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


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Leading the way in Agriculture and Rural Research, Education and Consulting
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)*:

![Bar chart showing the percentage of farmers handling sheep at different stages.

- lamb sales
- ewe stock draw
- lamb post weaning
- weaning
- marking
- lambing
- mid-pregnancy
- winter feeding
- post-mating
- pre-mating

The chart compares the percentage of farmers from different countries.
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?

- 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**

**Ireland**
- High Fertility: Belclare
- Low Fertility: Suffolk

**Norway**
- High Fertility: Norwegian White Sheep
- Low Fertility: Norwegian Fur Sheep

**France**
- High Fertility: Romanov
- Low Fertility: Ile de France

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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

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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
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