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SusSheP – Sustainable Sheep Production in Europe

Morgan-Davies, C*., Kyle, J., Creighton, P., Boman, I.A., Lambe, N., McLaren, A., Wishart, H., Krogenaes, A., Wall, E., Pabiou, T., Diskin, M.G., Meade, K.G., McHugh, N., Parreno, L., Caldas-Silveira, E., Druart, X., Fair, S.

* claire.morgan-davies@sruc.ac.uk

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

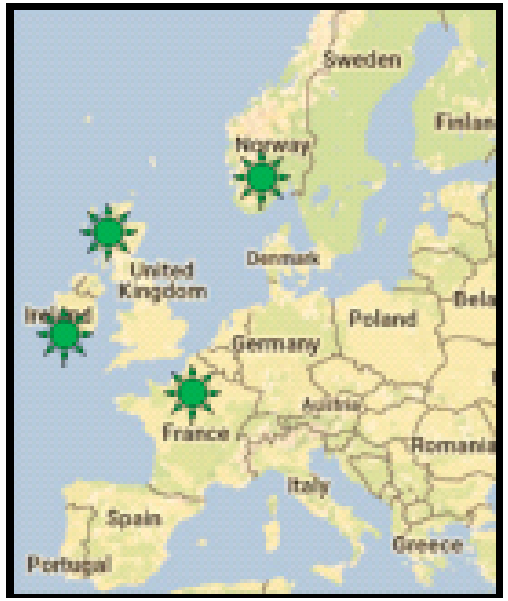
Sheep Production in Europe

European Sheep Production:

- 89 million sheep in Europe (EEA)
- Varied
  - production
  - breeds
  - reproduction systems
  - management systems
- Environmentally sustainable & w
- Profitable & labour efficient

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 & Carbon - Goals

- To characterise **labour input** and **carbon hoofprint** of different sheep production systems
  - 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)

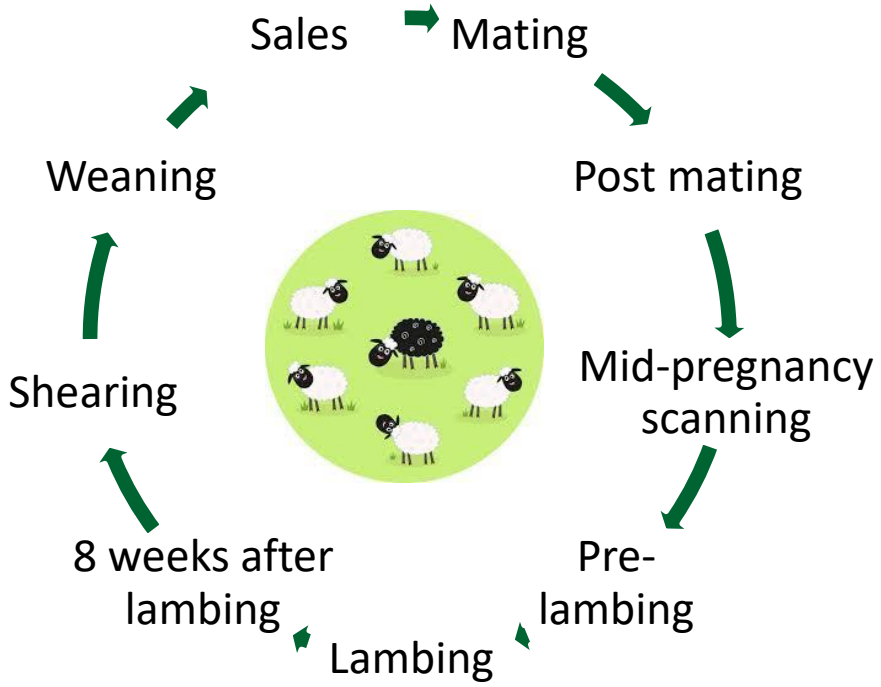
2 in the UK

2 in Ireland

2 in the UK

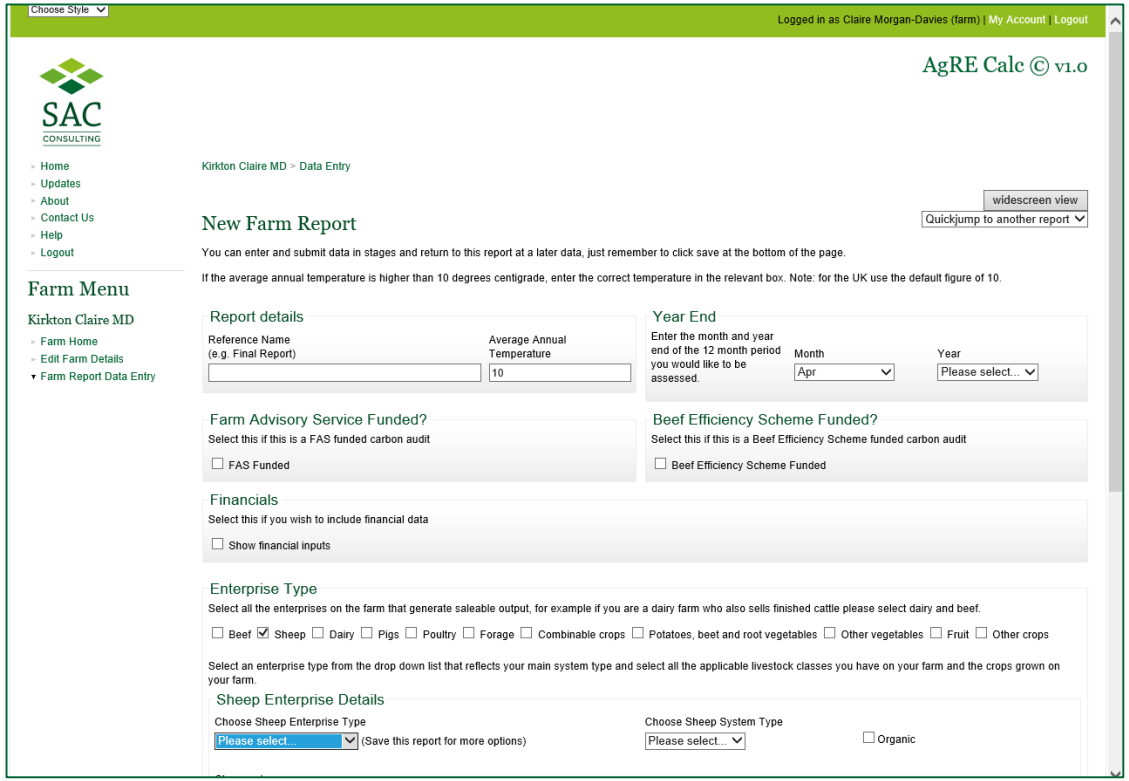
Labour & Carbon - Methods

- Labour recording:
  - on sample days during the sheep year (~10-12 days) – Go Pros
  - Common questionnaire on farm info and labour
- Classification:
  - 13 main tasks
  - Sub-tasks

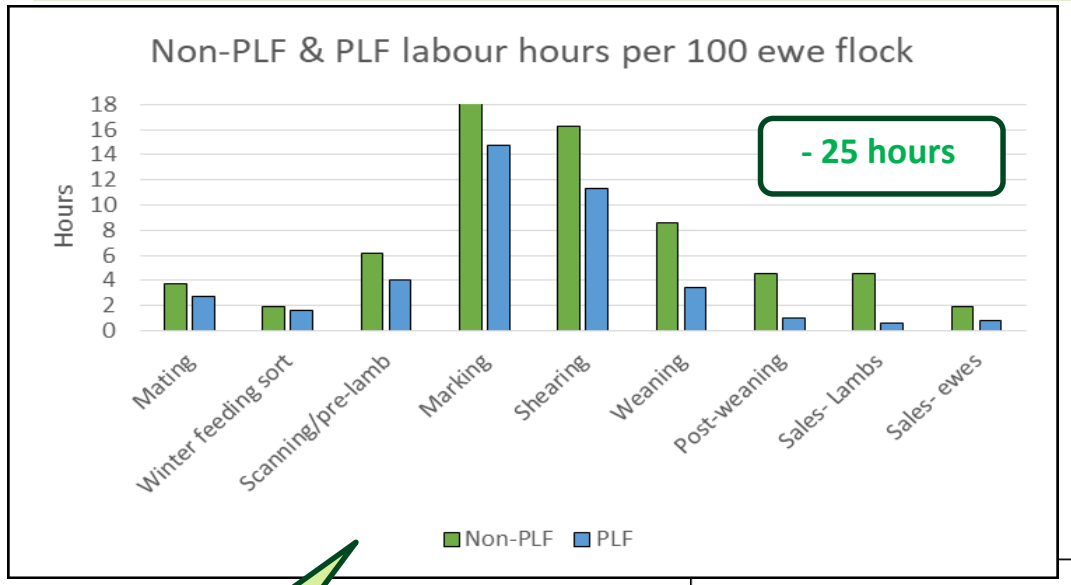


Labour & Carbon - Methods

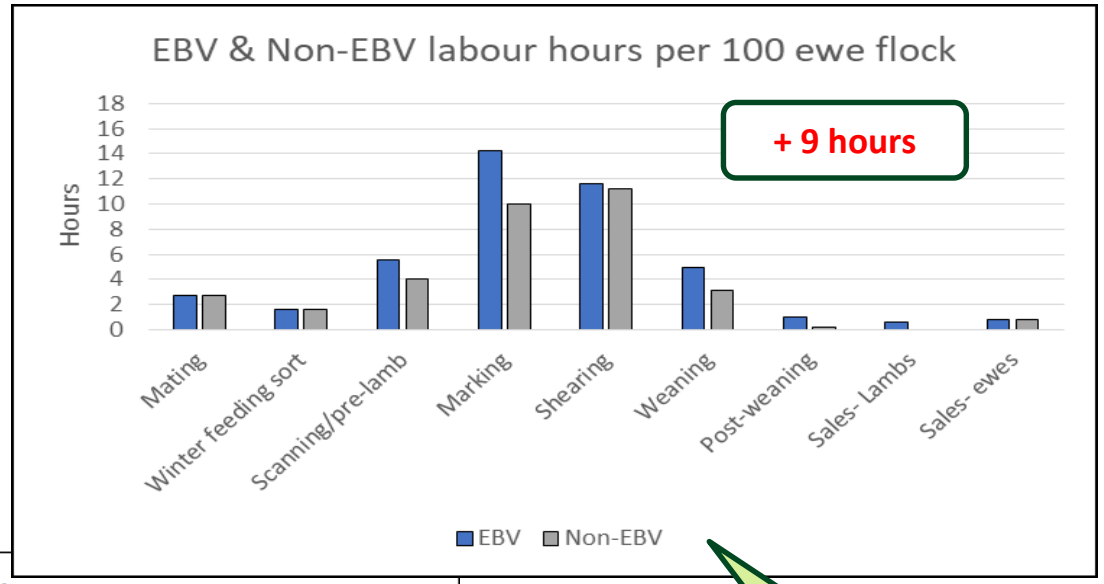
- Carbon hoofprint: Agricalc ©
  - Inputs:
    - land and crops (area, fertiliser, yield, etc. includes grass, forage, woodlands)
    - Livestock (lwt, no. bought, sold, etc.)
    - Livestock numbers
    - Energy and waste
  - kgCO2e/kg output
    - Whole farm
    - Flock – per kg/meat



Labour – results *(excluding lambing)*

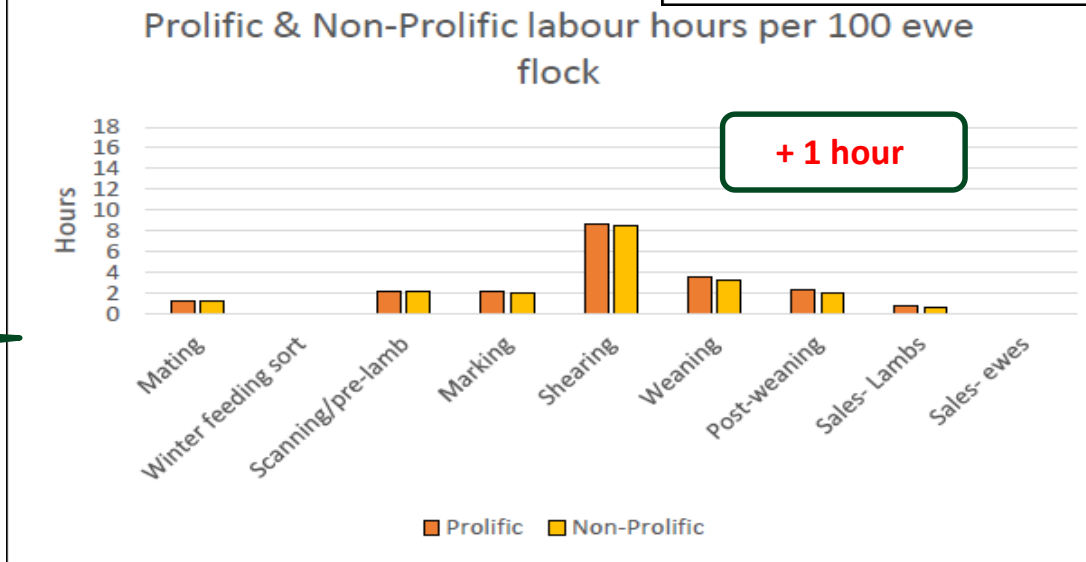


2 in the UK

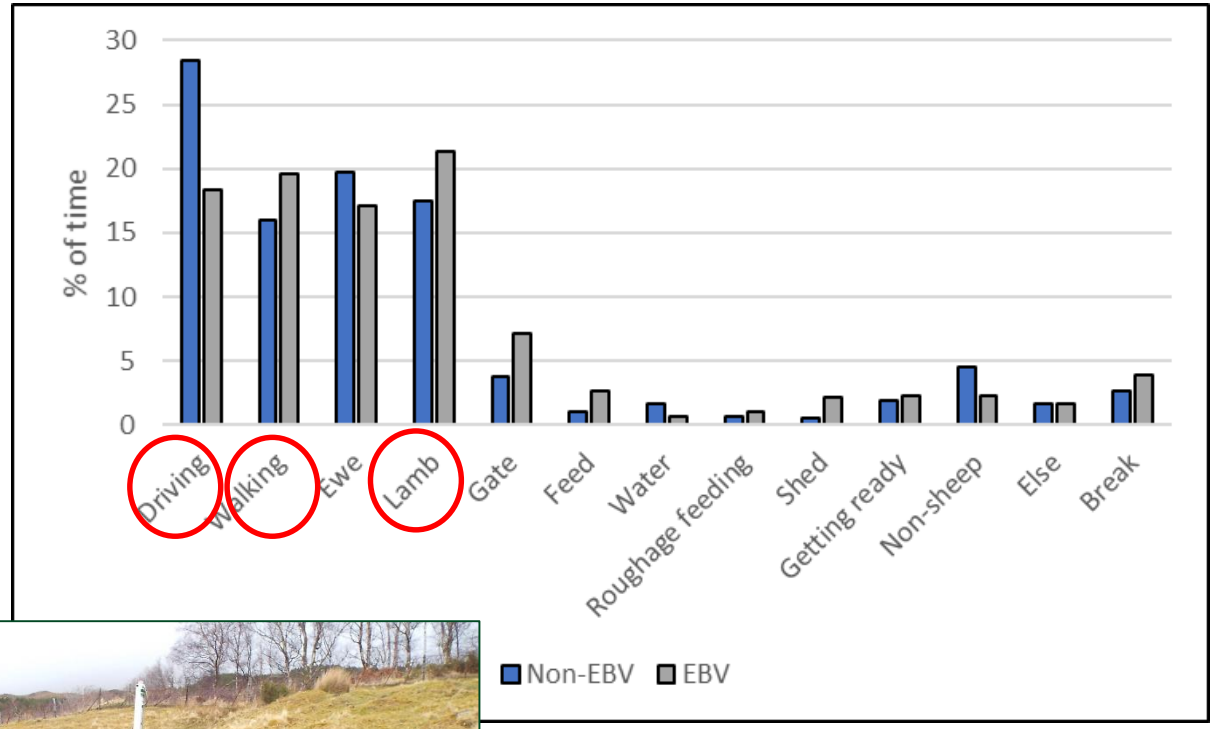


2 in the UK

2 in Ireland



Labour – results *(lambing only)*



2 in the UK

2 in Ireland

Carbon hoofprint – results

Product CO_2e emissions	Unit	PLF	Non-PLF	EBV	Non-EBV	Prolific	Non-Prolific
Meat	kg CO_2e / kg lwt	17.80	16.17	16.48	19.20	9.92	11.02
	kg CO_2e / kg dwt	40.00	36.33	37.34	42.66	22.05	25.73

PLF

EBV/high genetic gain

Prolific breed

Labour

Carbon hoofprint

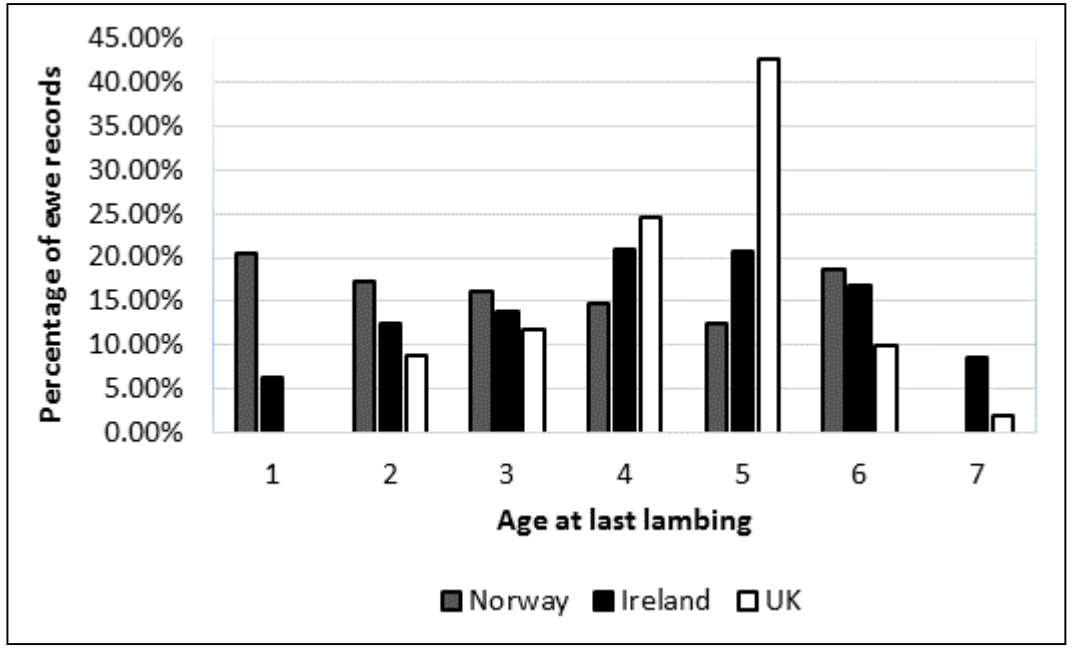
SusSheP – Ewe Longevity

- 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 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

Ann.mclaren@sruc.ac.uk

Conclusions

- Preliminary results
  - Effects of changing management on labour
  - Identify most carbon efficient production systems

  } Trade-offs?

  - Longevity in national maternal breeding indexes

  } Common predictors?

  - Alleviate societal concerns around AI
  - In partnership with farmers – surveys & workshops

Acknowledgments

- All my SusSheP colleagues & students

- EU funders

- UK funder

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

Carbon hoofprint – results

	Unit	PLF	Non-PLF	EBV	Non-EBV	Prolific	Non-Prolific
Net emissions from land use	kg CO_2e	125,658	124,192	91,818	- 312,249	143,864	45,596
Whole farm CO_2e emissions	$kgCO_2e$/kg output (dwt)	37.70	34.42	33.74	38.72	20.86	4.37