

BUSINESS

TRENDS By Patsy Hunter

Methane emissions can be reduced

DESPITE growing concerns over food security, the need to reduce carbon emissions in agriculture is accelerating but now appears more achievable thanks to new research from the SRUC and other international partners.

That was the good news story from Smarter Sheep Science Conference at the Roslin, Edinburgh, where work in New Zealand, for example, has shown that methane amounts produced from an animal can be cut by as much as 11% within three generations by genetic selection.

SRUC researcher, Nicola Lambe, also highlighted the difference between sheep breeds/types, with those with larger rumens tending to produce higher amounts of methane compared to those with smaller rumens.

Work carried out using various breeds and CT scanning has already found that the lowland/terminal sire breeds have smaller rumens and therefore produce less methane. They are also faster maturing and automatically more efficient at converting feed into liveweight gain which means they produce less methane.

In contrast, the sheep with

larger rumens tend to be the more upland/hill breeds that are more capable of converting poorer quality rough grazing into protein. The UK is not however, blessed with large amounts of low ground, capable of growing huge amounts of grass for terminal sire breeds and instead is renowned for its unique stratification system.

“There are potential issues with selecting for reduced rumen volume in some breed populations as this can impact on the animal’s ability to digest fibrous material, essential for breeds more suited to upland and hill environments,” Nicola Lambe told the audience.

“So it is vital to fully understand the genetic relationships between traits in relevant sheep systems before making wholesale breeding decisions,” she said.

In Norway, the agricultural sector has made an agreement with the Norwegian government to reduce greenhouse gas emissions (GHG) from agriculture by 10% by 2030 relative to 2020. The agreement is for methane intensity, which is emission per kg product, with the sheep meat sector representing for about 1% of the total Norwegian GHG emissions.

The total number of adult sheep in Norway is around

900,000 and of these, 65% are Norwegian White Sheep, a prolific fast growing animal with an average adult ewe weight of 80-85kg.

Over the past 10 years, the Norwegians have indirectly reduced methane emissions through improved productivity in the Norwegian White sheep population. This has been achieved through a decrease in age at slaughter simultaneously with an increase in carcase weight. Other options included increased lamb crop and lamb survival per ewe.

The programme is also combatting direct reduction of methane emissions by measuring methane production from individual Norwegian White Sheep.

This has been achieved with assistance of the Norwegian Association of Sheep and Goat Breeders, who have a set of 10 portable accumulation chambers (PAC) in a box mounted on a truck forming a mobile methane lab that can be moved from farm to farm.

Over the past two years, these portable chambers have recorded 50-minute methane measurements from 6002 ewes in 57 well connected breeding flocks, with the data genetically analysed to show an 18% heritability, indicating that genetic variation in methane emission exists in Norwegian White sheep.

“This again tells us that it is possible to breed for a reduction in methane emission,” said Jette Jakobsen, research geneticist at the Norwegian Association of Sheep and Goat Breeders (NSG)

“Breeding is permanent and cumulative, but it will take time to achieve large improvements. To balance the reduction in methane emissions with improvements for all traits in the breeding goal, it is important to take into account the genetic correlations to other traits that are selected for. This is work in progress and reducing methane emissions is not yet implemented into

“It is possible to breed for a reduction in methane emission. Breeding is permanent and cumulative, but it will take time to achieve large improvements”

Jette Jakobsen



JETTE JAKOBSEN (left) and Nicola Lambe said methane emissions from sheep can be reduced

the breeding programme of Norwegian White Sheep.”

She added that taking the trait ‘methane emission’ into the routine genetic evaluation requires yearly addition of methane phenotypes of new animals to the evaluation. However, measuring and obtaining such traits and records has proved expensive and challenging, therefore,

the team plans to apply to the Norwegian government for funding to continue such routine measurements.

Huge benefits from collection of data

JOHN Yates, chief executive of The Texel Sheep Society, who part organised the Smarter Sheep Science event, was hugely enthusiastic about the progress made to date and particularly on the collection of data.

He said there was huge value for sheep farmers in collecting data on their flocks, with the knowledge and information which can be derived from it enabling better decision making.

Collaboration and data collection had been at the heart of the project dissemination at the Smarter Sheep Farming conference, which included studies part funded by the EU2020 Smarter project, focussing on breeding for resilience and resistance to disease.

The society also presented some best practice applied through its services, for genetic improvement, data management and knowledge exchange – core areas the society has invested heavily in.

“Development of data collection and evaluation technologies as well as a better understanding of the impact genetic selection can have is vital for the future of the breed and the industry.

“With healthy animals performing

better and having lower environmental impacts, continued investment in genetic improvement in our livestock breeds is essential if we are to provide the solutions to the many challenges facing global communities.

“There is huge value for sheep farmers in collecting data on their flocks, with the knowledge and information which can be derived from it enabling better decision making.”

Recent studies carried out by renowned genetics and economic consultancy business Abacus Bio and presented at the conference, showed the historic and future economic and environmental influence of genetic improvement of the Texel breed.

Abacus Bio’s Tom Kirk said the introduction of new economic indexes in the Texel breed could apply an increased benefit of £1.2m a year to the industry.

“These new indexes, being launched to Texel members in spring 2023, will allow breeders and their customers to more easily understand the potential impact a ram will have on their flocks, whether using Texels as a terminal sire or to breed maternal replacements,” he explained.

‘It’s beginning to look a lot like Christmas’ at Hexham

HEXHAM and Northern Marts’ auctioneer, John Walton, is already well into the tinsel and mince pies, going by this picture captured by photographer Robert Smith at the mart’s recent Christmas show and sale of primestock, which will be featured in next week’s issue alongside full reports and photographs from several of this week’s big festive events.



AUCTIONEER JACK Walton, Hexham and Northern Marts

Ten portable accumulation chambers in a truck



- From trailer to truck
- Easier to drive on icy mountain roads
- Possibility for heating
- 10 larger chambers → adult sheep

NORWEGIAN WHITE Sheep have been recorded over the past 10 years to help breed sheep that produce less methane

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DEADWEIGHT CATTLE IN SCOTLAND

week ending 10/12/2022 (p per dwkg)

-2.3p	-4.0p	+6.5p	-1.2p
R4L steers	R4L heifers	R3 young bulls	0+4L cows
455.5p	453.7p	439.2p	369.3p

STORE CATTLE IN SCOTLAND

week ending 10/12/2022

-£63.49	-£21.76	+£18.34	-£2.91
Continental 12-18 month steers avg	All breeds 12-18 month steers avg	Continental 12-18 month heifer avg	All breeds 12-18 month heifer avg
£1044.55	£995.42	£1018.34	£948.44

SHEEP IN SCOTLAND

week ending 10/12/2022

-3.35p	+5822	-£4.81	-8
Liveweight new season lamb	Total new season live sales	Live ewes per head	Total ewe live sales
241.38p	17,311	£74.99	9039