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SusSheP – how to increase sustainability and profitability of European Sheep Production?

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Sheep Production in Europe

European Sheep Production:

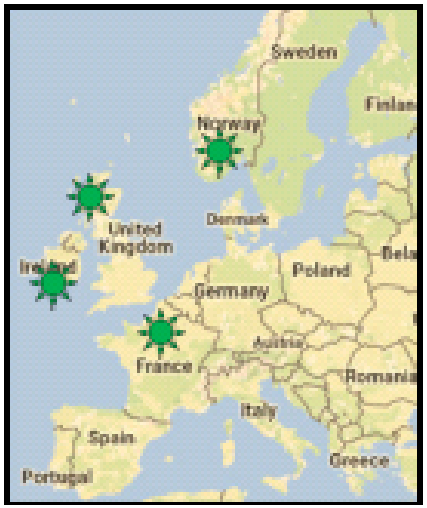
- 89 million sheep in Europe (EEA)
- Environmentally sustainable & welfare friendly practices
- Profitable & labour efficient

But….

- Unproductive until 1st lamb crop, only 4 crops of
- Varied
  - production
  - breeds
  - management systems

SusSheP
Sustainable Sheep Production

3 year ERA-NET European project (2017-2020), with 4 European countries: Norway, France, Ireland & UK.



Overall aim: to increase the sustainability and profitability of European Sheep Production by addressing key industry focused problems.

Key objectives :

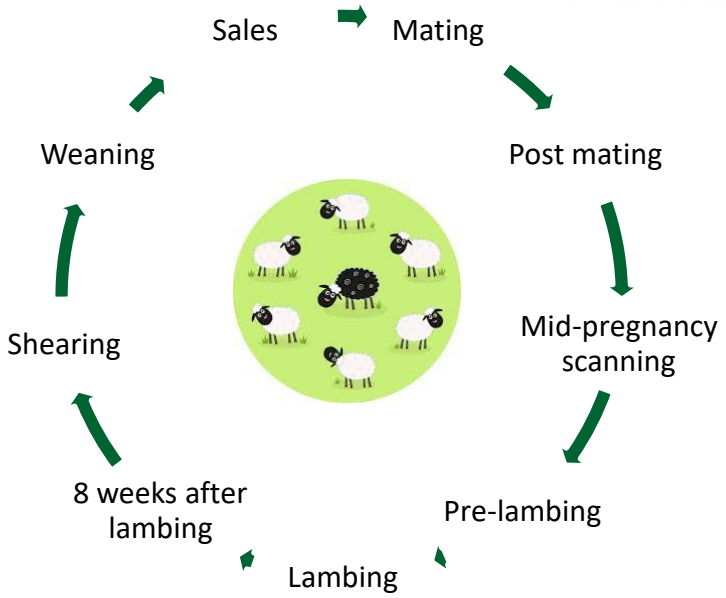
- Provide **new genetic tools** for farmers to increase **longevity** of ewes
- Quantify **labour input** and **carbon hoofprint** in contrasting sheep systems
- Develop more socially acceptable **methods of AI,** looking at ewe breed effects
- Assess farmers' **attitudes to change**

Labour - Purpose & Goals

- To characterise **labour input** and **carbon hoofprint** of different sheep production systems (SPSs)
  - 20 focus flocks:
    - With/without PLF:
      - 4 in the UK, 2 in Ireland
    - Prolific/non-prolific breed:
      - 4 in Ireland, 2 in Norway
    - With/without high genetic gain
      - Indexes (4 in the UK)
      - AI (4 in France)

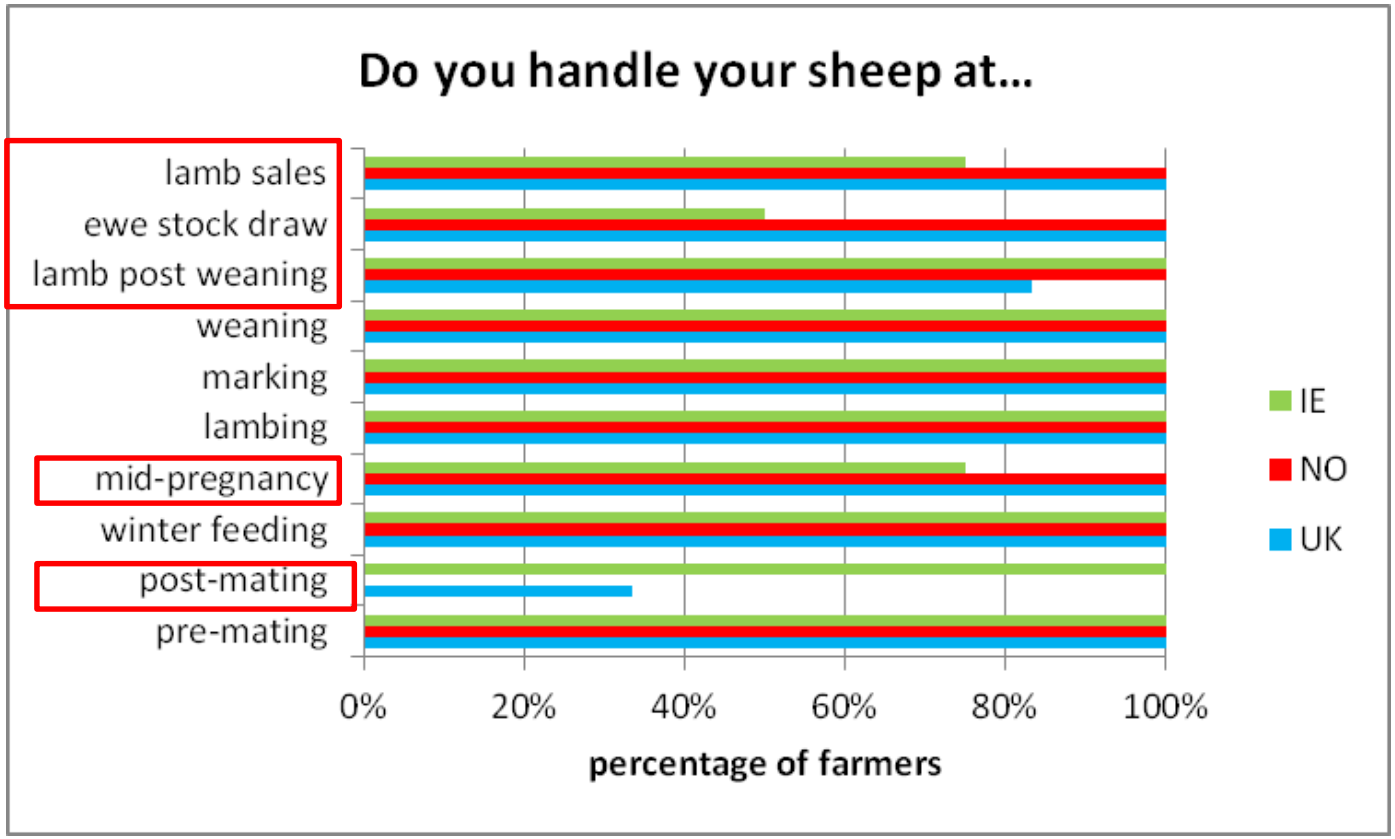
Labour - Methods

- Labour recording:
  - on sample days during the sheep year (~10-12 days) –
  - Common questionnaire on farm info and labour
  - Industry benchmark
- Classification:
  - 15 main tasks
  - Sub-tasks
- Carbon hoofprint:
  - Agricalc ©
  - kgCO2e/kg output
    - Whole farm
    - flock



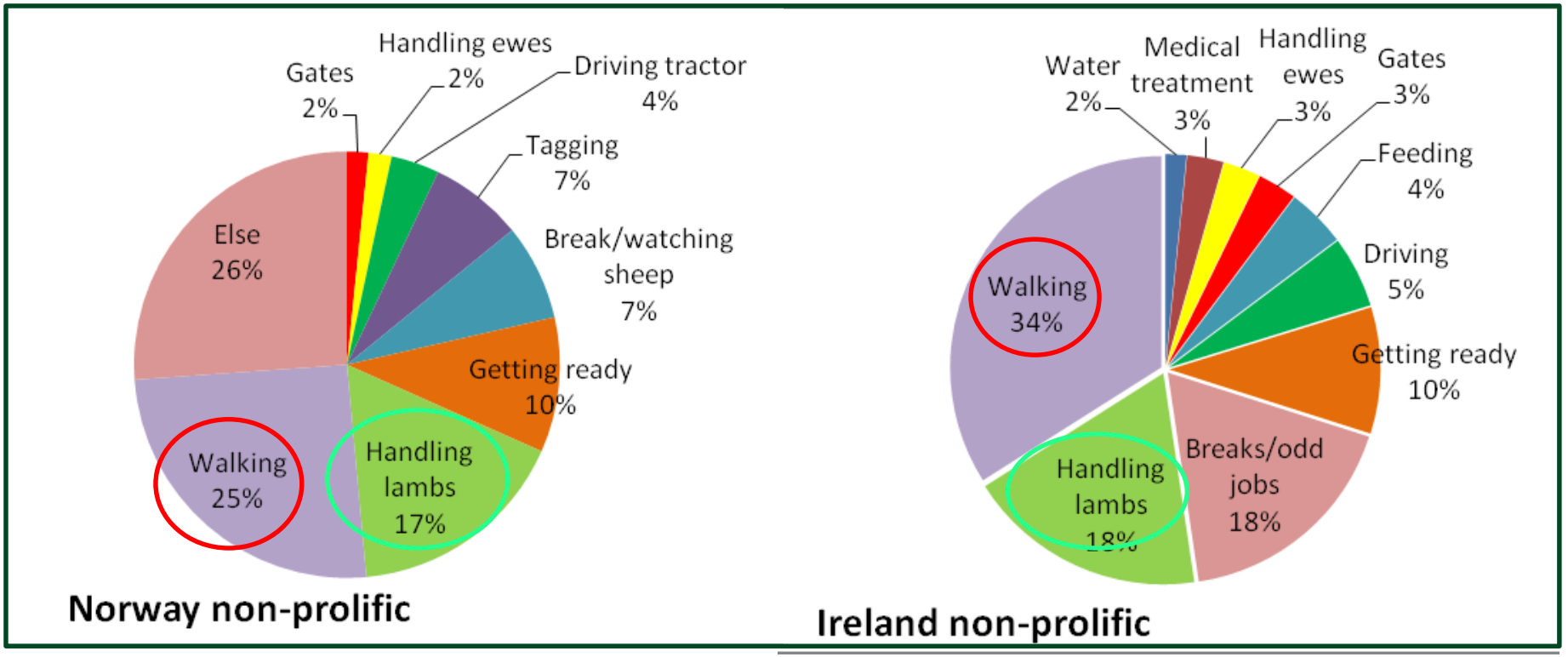
Labour - some initial results

- Labour profiles between countries *(only 12 flocks so far)*:



Labour - some initial results

- Tasks between systems: at lambing



- Similarities/differences between systems
- Quantify labour difference between systems
- Agricalc ©

SusSheP – Ewe Longevity

- Important trait economically
- Purpose of this work
  - Investigate genetic factors controlling longevity under different production systems.
  - Incorporate findings into future national breeding programmes
  - Breeding healthier, longer living ewes that can perform well in a range of diverse environments




SusSheP – Ewe Longevity

- Countries involved:
  - Ireland, Norway, UK
- Main definition of longevity being investigated across all countries
  - Age at last recorded lambing event
- Differences in the main reasons for culling between countries/systems also being investigated:
  - Mastitis = Ireland & Norway
  - Tooth Loss = UK

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Some information on the cervical AI – ewe breed effect?

	High Fertility	Low Fertility
Ireland	 Belclare	 Suffolk
Norway	 Norwegian White Sheep	 Norwegian Fur Sheep
France	 Romanov	 Ile de France

- Ireland/Norway/France
- n = 30 ewes per breed
- Induced and Natural Oestrus
- Follicular & Luteal phases
- X3 replicates

Cervical Mucus
- Weight, Viscosity and Colour
- Proteome/Glycome

Cervical Tissue and Anatomy

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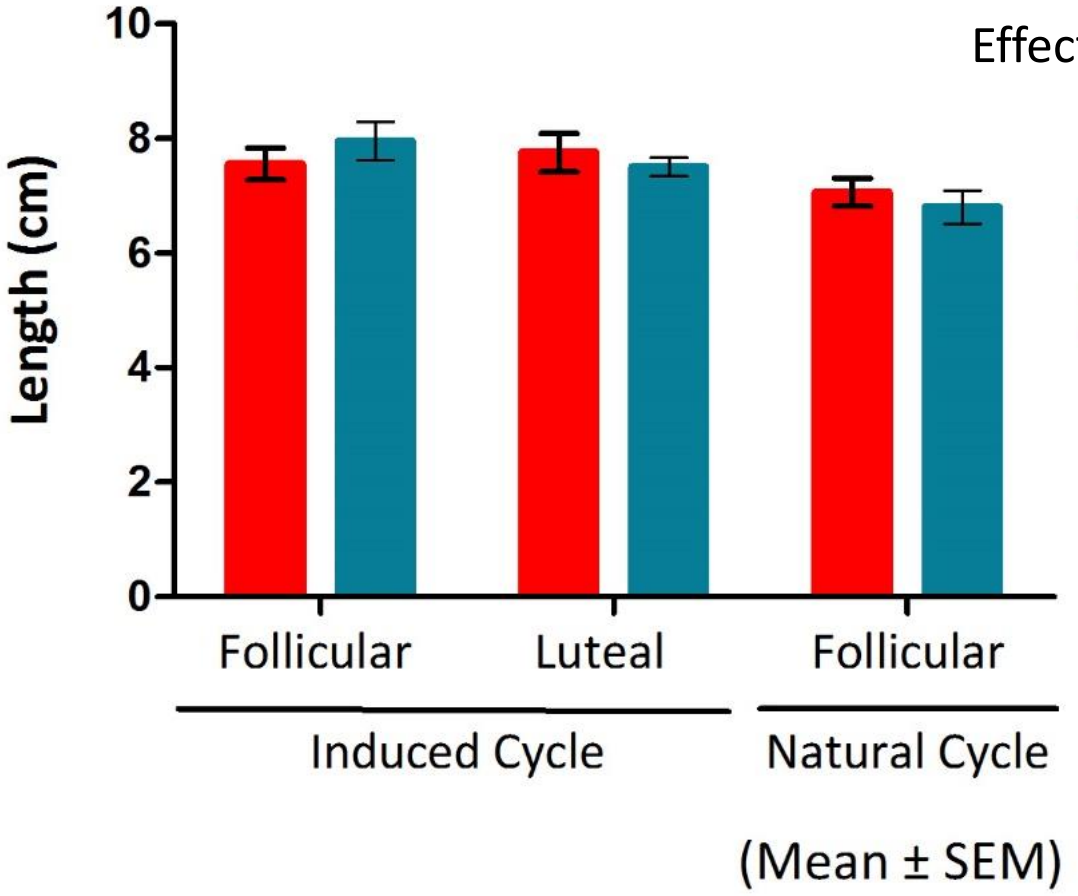
Length of the cervix



Effect of breed (P >0.05)

Effect of type cycle (P< 0.05)

n= 30 ewes/breed

(Mean ± SEM)

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Conclusions

- Still work in progress
- Preliminary results promising
  - Longevity in national maternal breeding indexes
  - Effects of changing management on labour
  - Identify most carbon efficient production systems
  - Alleviate societal concerns around AI
  - In partnership with farmers – surveys & workshops

Acknowledgments

- All my SusSheP colleagues & students

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….. and the Norwegian, British, French and Irish farmers for agreeing to be filmed!