mastitis
2	Insufficient food & water
3	Agonistic behaviour/feed competition
4	Poor environmental management
5	Gastrointestinal parasites
5	Ectoparasites
7	Lameness/claw health



2. What welfare indicators could be used?

Overall welfare priorities (all sheep)	
1	Nutritional issues
2	Mastitis
3	Gastrointestinal parasites
3	Lameness
5	Ectoparasites
6	Inadequate water supply
6	Reproductive disorders

Weight loss or change in body state (animal based)

Behavioural change (animal based)

Milk yield and quality (animal based)

Environmental indicators (resource based)

Overall welfare priorities (all goats)	
1	Mastitis
	…ficient food & water
	…istic behaviour/feed competition
	…environmental management
	…ointestinal parasites
	…arasites
	…ness/claw health

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3. What PLF tools could be used to assess welfare?

- Available either commercially or within the research teams
- Potential to measure one of the four types of broad welfare indicators
- Meet at least some of the criteria identified within stakeholder workshops for likely uptake by farmers (e.g., cost, robustness, ease of use etc.).

➢ Up to 13 different PLF tools identified

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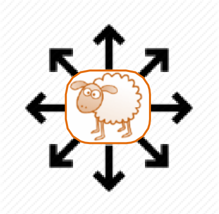
TECH CARE
Integrating innovative TECHnologies along the value Chain to improve small ruminant welfARE management

Example of meat sheep

Tools	Welfare indicators	Welfare priorities
EID reader (UHF) – RFID	Behaviour	Nutritional issues Parasitism, Lameness
Accelerometer + geolocalisation	Behaviour	Nutritional issues Parasitism, Lameness
GPS + proximity sensor	Behaviour Use of resources	Nutritional issues Parasitism, Lameness Maternal relationship Lamb mortality
EID reader (low frequency) – RFID	Behaviour	Nutritional issues Parasitism
Weigh crate	Body state/weight Mastitis	Nutritional issues Parasitism, Mastitis
Environmental sensors	Environmental/Shed environment indicators	Nutritional issues Parasitism Mortality/morbidity



Next?

- Testing of tools in pilot sites across Europe
- Welfare issues studied

Welfare Issues

Under nutrition; Malnutrition
Italy, UK, Israel

Mastitis
Italy, UK, Norway, France

Ectoparasites
UK

Water availability and quality
France, Israel, UK

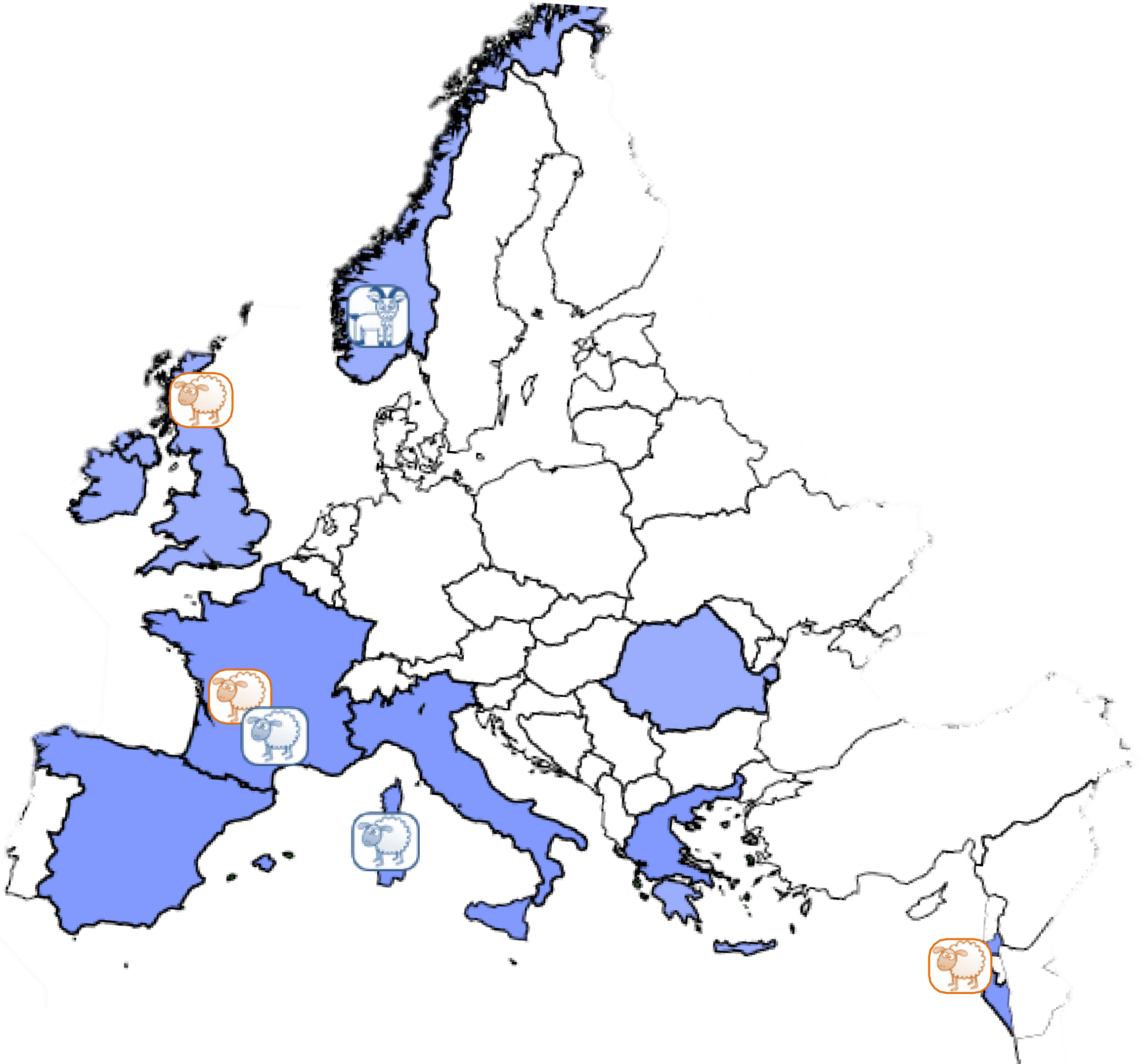
Inappropriate housing/climate stress
France, Norway

Maternal relationship and lamb mortality
UK

Food competition; Agonistic behaviour
Norway, Israel

Gastrointestinal parasites
UK, France, Italy

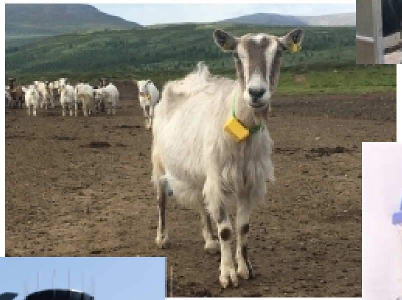
Lameness; Claw health
UK, France, Italy, Israel, Norway



Conclusions

Integrating innovative TECHnologies along the value Chain
to improve small ruminant welfARE management

- Welfare prioritisation allowed to focus on farmers’ priorities
- Using PLF tools potentially acceptable to them
- Next?
  - Testing in pilots
  - Deploy on commercial farms
  - Look at transport



Acknowledgments

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