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Sm@RT: Identifying sheep and goats farmers' technological needs and potential solutions

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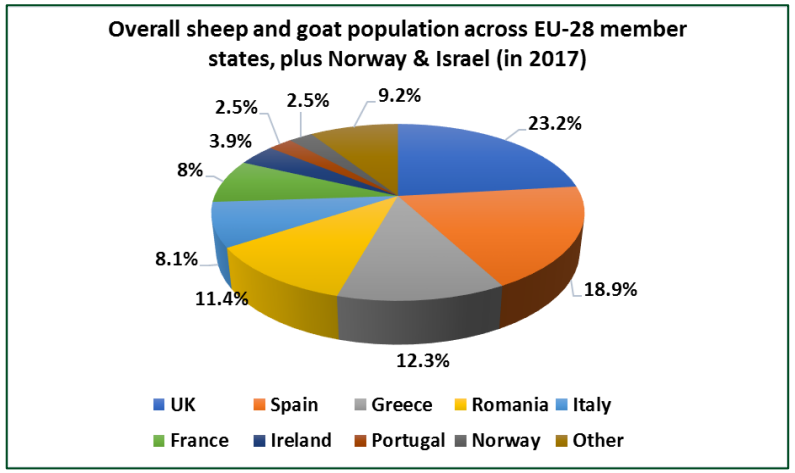
Leading the way in Agriculture and Rural Research, Education and Consulting

Outline

1. Context
2. Project
3. Identifying needs
4. Proposing solutions
5. Conclusions

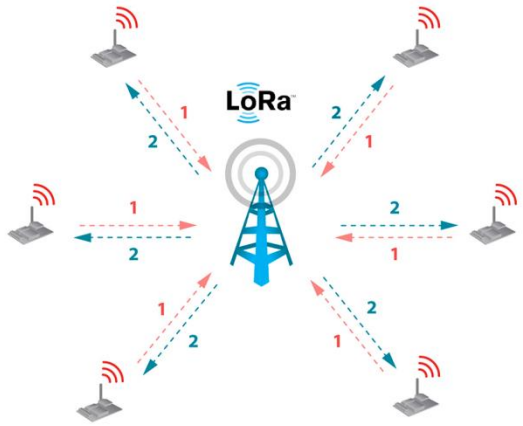
1. Context

- Sheep & Goats in Europe
- Challenging environment
- Varied production systems
- Important societal, environmental and cultural roles
- Labour issues
- Technology & innovation uptake is slow
- PLF & DT can provide production efficiency



PLF & DT

- Application in Sheep & Goats?
- Advantages/Opportunities?
  - ➢ Generalisation of EID
  - ➢ 64% of farmers see as opportunity
  - ➢ Development of IoT
- Misconception around the technology



2. Sm@RT – The project

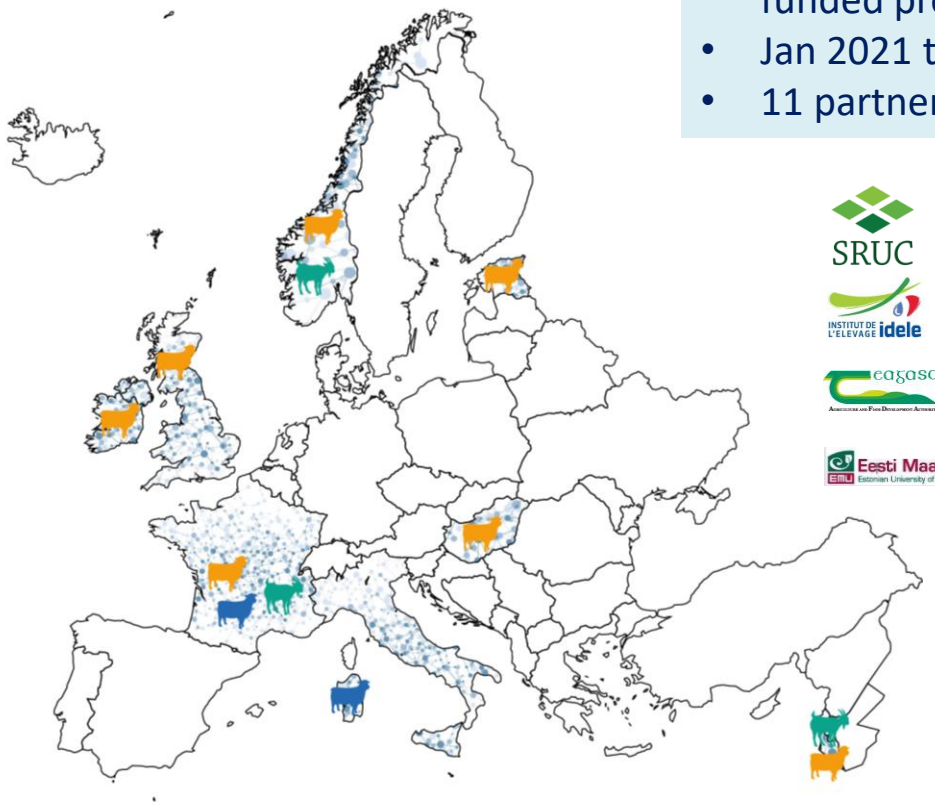
Small Ruminant Technology – PLF and Digital technologies for small ruminants

- EU Thematic Network funded project
- Jan 2021 to Sept 2024
- 11 partners, 8 countries

Objectives :

- To create a European **network** around the **use of PLF and digital technologies** in small ruminants

- To encourage **knowledge exchange**, new technologies **adoption** and **communication** between farmers and stakeholders of the small ruminant sectors



Carte réalisée avec Cartes & Données - © Articque

Work thematic

PLF innovations and uses
(farmers' needs)

Knowledge on technology use and data management

Multi-actor approach

3 levels of networking

Digifarm
1 per country & production

- Experimental or demonstration farm with PLF/DT
- Perfect place for exchange, demonstration and knowledge transfer.

Innovative farmers
3 per country and production type

- Commercial farms involved in the project, with some technologies, for peer-to-peer exchanges

Interested farmers

3. Identifying farmers' needs

- Series of workshops in 8 countries (Sept-Oct 2021)
- Common approach
- *What are your technological needs regarding:*
  1. Grazing/Feeding
  2. Health & welfare
  3. Reproduction
  4. Flock/herd management
  5. Fattening/Milking

3. Identifying farmers' needs

Topics			
Feeding/Grazing	*Forage quality*	*Fencing*	*Pasture monitoring*
Health/Welfare	*Early detection of health issues*	*Early detection of diseases*	*Early diagnosis of mastitis*
Reproduction	*Optimisation of AI*	*Animal selection*	*Early pregnancy diagnosis*
Flock/Herd management	*Batch management*	*Lack of support for using the tools*	*Group/batch formation*
Fattening/Milking	*Lack of references on milking tools*	*Lamb weighing*	*Milking machine maintenance*

4. Proposing solutions

- All needs were collated from the 8 countries, by production type
- Needs were ranked by order of importance by farmers, for each of the 5 main themes
    - *Grazing/feeding*
    - *Health & Welfare*
    - *Reproduction*
    - *Flock management*
    - *Fattening/Milking*

Proposed by all

> 50 solutions

Presented to stakeholders
Voted on most relevant/favourite ones

Feeding/Grazing

SmartFence/Virtual fence

EID weighcrate + autosorter

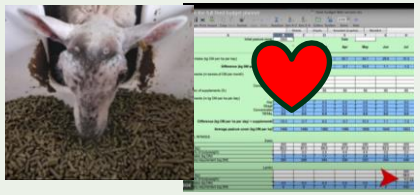
Grazing management app

PastureBase IRELAND

Automated grass measurement

Pregnancy scanning

Ration/Feeding Software



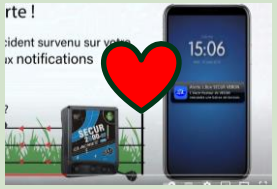
Drone

Portable NIR

Milkmeter

Automatic feeder

Connected Fence



GPS collars

Postdried hay technology

HappyGrass

Happy GRASS PRAIRIE

Drone with thermal camera

GPS collars with behaviour

Health/Welfare/Reproduction

EID hand-held wand/data loggers

Data recording system/ Flock recording app

EID weigh crate and autosorter

FEC software (FecPak G2)

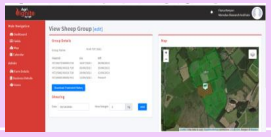
Pregnancy scanning

Parentage test

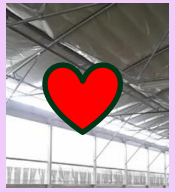
Worming /vaccinating gun

Sheep coneyor

Happy Factor algorithm



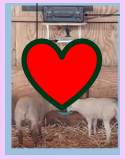
Camera



Somatic Cell counter

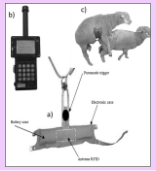
Weather/ environmental station

Water meter

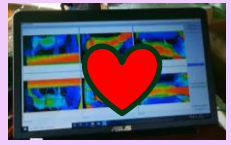


Automatic feeder

Alpha detector



3D imaging



Ultra High Frequency

Walk Over Weigh

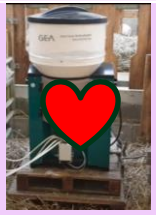
Environmental enrichment

EID-enabled water trough

GPS & proximity ear-tags

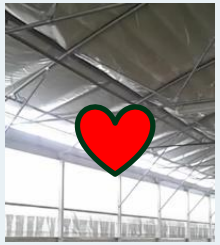
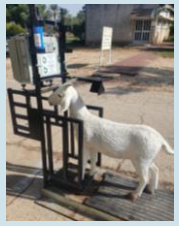
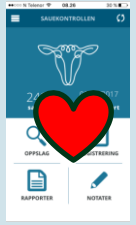
Guard dog & high tensile fence

Milk feeders for kids/lambs



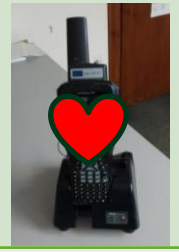
GPS collars & behaviour information

Flock/Herd monitoring

EID hand-held wand 	Worming/Vaccinating guns 	EID weigh crate and autosorter 	Milking parlour with EID 
Aptimiz 	Environmental station + cooler 	Automatic feeder 	Camera 
Milk meter 	EID-enabled water trough 	Data recording system 	

Fattening/Milking

EID hand-held wand/data loggers



Walk Over Weigh

EID weigh crate and autosorter

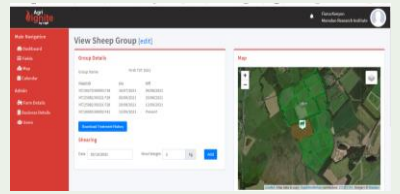
FEC software

EID tags

Electronic weather station

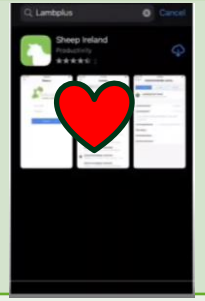
Automated grass measures

Happy Factor algorithm



EID-enabled weighing trough

Flock recording app (SheepIreland)



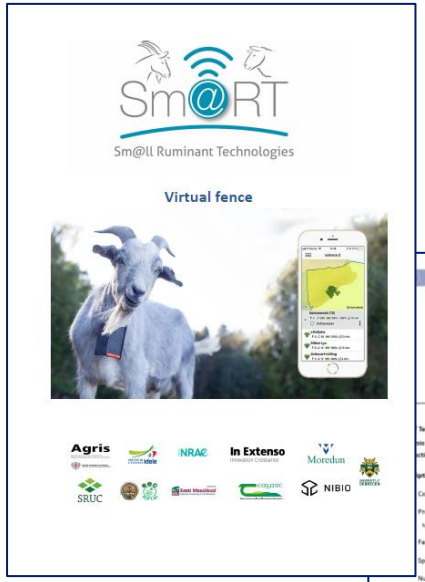
Milk tank weighing

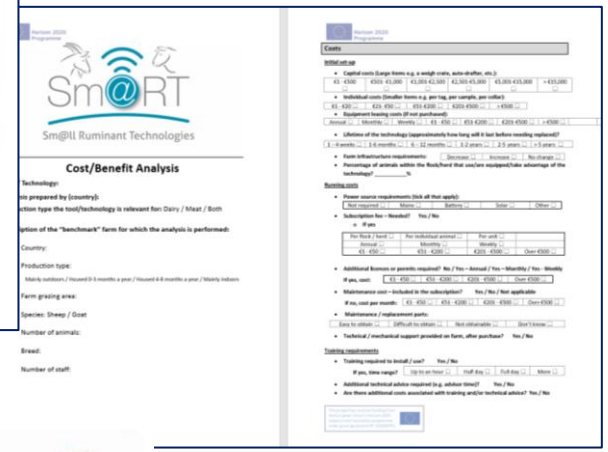
Milk meter & milking management software

Somatic cell counter

5. Conclusions

- Common needs between countries
- Many solutions already exist
- How to encourage farmers adopt the tools?
  - ➢ Series of guidelines on the preferred tools
  - ➢ Cost-benefits analysis on each tool
  - ➢ Videos/testimonies online
  - ➢ Training sessions & farm demo days





Sm@RT Digifarm testimony - UK - DNA tissue collection

Sm@rt Innovative farmer Tomas O'Toole (Ireland)

demystify the use of technologies

Acknowledgments

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