



SHEEP EVENT SPECIAL

Welcome to a special edition of **AgriSearch's electronic newsletter** which has been released for the National Sheep Association's **Sheep Event at Ballymena Livestock Market** on Monday 6th July.

LMC

We would like to express our gratitude to the Livestock and Meat Commission for their ongoing support which has helped give our sheep programme a much needed boost.

Sheep programmes which are currently ongoing include:

- RamCompare - a major new partnership which will enable the UK sheep industry to drive genetic improvement forward through the inclusion of commercial data in genetic evaluations.
- Development of OvIS (Ovine Information System)
- Breeding efficient composite ewes through better recording



Further project ideas are being developed and we hope to make further announcements on new sheep research projects in the near future.

Sheep research projects commissioned by AgriSearch are currently funded through a voluntary producer levy of 5 pence per lamb slaughtered through abattoirs in Northern

Ireland. In addition to industry contributions, every effort is made to lever additional funding from complimentary sources such as the Department of Agriculture and Rural Development (DARD).

Research projects are recommended for funding by a Sheep Advisory Committee comprising of eleven people nine of which are farmers.

Samuel Wharry is the Chair of our Sheep Advisory Committee, Crosby Cleland is the Vice-Chair.



Samuel Wharry



Crosby Cleland



It would also be remiss of us not to thank our 11 dedicated sheep farmer co-researchers who have been playing such an important role in our sheep research programme.

- Lowland farmers
 - ⇒ Crosby Cleland
 - ⇒ Isaac Crilly
 - ⇒ Billy & John Martin
 - ⇒ Francis McHenry
 - ⇒ Alan Montgomery

- Hill Farmers
 - ⇒ Ian Buchanan
 - ⇒ Richard Duffin
 - ⇒ Joe & Seamus Maginn
 - ⇒ Maurice McHenry
 - ⇒ Stephen & Mark Montgomery
 - ⇒ Samuel Wharry



Developing sustainable hill sheep systems

Sheep grazing plays a vital role in managing upland habitats through their effect on vegetation structure and diversity, and their capacity to convert a resource with low nutritive value into a high quality product. As such, sheep systems are crucial for sustaining the rural economy as well as the diversity of plants and animals in these sensitive and valuable habitats. This is especially important for Northern Ireland where almost 60% of breeding ewes are found on the hills.



AFBI have been working with hill farmers in Northern Ireland for almost 20 years, seeking to develop more efficient breeding and management strategies. In particular, this work, which is jointly funded by the Department of Agriculture and Rural Development, AgriSearch and the

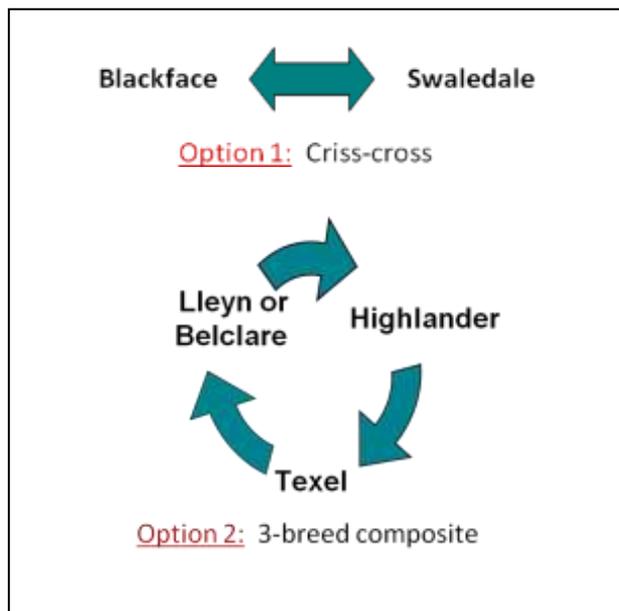
Livestock and Meat Commission (LMC), has shown that the efficiency of cross bred ewes (defined in terms of kg lamb weaned per kg of ewe body weight) was equal or superior to that of purebred Blackface ewes by up to 10%. For the hill sheep sector to remain competitive, there is a need not only to improve animal performance of ewes and their lambs, but also to better understand the impacts of grazing on those habitats, in order to maximise the sustainable utilisation of

Table 1. Effects of breeding strategy on ewe and lamb performance (1 to 4 crop ewes)

	<i>Three-breed composites</i>	<i>Criss-cross horned ewes</i>
Ewe mating weight (kg) ¹	61.5	57.0
BCS at mating	3.6	3.8
Litter size/ewe lambed	1.51	1.40
Lambled unaided (%)	76	90
Lamb birth weight (kg)	4.0	3.9
Lamb weaning weight (kg)	31.4	30.0
Lamb live weight gain (g/d)	223	211
Lambs weaned/ewe lambed	1.23	1.17
Efficiency ²	0.67	0.66

¹4.5 year old ewes only, ²weight (kg) of lamb weaned/ewe body weight (kg)

Figure 1. Illustration of breeding strategies investigated



resources and inform agri-environment schemes. Recent work at AFBI investigated those two important issues in collaboration with hill farmers.

Animal performance of 2-way and 3-way cross ewes

AFBI have been evaluating two contrasting maternal breeding strategies in order to assess the potential benefits of introducing the traits of a third breed to help improve further the efficiency of crossbred ewes. The first strategy is a criss-cross between Blackface and Swaledale rams and the second strategy is a 3-breed rotation combining Lley or Belclare, Highlander and Texel rams.

The latest results of this work are outlined in Table 1,

combining performance data obtained from more than 2,800 ewes at 6 hill farms.

The criss-cross horned ewes were on average 4.5 kg lighter than the 3-breed composites, therefore requiring less feed inputs and as result those ewes maintained their body condition (BCS) better on hill habitats (3.8 at mating). Conception rate was high (95%) for both breeding strategies. Lamb output for the 3-breed composites was greater at birth (by 0.11 lamb/ewe) but similar to horned ewes at weaning (average of 1.2). However, a greater proportion of horned ewes did not require assistance at lambing (90%) compared to the 3-breed composites (76%). Importantly, despite slightly heavier lambs weaned from the 3-breed composites, their efficiency in terms of kg lamb weaned per kg of ewe body weight was very similar to the one for horned ewes, due to the heavier body weight of the 3-breed composites. Overall, those findings suggest that the



AFBI researchers taking measurements within a grazing enclosure

criss-cross strategy is most suitable for 'hard' hill conditions. Ongoing research on the performance of lambs during the finishing period will determine whether the 3-breed strategy is suitable for 'greener' hill areas.

Effects of sheep grazing on upland habitats

At four of those hill farms where animal performance data was recorded and discussed above, several techniques were also used by AFBI to monitor the impact of grazing on the structure and diversity of the vegetation. In particular, the use of grazing exclosures (see picture) indicated that sheep preferentially grazed young heather rather than mature, tall heather. There was also no evidence of sheep grazing on soft rush during the summer. Future work will assess whether the observed build up of dead grass following light or no grazing will result in a reduction of plant species diversity, with competitive grasses expected to reduce the abundance of heather and low-growing plant species.

In addition to vegetation and habitat surveys, remote sensing techniques (GPS collars) were used to monitor grazing



behaviour, indicating that horned ewes tend to use hill habitats more efficiently with more time spent in heather dominated areas and a greater foraging area compared to the 3-breed composites. This work needs to continue for several years to fully assess the long term effects of sheep grazing on upland vegetation, taking into account seasonal effects and site-specific differences.

Key points

- Ewes criss-crossed between Blackface and Swaledale rams are more suitable for hard hill conditions than 3-breed composites because they
 - ⇒ can maintain a good body condition on hill habitats
 - ⇒ require less assistance at lambing
 - ⇒ show higher selection of heather habitats and greater foraging areas on hills
- The benefits of sheep grazing for plant diversity differ between sites and year
- Site-specific prescriptions may be necessary in the longer term to ensure that heather or rush-dominated areas are more utilised by sheep, through changes in stocking rates, grazing periods and field closures.

SHEEP LAMENESS BOOKLET LAUNCHED

Battling lameness in your flock and needing guidance as to why a particular ewe has foot problems and which treatment is best?

Then the free sheep lameness guide published by AgriSearch in association with the LMC and AFBI is a must have! This very practical, pocket sized publication helps producers diagnose the cause of lameness in sheep, identify treatment and prevention options as well as follow best practice for foot bathing and foot trimming.

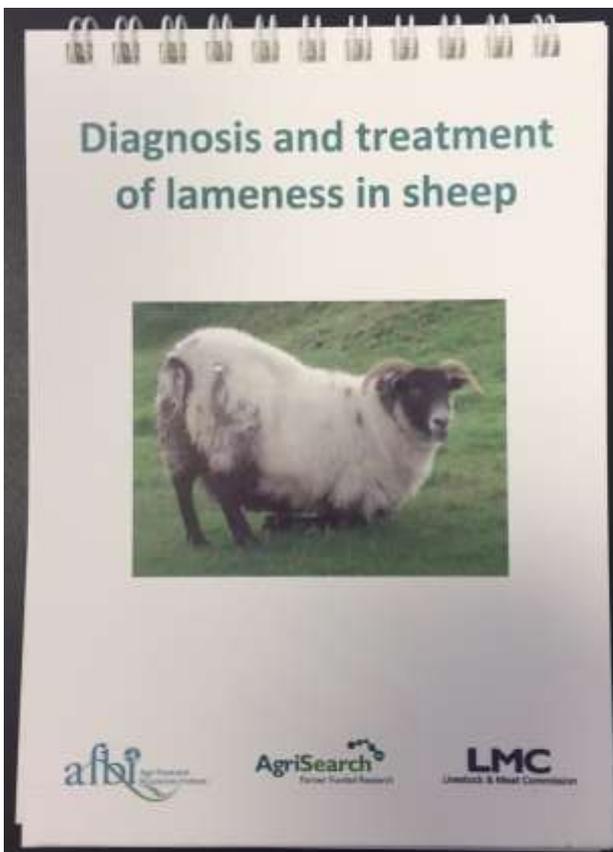


AFBI vet Jason Barley helps launch the 'Diagnosis and Treatment of Lameness in Sheep' illustrated booklet produced in association with the LMC and AgriSearch.

Booklets are available free from AgriSearch either telephone (028) 8778 9770 or Email: info@agrisearch.org.

Designed to fit in the pocket and stand up to use outside as you work with sheep this ring bound booklet combines photographs with bullet points on each possible cause of lameness. Even those in sheep a lifetime will benefit from having this farmer friendly guide to hand.

Surely one of the most useful, brief and to the point booklets to hand in recent years this publication is not for your bookshelf. Rather it belongs in the top pocket of anyone working with their ewes



RamCompare project to boost sheep industry genetic improvement

A major new partnership has been announced which will enable the UK sheep industry to drive genetic improvement forward through the inclusion of commercial data in genetic evaluations.



The RamCompare project, which began in May, will work along the supply chain to get lamb performance data from farms and abattoirs included in genetic evaluation. The project is a pilot to trial strategies for data capture and will be similar to central progeny tests that are taking place in Australia, New Zealand and Ireland.

The two-year pilot project is financed by AgriSearch, AHDB Beef and Lamb, Hybu Cig Cymru – Meat Promotion Wales (HCC) and Quality Meat Scotland, with support provided by the Sainsbury's 'Big Data' Agriculture R&D Grant Scheme, Randall Parker Foods, Dunbia and Scotland's Rural College (SRUC).

The first stage of the project will involve developing a network of six commercial farms that will use artificial insemination (AI) and single-sire mating to produce a crop of over 500 lambs per farm per year. In the UK the sire of most slaughter lambs is not known at present, so this approach will enable sire information to be collected.

67 rams from five breeds – Texel, Suffolk, Charollais, Hampshire Down and Meatlinec – will be tested across these flocks over the 2016 and 2017 lambing seasons. The rams will be representative of the top 20 per cent of their breed based on their estimated

breeding values (EBVs) and the AI sires will have good linkage with other pedigree flocks.

Data from their lambs will be collected through to slaughter. This data will be evaluated to see whether its inclusion in the **rams' genetic evaluations identifies** differences between sires and improves their accuracy. A ranking of the tested rams, based on commercially important traits, will be generated at the end of 2017.

AHDB Beef and Lamb breeding specialist **Sam Boon said:** “**This will be the first time** a commercial progeny test has been established in the UK on this scale. It will enable the performance of progeny by different rams to be compared under commercial conditions; therefore it will be an important step in allowing animals to be compared irrespective of breed.

“**It is also a truly unique project as it** involves partners from right along the supply chain.

“**The ambition is that, in time, one genetic analysis will be produced that will encompass data for all terminal sire breeds.**”

Towards more efficient animal identification systems

In order to remain competitive and be more sustainable, improved breeding and management strategies are needed to drive greater technical efficiency within sheep flocks. Current and past research programmes carried out by AFBI and funded by DARD, AgriSearch and the LMC have identified several breeding, feeding and other management strategies to improve ewe productivity in terms of the number and growth of lambs produced per ewe. However, it is crucial to increase productivity, it is also important to ensure that lambs are produced to current market specifications.

To inform management decisions, efficient systems to record individual animal performances are needed, from farm to slaughter. However, despite sheep being EID tagged prior to slaughter

there is currently no mechanism in place within sheep abattoirs in Northern Ireland to read these tags as they enter the kill line. This lack of information prevents a carcass from being attributed to an individual animal thus has major impacts on traceability and limits the potential to select for improvement within the sheep flock based on genetics and other management decisions.

Testing of a reading system for EID tags in a commercial abattoir

In view of this background, AFBI through LMC and AgriSearch tested the use of a prototype reader manufactured by Shearwell (see pictures below).

This ear tag reader was installed in 2014 at a local commercial abattoir (Linden Foods) and has been successfully used there since



April 2014.

Out of more than 5,000 sheep that were individually read along the kill line during the period late April-May 2014, 3% of all tags were either missing or faulty (non functioning EID device). All remaining functioning tags were successfully read by the reader, indicating that its location on the kill line is appropriate. **This technology can thus now be used more widely and systematically to establish the link between individual animal performance data (from birth) and their carcass characteristics.**

Can we explain why some EID tags are faulty and thus not detected?

As part of the above project, factors such as animal type (lambs or hoggets) and type of tag (wrapped around tags or button tags) were also recorded by AFBI and no significant effects of those factors on the proportion of faulty tags were detected. However, tags located on the outer part of the ear, which was the case for 8% of wrapped around tags monitored as part of this work, had a higher proportion of faulty tags (13%) than those in the middle (3%).

These findings agree with the results of a recent on-farm trial investigating the performance of several types of tags in lowland and hill environments. As part of this work funded by DARD and AgriSearch, more than 4,000 lambs were tagged using 5 different types of tags and the proportion of tags lost from weaning onwards was very low (1%) and similar across ear tags. However, some additional factors such as the position of the tag had an effect on associated welfare issues. In particular, tags inserted close to the head

led to more damage and infections of the ear than those positioned in the middle part of the ear. **Correctly applying ear tags will help to reduce ear tag damage and infection, minimising the risk of further tag loss as the animals get older.**

This work represents the first steps



towards the development of electronic reading systems that could be applied across NI to allow producers to link their individual animal performances to genetic and other management information. When installing ear tag readers at other abattoirs, it is important to test their accuracy early on, as it was done as part of this work, to ensure that there is no interference with other electronic equipment. **In addition, to fully benefit from the information that this technology provides to producers, good record keeping from birth is important in terms of genetics, live weights and health issues.**

SHEEP FARM WALK SUCCESS

A large number of producers turned out at two sheep farm walks held last August on the farms of Maurice McHenry and Crosby Cleland.

The main topics to be covered at both events included updates on the benefits of crossbred ewes for improved production

efficiency, grassland management, feeding strategies of ewes pre-tupping and health



A large crowd attended the farm walk at Crosby Cleland's farm near Saintfield

aspects including how to better diagnose and treat lameness. Systems available to sheep producers to record their flock performance were also discussed, including a demonstration of EID systems.

An additional stop on hill heather habitat was held on Maurice McHenry's hill farm, where the importance of sheep grazing for the environment was discussed.

Maurice, Marie and their son Robert McHenry farm 120 ha, including 93 ha of moorland. The flock currently consists of 210 crossbred ewes and 43 replacement ewes, lambing indoors in March/April. Sire breeds used on the farm in the past 2 years include Scottish Blackface, Swaledale, Lleyn, Highlander, Texel and Suffolk. Maurice's priority is to have a



Norman Weatherup from CAFRE discussing grassland management

labour efficient, easy-care system, with improved prolificacy and lambing ease. To achieve this, he closely monitors his flock performance using an EID system, thus enabling him to inform his selection and management strategies based on individual performances.



Host Farmer: Maurice McHenry

Crosby Cleland has a flock of 700 ewes and 220 breeding replacements, on 170 acres of grassland. Half of those ewes are

pure breeds, mostly Lleyn but also some Highlander and Primera. The remaining ewes comprise a maternal composite flock using Highlander, Lleyn and Texel (the latter as part of an ongoing trial at AFBI) and a flock put to a Primera terminal sire. Crosby's key objectives are to have a labour efficient, easy-care system and to improve prolificacy, growth rates and lamb output per ha. His management decisions are primarily based on



A section of the farmers attending the farm walk at Maurice McHenry's



Eileen McCloskey (CAFRE) talking to the farmers at Crosby Cleland's farm walk

individual performances recorded using electronic identification (EID).

Copies of the handouts from both farm walks can be downloaded from the AgriSearch website.

Going forward AgriSearch are committed to furthering the sheep industry, a number of proposals are being developed in areas such as flock health, breeding and animal recording. We will keep you updated in future newsletters.

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