

Greenhouse gases and efficiency

Rumbletonrig
Climate Change Focus Farm

Notes from Meeting on 12th
January 2017

The sixth meeting of the Climate Change Focus Farm discussion group at Rumbletonrig looked at methane production from cattle.

The meeting was hosted by beef specialist Dr Jimmy Hyslop at SRUC's animal research unit at Easter Howgate.

Methane and agriculture

Current beef projects include work on methane measuring and reduction. Methane is a greenhouse gas with 25 x the carbon equivalents of carbon dioxide. It is produced by ruminants as part of a natural biological process.

The ScotGov Greencow project investigates methane emissions from cattle and the effect that different diets have on this. The main cattle shed has "Hoko weigh feeders" with methane monitoring hoods which allows methane emissions to be monitored as well as individual animal intakes.

Dr Jimmy Hyslop delivered a presentation on the feeding and breeding of cattle and how these can affect greenhouse gas emissions throughout the animal's life. After the presentation there was a tour of the research facilities. This showcased the apparatus used to measure how the beef cattle perform, such as; the "hoko bunkers" - these weigh the exact amounts of feed eaten by the livestock; cameras used for conformation and weight determination and finally the "green cow" methane monitoring chambers.



Current work has evaluated six different diets

- Finishing animals on a barley beef diet produce 33 – 41% less methane as they reach a finished weight in a shorter period of time and have a much lower lifetime methane production.
- Additional nitrate reduced methane production in forage diets by 17% but was not cost effective.
- High lipid diets (rape meal and maize dark grains) reduced methane by 7.5% but cost effectiveness is dependent on feeds being purchased at 'the right price'.

Cow Efficiency

A new benchmark is being modelled which uses 200 day liveweight of progeny, cow liveweight and condition score of at weaning to create a graph with a spread of cow performance. Cows above the best fit line are more efficient than cows below the line. This benchmark can be used on any farm to help management decisions on breed choice, heifer replacement and cow culling.

Net Feed Efficiency Project

Three key measures are used in finishing bulls and steers.

- *Dry matter intake daily liveweight gain*
- *Carcass fat depth*
- *Kill out %.*

This is part of a world wide project which shown that some animals have better feed conversion efficiency than others.

- Low NFE (net feed efficiency) bulls ate 13% less feed
- 12.9% better feed conversion efficiency
- Cost £23 less to feed over a 12 week period



Jimmy Hyslop's key strategies to improve beef system efficiency

- Choose to finish weaned animals using efficient, short duration finishing systems
- Minimise animal productivity losses due to adverse animal health problems
- Adopt measures to ensure high fertility rates in the breeding herds/flocks
- Manage cow (ewe) BCS to minimise use of winter feed
- Calve heifers for the 1st time at 2 rather than 3 years of age
- Use creep feed to minimise performance checks at weaning
- Ration animals according to feed quality and animal requirements

