

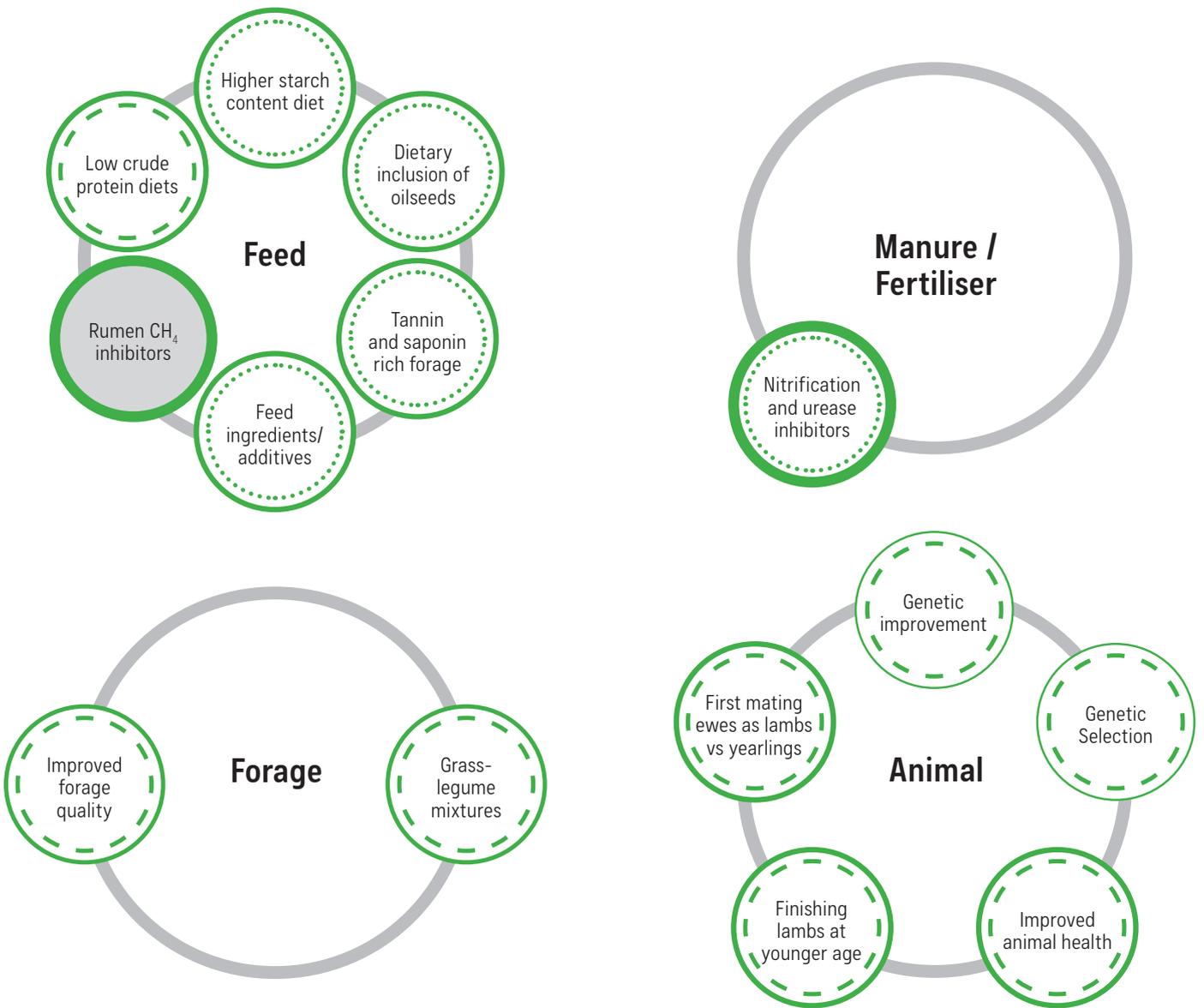
How farmers can reduce emissions: LAMB

Current sector snapshot

- £ £1.3bn – Value of UK mutton and lamb production (2020)
- Largest component of on-farm emissions from UK sheep production = Enteric CH₄; then N₂O (fertiliser and manure application to pasture)
- GHG emission intensity from UK sheep production influenced by farm type: Lowland systems = lower emissions

Average GHG emissions intensity of lamb –
 Lowland = 11kg CO₂ - eq/kg of liveweight;
 Upland & Hill = 13 – 18kg CO₂ - eq/kg of liveweight

Potential for mitigating GHG emissions in Sheep



Key	High	Medium	Low
Impact on Carbon Footprint			
Cost			
Mitigation not yet widely available			

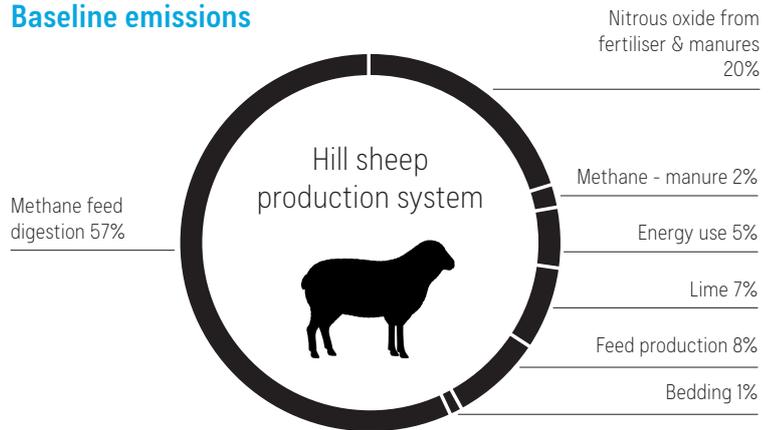
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Putting it to the test: Hill sheep production system

Using real farms to calculate emissions generated by specific scenarios that are indicative of the potential savings available in the sector.

Baseline emissions



Farm facts: Hill Farm One

- > 117ha platform
- > Organic
- > 690 Welsh ewes

Mitigation modelled

Mitigation	Carbon footprint (kg CO ₂ - eq/kg milk)	% Change
Hill Farm One - Baseline	16.09	
Improved fuel efficiency	15.78	-1.90%
Legume grass mixtures	11.91	-26.00%
Improved sheep health	10.04	-37.60%
Improved sheep nutrition	10.04	-37.60%
Methane inhibitors	5.21	-67.60%

Farm facts: Hill Farm Two

- > 93ha platform
- > 428 Mule and 133 Texel ewes

Mitigation modelled

Mitigation	Carbon footprint (kg CO ₂ - eq/kg milk)	% Change
Hill Farm Two - Baseline	23.70	
Improved fuel efficiency	23.50	-1.90%
Improved fertiliser use	22.90	-3.40%
Legume grass mixtures	19.60	-17.50%
Improved sheep productivity	17.30	-27.20%
Methane inhibitors	12.10	-49.00%

Putting it to the test: Lowland sheep production system

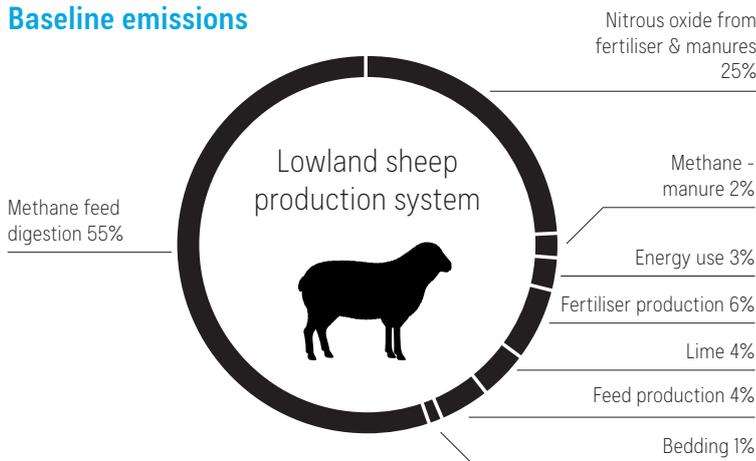
Using real farms to calculate emissions generated by specific scenarios that are indicative of the potential savings available in the sector.

Farm facts

- > 233ha platform
- > 900 Lleyn and 500 Abermax ewes

Mitigation modelled

Baseline emissions



Mitigation	Carbon footprint (kg CO ₂ - eq/kg milk)	% Change
Baseline	16.73	
Improved fuel efficiency	16.58	-0.98%
Improved fertiliser use	16.34	-4.40%
Nitrification inhibitors	15.88	-5.10%
Improved sheep productivity	14.38	-14.10%
Methane inhibitors	10.60	-36.70%



Hill Farm One

Overall, within this hill sheep production system, it was possible to **reduce the carbon footprint by 68%** when all mitigations were implemented.



Hill Farm Two

Overall, within this hill sheep production system, it was possible to **reduce the carbon footprint by 49%** when all mitigations were implemented.



Lowland Sheep Farm

Overall, within this lowland sheep production system, it was possible to **reduce the carbon footprint by 37%** when all mitigations were implemented.

Taking practical steps towards net zero: **LAMB**



Complete regular carbon audits using a reliable carbon calculator

- > Establish baseline
- > Identify hotspots
- > Monitor emission reductions and changes in carbon pools.



Flock management whilst maintaining high level of production efficiency

- > Reduce age at first lambing
- > Increase lambing rate
- > Reduce lamb losses
- > Enable high lamb growth rate.



Improve quality and utilisation of forage

- > Harvest early, increase grazing frequency, decrease regrowth interval, etc.



Maintain or enhance sward productivity, reducing need for artificial fertiliser

- > Include legumes in pasture mix
- > Promote soil health and fertility.



Adjust diet and consider carbon footprint of feed components and farm nutrient balance

- > Increase starch & concentrate proportions.*



Focus genetic improvement on component traits

- > Productivity relative to ewe size
- > Feed efficiency
- > Longevity, health, lamb growth
- > Carcass traits.



Consider use of controlled release and protected urea fertilisers

- > Time application of manure and fertilizer to optimise plant nutrient uptake
- > Take soil nutrient status into account
- > Carry out soil testing.



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