A New Maternal Evaluation from Signet Breeding Services





Samuel Boon





Genetic Gain in Bluefaced Leicester

The annual return from genetic improvement within the British beef and sheep sector exceeds **£10.7 million (sheep)** and **£4.9 million (beef)** (Source: AbacusBio).



New approaches to genetic evaluations

By 2022 Signet will have relaunched all of our evaluations over the last 6-8 years

AHDB have invested in new, mixed breed approaches which

- Enable the production of monthly genetic evaluations
- Produce EBVs for crossbreds and the use of commercial data (e.g. RamCompare)
- Enable some breed comparison
- Makes it easier to move research into the industry







Maternal Evaluation



Impact















Breeding values

- Birth Weight Lambing Ease Lamb Survival Litter Size Born Litter Size Reared Maternal Ability
- Eight Week Weight Scan Weight Muscle Depth Fat Depth
- FEC Strongyles FEC - Nematodirus IgA - Blood Serum
- Shearling Ewe Weight Ewe Mature Weight (Mating) Body Condition Score (Mating) Age at First Lambing Ewe Longevity



Weight and quality of lambs sold

Parasite resistance



What is different?

- Old traits with new heritability values and correlations
 - Maternal ability
- New trait definitions
 - Muscle and fat depth
- New breeding values
 - Like lamb survival
- New data included
 - Pulling in crossbred data
- New breeding indexes
- New base year





Changes to carcase traits

Breeding values

• Muscle & fat depth – now on a weight adjusted basis



Considerations

- We can now select for carcase attributes independently of size
 - We could increase yield, without increasing mature size
- As muscling increases at a fixed weight, sheep tend to get leaner
 - Thus a positive weighting is required on fat depth to maintain the status quo
- Potential link to Body Condition Score expected



Scan Weight vs Muscle Depth

Flock Code: 30005 Lambs born between 06-12-2020 and 06-12-2021 Sex: All



Scan Weight (kg)

Clients can produce this chart themselves

https://www.signetdata.com/member-reports/recording-stationery-sheep/scanning-report-sheep/

Ewe weights and body condition score

Why is mature size important?

- Ewe mature size will increase when selecting for lamb growth rates
- Ewe mature size influences flock efficiency both in economic and environmental terms

Initial work

- AHDB, HCC & QMS funded Abacus report "Optimising Mature Weight for Farm Efficiency and Profitability"
- AHDB funded PhD looking at growth curves in livestock with Emma Mutch at SRUC
- Breeding values developed in both the maternal and hill sheep breeding evaluations



Ewe weights and body condition score

Three windows for accepting ewe weights

- Pre-mating 140-175 days pre-lambing
- At 8 week weighing time 49-84 days post lambing
- Weaning time 85-133 days post lambing

Ewe body condition scores can be collected at the same time

EBVs to be published

- Pre-mating ewe mature weight
- Pre-mating body condition score







Maternal traits of importance

Lamb survival

• Ewe longevity

• FEC and IgA



How similar are BFL old and new results?

	Correlation between		
Estimated Breeding Value	old and new		
8 Week Weight	0.87		
Scan Weight	0.90		
Muscle Depth	0.65		
Fat Depth	0.57		
Litter Size Born	0.87		
Maternal Ability	0.72		
Shearling Weight	0.86		

1.00 = No change

0.00 = No relationship!

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Shearling Weight	0.86		
Index	0.55		

1.00 = No change

0.00 = No relationship!

It is harder to have it all



New Indexes

Emphasis	Terminal Sire (Non-CT Index)	Maternal Index	BFL Crossing Index
Eight Week Weight EBV	10.6%	27.2%	32.6%
Scan Weight EBV	61.3%	23.8%	5.7%
Muscle Depth EBV	26.9%	24.8%	37.9%
Fat Depth EBV	1.1%	3.4%	3.2%
Litter Size Born EBV		3.2%	0.5%
Litter Size Reared EBV		4.3%	1.0%
Maternal Ability EBV		13.3%	19.1%



In addition

- A non-linear penalty on sheep with very high/low litter born EBVs
- A non-linear penalty on the ~10% heaviest ewes

The role for extreme ewes...

Extreme high litter size ewes

Will be rewarded for rearing more lambs, but can produce higher indexed progeny if mated to more average sires for this trait

Extremely heavy ewes

Will be rewarded for lambs with fast growth rates, but can get higher indexed progeny if mated to sires with lower mature size





Two level service



How to increase engagement?

- 1. Weight Recording Service All data entered online
 - EBVs for Litter size, Maternal Ability
 - EBVs for Eight Week Weight, Scan Weight, Mature Weight
- 2. Weight Recording and Ultrasound Scanning Service
 - EBVs for Muscle Depth and Fat Depth

Where can I find more information?

- Signet Database
 - Technical information
 - Open access to sheep records
 - Industry services like "Flock finder", "Sheep for sale"
- Client services
 - Full data capture and electronic reporting
 - Inbreeding software
 - Cataloguing services
 - Index customisation



Shape the future of beef and lamb

Have your say on the vital support we offer Register **now** at **ahdb.org.uk/shape-the-future**



Levy Support



- EGENES Data Analysis
 - >£100,000 (with HCC/QMS)
 - £30,000 for developments
- Signet database development
 - £125,000
- CT / FEC / IgA (2020 & 2021)
 - ~£25K per annum + £32K for IgA (2020)
- U/sound scanning (running costs)
 - Over £100,000
- EWEBenefit Project
 - £44,000 (in 2020) matched by CIEL
- RamCompare
 - £90,000 AHDB (plus £67,000 HCC/QMS)

RETURN TO INDUSTRY: Genetic improvement enhances the sheep and beef sector by £20million per annum

Summary

- New EBVs and New Index being developed for 2022
- New way to think of muscle and fat depth EBVs
- New ewe mature weight EBVs quite important
- New Index for BFL sheep

