



Improved performance = £

25 July 2011

Carol Davis

EBLEX Breeding Specialist





Assessing performance



Farm A



All born in first week of March, out of five year old ewes,
by the same ram and all single born and reared.



A

LWG 0.15 kg/d



B

LWG 0.25 kg/d



C

LWG 0.35 kg/d

WHICH RAM IS MOST LIKELY TO HAVE THE BEST GENETICS FOR GROWTH TO PASS ON TO HIS LAMBS?



Farm B



All born first week of March, out of five year old ewes, by the same ram as Farm A, single born and reared

D
LWG 0.2 kg/d



E
LWG 0.3 kg/d



F
LWG 0.45 kg/d



WHICH RAM IS MOST LIKELY TO HAVE THE BEST GENETICS FOR GROWTH TO PASS ONTO HIS LAMBS?



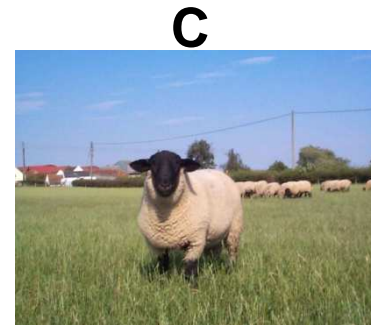
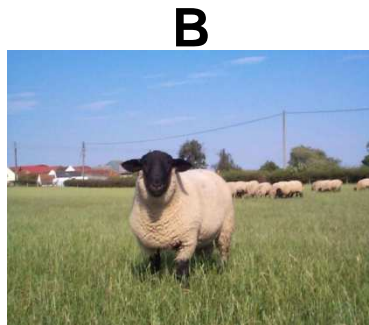
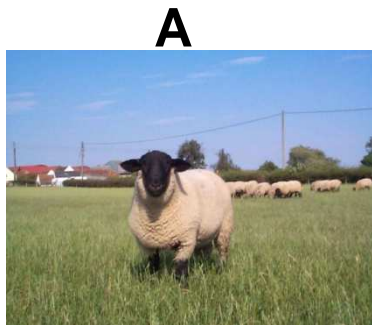
D
LWG 0.2 ka/d



E
LWG 0.3 ka/d



F
LWG 0.45 ka/d



LWG: 0.15 kg/day

LWG: 0.25 kg/day

LWG: 0.35 kg/day

It isn't easy to identify superior breeding potential



Feeding



Management



Health

Breeding





Key messages

- Important to separate effects of “breeding” from “feeding”
- Not possible to identify animal with good breeding potential by “eye alone”
- Buyers need performance records



What performance do we measure?



- Litter Size (& *lambing ease/vigour*)
- Maternal Ability
- Mature Size
- Growth Rate – 8 weeks and 21 weeks
- Carcase traits (muscle and fat depths)



DYNAMIC IMAGING



Control knobs and buttons for brightness, contrast, and other settings.

CONCEPT MLV

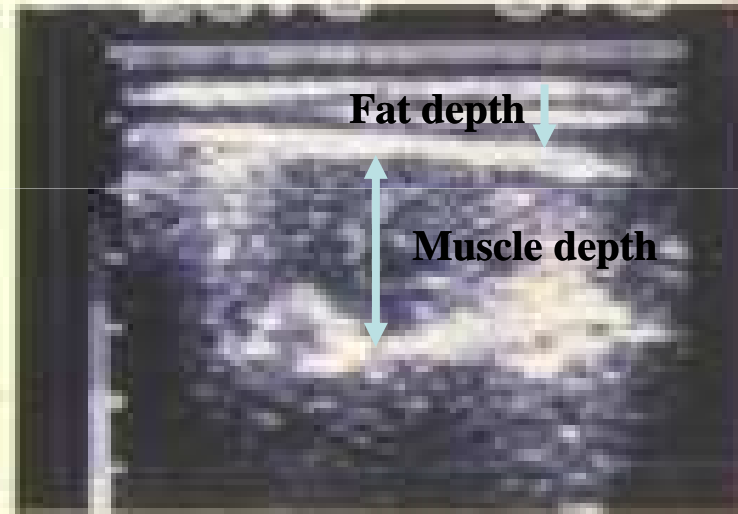
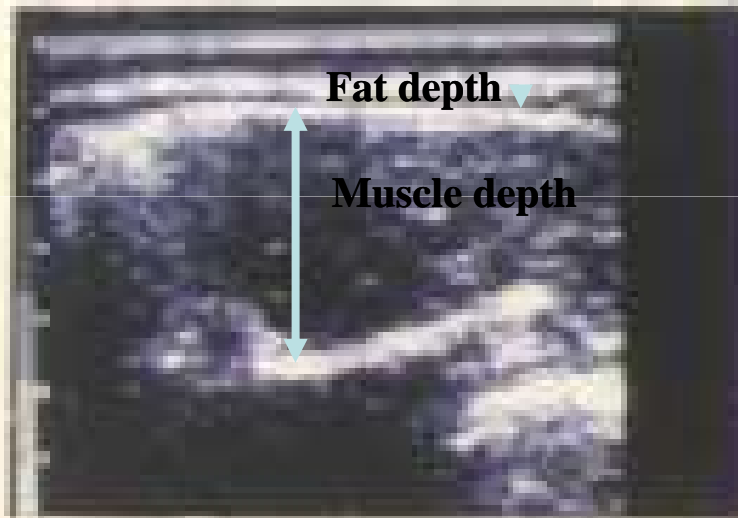
Navigation buttons for movement and zoom.

Keyboard and trackball for data entry and navigation.

Ultrasonic scans of good and bad lambs

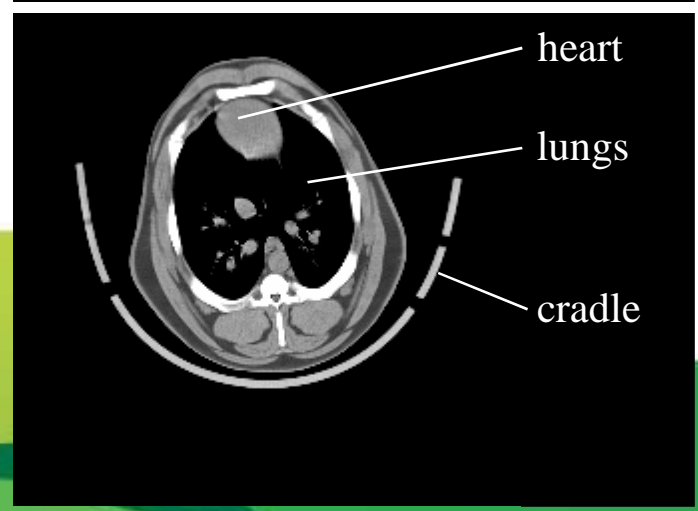
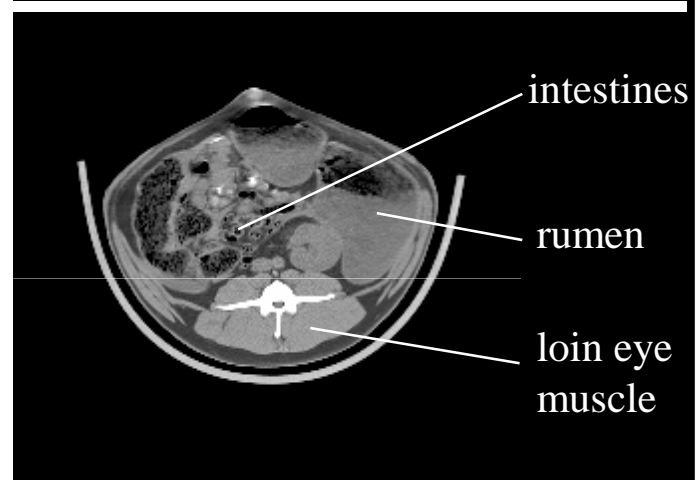
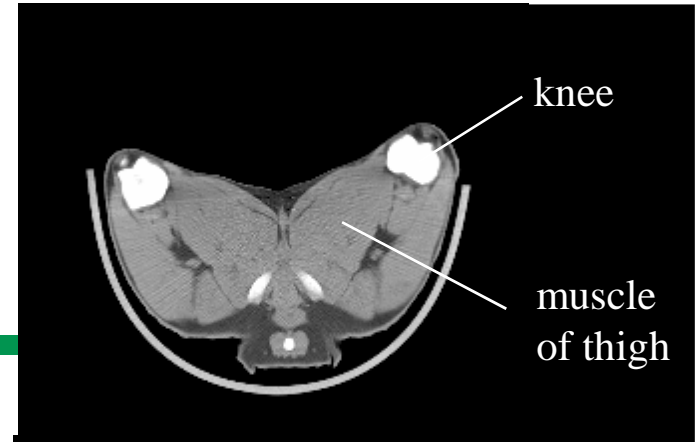
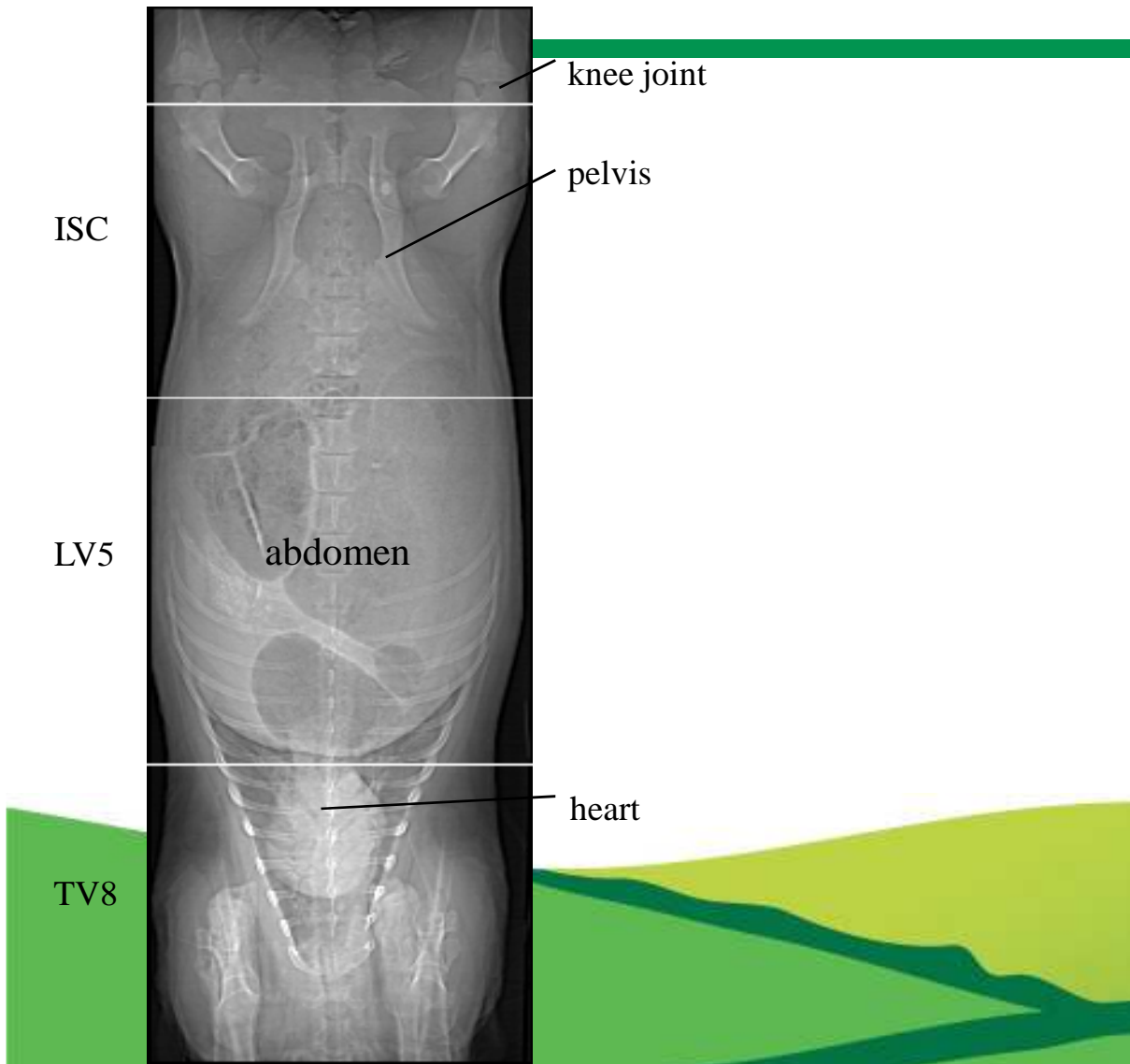


Lean lamb with good muscle



Fat lamb with poorer muscle

CT Scanning



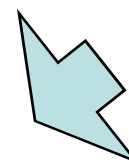
Measuring breeding potential in Suffolk sheep



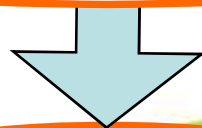
**Pedigree
Data**



**Performance
Data**



**Estimated Breeding
Values**



Index



How do we calculate EBVs?



- Measure the trait
- Measure relatives for the trait
- Measure correlated traits
(traits that have influence on one another)
- Measure relatives for the correlated traits

- Utilise all known pedigree relationships

- Put all this into a BLUP programme to remove the effect of known differences between animals
e.g. farms, years/seasons, dam ages etc.

Estimated Breeding Values



EBV	Characteristic
Maternal Ability EBV	Maternal ability
Litter Size EBV	Prolificacy
Eight week weight EBV Scan Weight EBV	Efficient growth
Muscle Depth EBV Fat Depth EBV	Saleable meat Lean meat yield
CT Lean EBV CT Fat EBV CT Muscularity	Saleable meat Lean meat yield
Mature Size EBV	Efficiency

Terminal Sire Index

Arrows point from the Terminal Sire Index box to the following EBV categories: Eight week weight EBV / Scan Weight EBV, Muscle Depth EBV / Fat Depth EBV, CT Lean EBV / CT Fat EBV / CT Muscularity.

EBVs and Breeding Indexes



Indexes

Overview

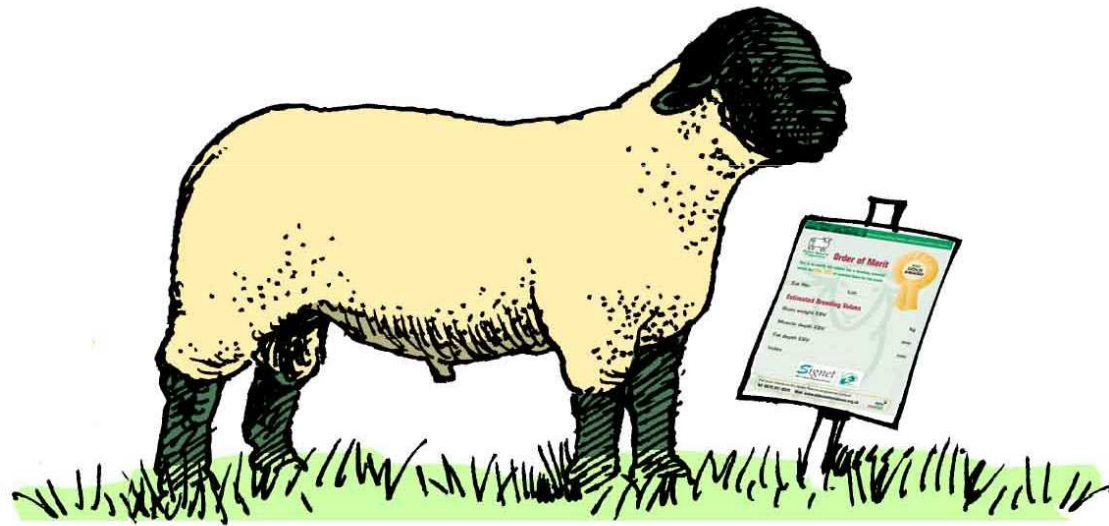


EBV's

Detail



Using EBVs is not complicated





Interpreting EBVs

	8 week weight EBV (kg)	Litter Size EBV (%)	Maternal Ability EBV (kg)	Scan Weight EBV (kg)	Muscle Depth EBV (mm)	Fat Depth EBV (mm)	Terminal Sire Index
EBVs	5.02	0.04	0.61	9.03	2.87	0.23	2.95

Accuracy Values	68	44	42	63	60	60	62
------------------------	-----------	-----------	-----------	-----------	-----------	-----------	-----------

Breed Average	3.34	0.12	0.16	5.89	1.06	0.04	£1.45
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What does accuracy tell us?



- How good our EBV is compared to the true breeding value – which is never actually known!
- Accuracy has a value between 0 and 100%
- The more information going into the EBV calculation the higher the accuracy
- High accuracy reduces **RISK**





Sale Card

This animal is from a Signet performance recorded flock

EAR NO: _____

LOT: _____

Estimated Breeding Values

Actual Values

SCAN WEIGHT EBV	<u>9.3</u>	kg
MUSCLE DEPTH EBV	<u>2.5</u>	mm
FAT DEPTH EBV	<u>0.04</u>	mm
INDEX	<u>3.50</u>	

High Scan Weight

= Heavy Lambs

Negative Fat Depth EBV

= Leaner Lambs

EBVs produced for King Terminal Sire Breeds

Example Benchmark



	Top 50%	Top 25%	Top 10%
Scan Weight (kg)	5.89	7.13	9.03
Muscle Depth (mm)	1.06	1.55	2.87
Fat Depth (mm)	0.04	-0.15	-0.30
Index	1.45	1.9	2.95



Sale Card

This animal is from a Signet performance recorded flock



EAR NO: _____

LOT: _____

	Estimated Breeding Values		Accuracy Values
SCAN WEIGHT EBV	9.3	kg	_____
MUSCLE DEPTH EBV	2.5	mm	_____
FAT DEPTH EBV	0.04	mm	_____
INDEX	3.50		_____

Compared to Benchmark

Top 10%

Top 25%

Average

Top 10%

For more details contact Signet
Tel: 0247 647 8829 Email: signet@eblx.org.uk
Review the latest EBVs for these animals at www.signetfbc.co.uk

Create a Breeding Plan

Plan

1. Define System (Future)

Market Product, Timing	Consider Constraints Land, Labour, Forage, Housing, Herd Dynamics
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2. Set Breeding Goals

Slaughter Generation	Breeding Herd
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3. Breeding Strategy

EBVs	Hybrid Vigour	Breed Differences
------	------------------	-------------------

4. Implementation

Plan Strategy and Monitor Change



Exercise : Ram Selection

Which ram would you select, where the breeding objectives are:

- **growth rate**
- **muscle depth**



	8 Week Weight EBV	Scan Weight EBV	Muscle Depth EBV	Fat Depth EBV	Index
Mountain	5.46	11.11	2.33	-0.08	326
Ken	2.70	6.37	0.54	<u>-0.91</u>	217
Impression	-0.20	1.35	2.36	-0.50	121
Ian	3.19	8.35	2.19	-0.08	264
Breed Average	2.25	5.04	0.93	-0.06	188

Sourcing information



- Sale Catalogues
- Websites (Breed Societies, Signet)
- **The Breeders**
- Breeder Directory (Sheep)



Bar Chart Sale Card



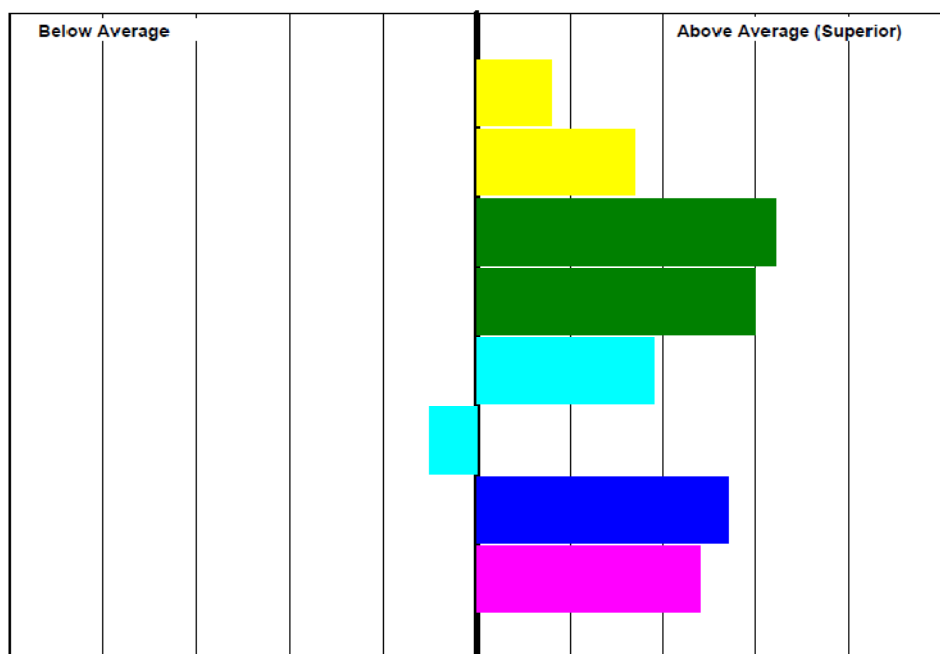
Lot: 8 ABC:00001

Sire: WARWICK KING XYG:00002

Dam: DEF:00099

Ultrasound Scanned: Yes

Date of Birth 08/10/2010



Trait	EBV	Acc
Litter Size	0.1	46
Mat' Ability	1.6	58
8 Week Wt	5.2	71
Scan Wt	10.7	74
Muscle Depth	3.1	71
Fat Depth	0.4	67
T. Sire Index	374	72
Maternal Index	282	69

Signet EBVs can be presented on charts.

The charts quickly show a ram's strengths and weaknesses.

The central line indicates average performance.

Bars to the right of this line indicate the EBV/Index is above average (the further, the better)

For some traits such as fat depth, an extreme to either direction (right being leaner) may be less desirable.

Signet
Signet Breeding Services

www.signetfbc.co.uk

EBLEX

The screenshot shows a Windows Internet Explorer browser window displaying the website <http://www.signetfbc.co.uk/>. The browser's address bar shows the URL, and the menu bar includes File, Edit, View, Favorites, Tools, and Help. The website content is organized into several sections:

- Navigation Menu (Left):** A green sidebar menu with links for About Signet, News, Case studies, Links, and Contact us.
- Latest news (Left):** A section with four news items, each with a "Read more..." link:
 - Sheep Breeder's Roundtable 2011
 - Sheep breeding project launch in Scotland
 - New Factsheet for Sheep Sale Cards
 - Genome wide scanning in beef cattle
- Latest reports (Left):** A section titled "British Blonde EBVs released" with a sub-headline "The June 2011 BLUP run for British Blonde cattle is...".
- Main Content Area:**
 - Two large photographs: one of brown cows in a field and one of a flock of sheep.
 - Two columns of content: "Beefbreeder" and "Sheepbreeder". Each column contains four red or blue buttons: "Get started" (with a play icon), "EBV search" (with a magnifying glass icon), "Latest reports" (with a document icon), and "Technical publications" (with a line graph icon).
- Footer:** Copyright notice: © AHDB 2011 | Use of this site is subject to our terms of use and our privacy policy. The EBLEX logo is also present.

The browser's status bar at the bottom shows a warning icon and the text "Done, but with errors on page." and "Internet". The zoom level is set to 100%.

EBV search



HOME HELP CONTACT US QUICK SEARCH **EBV SEARCH** BREEDER SEARCH all breeds quick search:

Welcome to the BASCO search engine

This facility will enable you to find animals held on the BASCO database

To start quickly go to the box top right and begin typing

EBV search



breed

search

results view
 animal details
 estimated breeding values

breeder prefix

flock prefix

animal name

flockbook number

sex
 Male
 Female
 Castrate

status
 Live
 Dead
 Sold

born after

born before

Eight Week Weight EBV top %

Scan Weight EBV top %

Muscle Depth EBV top %

Fat Depth EBV top %

Litter Size EBV top %

EBV search – animals results view



[download EBVs](#)

full name fbn date of birth sex breed

full name	fbn	date of birth	sex	breed
not available	22632082143	30/08/2008	M	TEXEL
not available	2263208NT6	01/09/2008	M	TEXEL
not available	22632082125	29/08/2008	M	TEXEL
not available	22632082130	29/08/2008	M	TEXEL
not available	22632082104	25/08/2008	M	TEXEL
not available	22632082127	29/08/2008	M	TEXEL
not available	22632082114	27/08/2008	M	TEXEL
not available	22632082111	26/08/2008	M	TEXEL
not available	22632082140	31/08/2008	M	TEXEL
not available	22632082146	01/09/2008	M	TEXEL
not available	2263208NT4	24/08/2008	M	TEXEL
not available	22632082108	27/08/2008	M	TEXEL
ALLANFAULD	XMM08074	18/03/2008	M	TEXEL
ALLANFAULD	XMM09004	20/02/2009	M	TEXEL

EBVs downloaded to excel



Microsoft Excel - BASCO_Search[1].xls

File Edit View Insert Format Tools Data Window Help

Arial 10 B I U % 100%

A2 22632082143

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	flock book number	sex	date of birth	W8W	SWT	MD	FD	LitBorn	CTLean	CTFat	CTMusc	Index	MatSize	MatAb	FEC	details
2	22632082143	♂	30/08/2008	4.83	9.57	2.4	0.35	0.14	2.65	1.2	2.74	267.82	0.54	0.28	0.15	view at BASCO Search
3	22632082125	M	29/08/2008	5.31	10.4	2.63	0.39	0.13	2.88	1.32	3.08	283.56	0.52	0.2	0.17	view at BASCO Search
4	22632082146	M	01/09/2008	4.63	9.36	2.7	0.41	0.18	2.55	1.16	3.27	265.75	1.03	0.33	0.12	view at BASCO Search
5	22632082130	M	29/08/2008	4.85	9.75	2.78	0.44	0.18	2.66	1.23	3.27	271.87	1.03	0.33	0.12	view at BASCO Search
6	22632082114	M	27/08/2008	4.86	9.6	2.45	0.34	0.13	2.67	1.19	3.08	270.88	0.52	0.2	0.17	view at BASCO Search
7	22632082108	M	27/08/2008	4.72	9.52	2.73	0.42	0.18	2.6	1.19	3.27	268.26	1.03	0.33	0.12	view at BASCO Search
8	22632082127	M	29/08/2008	4.67	9.67	2.59	0.44	0.15	2.59	1.23	3.98	269.07	0.92	0.07	0.1	view at BASCO Search
9	22632082104	M	25/08/2008	4.57	9.65	2.34	0.11	0.12	2.8	1.09	3.39	280.67	0.54	0.14	0.09	view at BASCO Search
10	22632082140	M	31/08/2008	5.2	10.21	2.54	0.39	0.14	2.82	1.3	2.74	277.99	0.54	0.28	0.15	view at BASCO Search
11	22632082111	M	26/08/2008	4.57	9.65	2.34	0.11	0.12	2.8	1.09	3.39	280.67	0.54	0.14	0.09	view at BASCO Search
12	2263208NT4	M	24/08/2008	5.08	10.03	2.67	0.58	0.1	2.62	1.36	3.61	265.11	0.77	0.41	0.16	view at BASCO Search
13	2263208NT6	M	01/09/2008	4.57	9.65	2.34	0.11	0.12	2.8	1.09	3.39	280.67	0.54	0.14	0.09	view at BASCO Search
14	XMM08074	M	18/03/2008	4.42	10.46	2.6	0.53	-0.02	2.57	1.15	5.95	275.06	0.18	0.55	0.13	view at BASCO Search
15	XMM09004	M	20/02/2009	3.91	9.91	1.8	0.36	0.13	2.54	1.1	5.34	272.75	0.41	0.68	0.14	view at BASCO Search
16	XMM09008	M	14/02/2009	4.52	9.14	2.22	0.46	0.03	2.52	1.16	5.99	273.55	0.77	1.06	0.14	view at BASCO Search
17	XMM09018	M	14/02/2009	5.06	11.29	2.43	0.57	0.03	2.93	1.42	5.25	294.58	0.77	1.06	0.14	view at BASCO Search
18	XMM09015	M	15/02/2009	4.22	9.28	2.45	-0.03	0.15	2.82	0.91	4.4	287.19	0.87	0.78	0.27	view at BASCO Search
19	XMM09003	M	13/02/2009	4.16	10.01	2.26	0.5	0.03	2.53	1.19	5.34	271.46	0.77	1.06	0.15	view at BASCO Search
20	XMM09011	M	13/02/2009	5.13	11.51	2.52	0.64	0.12	2.91	1.5	5.96	292.52	1.9	1.15	0.35	view at BASCO Search
21	NTA08634	M	25/03/2008	3.31	7.86	2.26	-0.58	0.1	2.77	0.06	4.62	270.3	1.41	0.87	0.26	view at BASCO Search
22	NTA09825	M	26/03/2009	6.44	12.45	2.34	0.35	0.17	3.72	1.59	5.17	348.52	1.01	1.01	0.03	view at BASCO Search
23	NTA09821	M	16/03/2009	3.48	7.17	2.33	-0.46	0.14	2.79	0.24	5.87	286.03	0.82	0.59	0.26	view at BASCO Search

Real farm data: Defra Funded Project

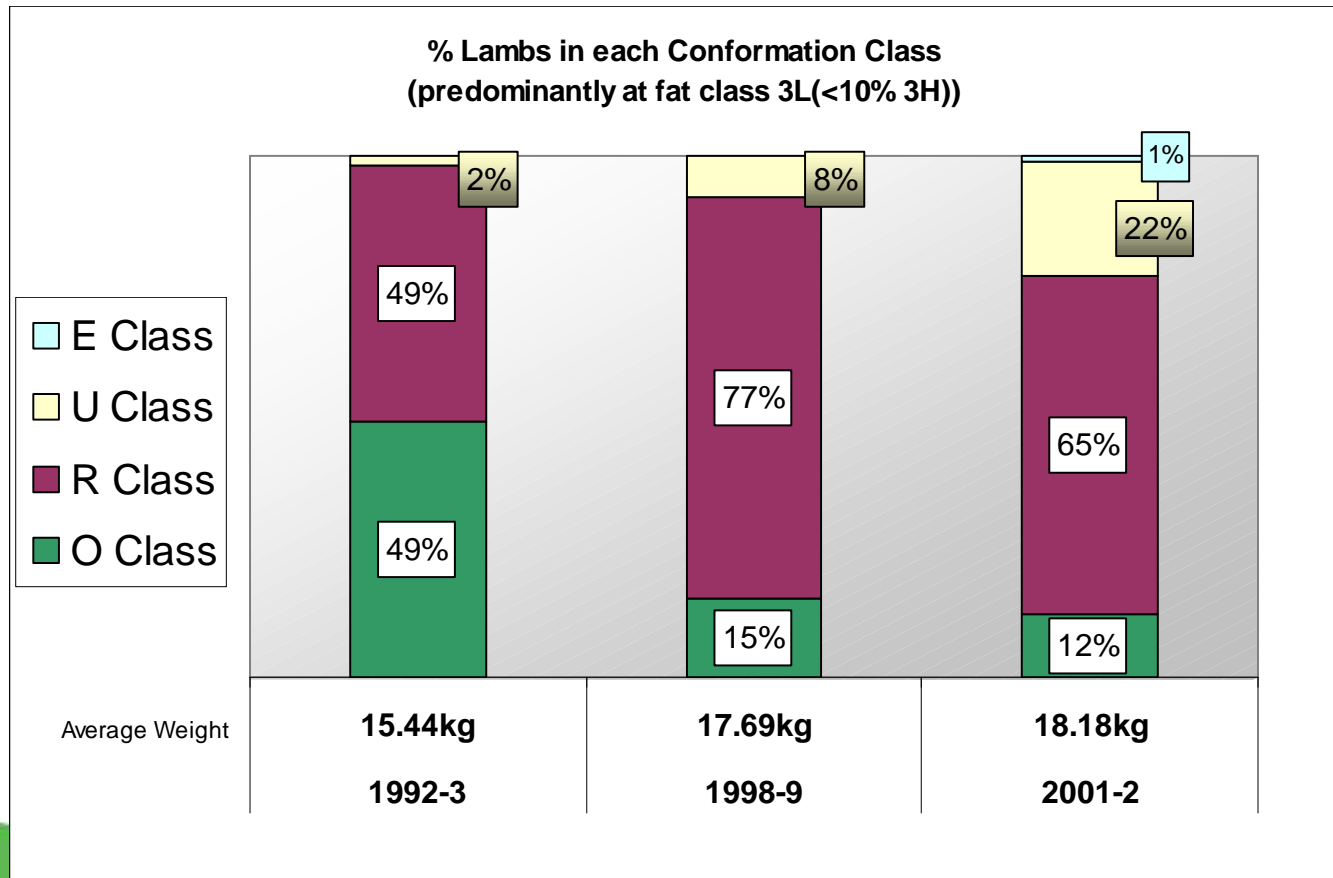


	Reduced days to slaughter	Extra Carcase Weight	Extra Value *
Stott	13 days	0.5kg	£2.86
Dugdale	8 days	0.7kg	£2.78
Harrison	5 days	0.8kg	£2.68

* Costs @ 12p/day & Price @ £2.60/kg



Lamb Sales 1992-2002



Profitable Sheep Breeding



- Hi/Low Project (2000/05) Approx. **£2/lamb benefit**
 - Suffolk, Texel & Charollais rams sired 6,200 Lambs
- ADS Trial (2004/06) Averaged **£2.50/lamb benefit**
 - High EBV vs. Farm rams
- CST Trial (2005/08) Variable **£1 - £4/lamb benefit**
 - High vs. Farm rams
- QMS Hill Sheep Project (2007) **£3+ /lamb benefit**
 - High, Low and Farm rams. Blackface, Cheviot and Texel Rams

Rams used at Lower Highfield



Ram	8 week EBV	Scan wt EBV	Muscle EBV	Fat EBV	Index
NZS:N3	5.05 Top 10%	8.95 Top 25%	3.21 Top 10%	0.33	3.33 Top 10%
NZS:N8	4.89 Top 25%	7.10 Top 25%	3.79 Top 10%	0.23	2.86 Top 25%
A58:L30	3.70 Av	7.10 Top 25%	1.12 Av	0.07	1.89 Av
Av SF bench	3.34	5.89	1.06	0.04	1.45



Lower Highfield market

- Sells liveweight
 - Relatively small numbers to sell
 - Access to liveweight market using tractor and trailer
 - No deadweight centre within travelling distance
 - Uneconomical to pay for haulage to abattoir
- Lambs selected for sale based on
 - Reaching a minimum weight (41 kg)
 - Handling for “finish” (fleshing and fat cover)



Lower Highfield market data challenges



- Selling liveweight – no classification to identify quality (unless buyer takes account in bidding price)
- Sold in mixed sire pens – no ability to identify or reward for individual differences in quality
- Market weights are for pen and averaged (but farm weighs before sending to market)
- Selling price is for the pen and therefore averaged per lamb – no distinction made for individual lamb differences





Lower Highfield results

Ram	No Lambs	No sold in period	Av sale weight (live kg)	Av No days to sale	Av £	Left
NZS:N3	17 <i>(Twins/ Triplets)</i>	13	42.1	110	93.96	1 pet, 2 twins, 1 triplet
NZS:N8	30 <i>(3 single, tw/tr/quads)</i>	28	43.0	113	91.75	2 twins
A58:L30	38 <i>(7 single, twins/triplets)</i>	33	42.3	115	91.23	3 pets, 1 single, 4 triplets





Lower Highfield Results

- Lambs from high index rams reached min selling weights faster
- Lambs from high index rams achieved higher prices
- Lambs from high index rams achieved finish faster





Suggestions

- Identify market buyers and try to obtain some feedback where possible
- Use high index rams and select high EBVs for growth and fleshing.
- Use rams with positive fat EBVs (but not extreme fat)
- If sufficient numbers being sold, separate pens on quality



Real financial impact



Assuming an average benefit of £2.77

For an average 240 ewe flock rearing 1.5 lambs this is **worth £1000 per annum**





Invest in performance

Assume that a ram has 280 progeny during his lifetime - this extra value is worth £776

It is highly cost effective to invest in recorded breeding stock





Real financial benefits

1. More efficient growth rates

- Less days to slaughter / production costs

2. Targeted lamb production

- Time production to hit key markets

3. More lambs hit market specifications

4. Higher growth rates

- Increased live weight / dead weight
- Larger store lambs



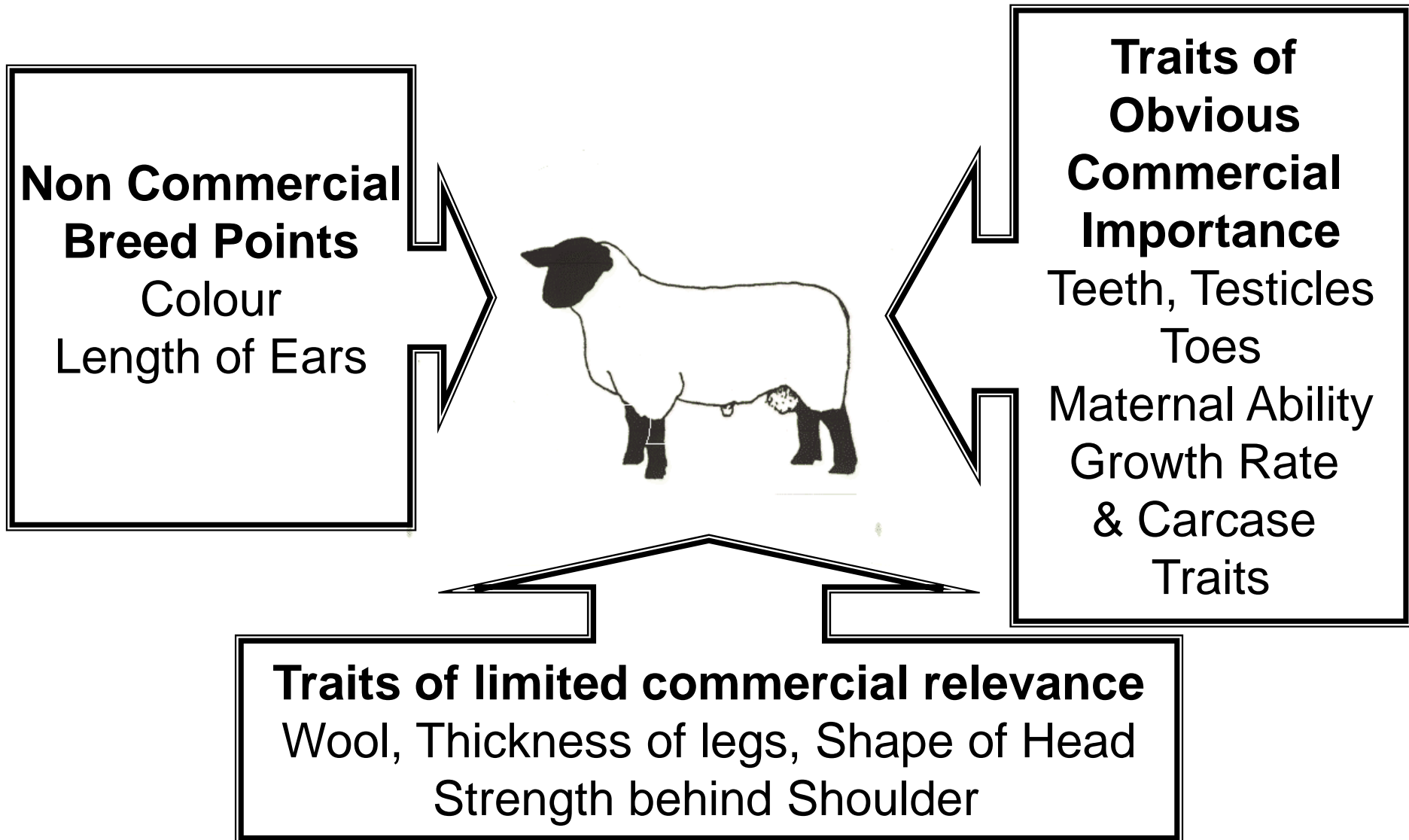
Conclusions



- Breeding can't be judged by “eye alone”
- EBVs provide the best guide to breeding potential
- Focus on traits that will enhance profitability
- Ensure physical fitness (**3-T test**) and health



Think!



Thank you



Better Returns Programme

Delivered by

