"Feeding and managing ewes for improved health and efficiency"

at the farm of:

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Thursday 23rd January, 2014

Researching the way forward

Feeding and managing ewes for improved efficiency

Today's farm walk aims at providing you with information and tools to inform feeding and managing decisions

Topics for discussion include:

1. Breeding strategies for a better ewe efficiency
2. Selecting for ewe prolificacy and easier-care traits
3. Diagnosis and treatment of lameness in sheep
4. Sustainable methods for liver fluke control
5. Feeding strategies for indoor lambing systems

Farm overview

John and Billy Martin, Greyabbey, Newtownards

Sheep enterprise

- **460 breeding ewes + 140 ewe lamb replacements**
- **50 ha grassland**

Early lambing (New Year)

- 110 ewes Regulin
- Replacements kept for mating as ewe lambs
- Creep fed

Main season lambing (March/April)

- In-lamb ewes housed at Christmas
- Fed silage and home-mixed meal
- Lambs marketed through Strangford Down Ltd (Linden Foods) & D. Burns (butcher)

Beef enterprise - 25 suckler cows with calves finished to beef
Arable enterprise - Winter barley for own use (5 ha)
Biomass - 38 acres of SRC Willow

Breeding programme

John and Billy Martin, Greyabbey, Newtownards

Breeds

- Composite breeding ewes
- Maternal sires: Belclare, Highlander
- Terminal sires: Primera, Suffolk,Texel, Charollais (ewe lambs)
- All replacements homebred (Belclare x, Highlander x)

Ram selection

- Rams are now selected, where possible, using performance records (EBV)
- Main criteria used in ram selection:
  - Prolificacy / maternal ability
  - Carcass quality
  - Worm resistance

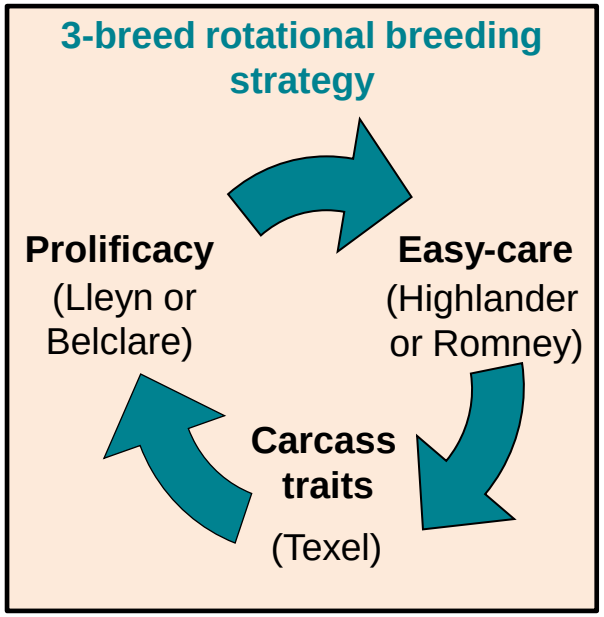
Key objectives

- To have a labour efficient, easier-care working system
- To breed durable ewes from within the flock with the capacity to:
  - increase numbers of lambs weaned per ewe
  - improve lambing ease

Breeding strategies for efficient lowland flocks

Breeding more efficient lowland ewes

- **Poor ewe fertility** and **lambing difficulties** are the main constraints on profitability
- Rotational breeding strategy: to introduce maternal traits, whilst still delivering high lamb output to market specifications



Performance of composite ewes on 6 lowland flocks (1 and 2 crop ewes)

	Ewe breed			
	Lleyn/ Belclare X	Highlander X	Romney X	Texel X
Weight at mating (kg)	59	60	60	60
Lambs weaned per 100 ewes lambed	146	167	149	135
% ewes lambed unassisted	86	89	82	88
Lamb growth rate (kg/d)	0.24	0.26	0.25	0.26
Total wt lamb weaned (kg/ewe)	48	55	52	53
Ewe efficiency (kg lamb weaned per kg ewe)	0.82	0.90	0.86	0.88

- **Highest weaning rates for Highlander X ewes**
- **Good efficiencies of 80-90%**
- **Work ongoing to assess lifetime performance**

Breeding strategies for efficient hill flocks

Breeding more efficient hill ewes

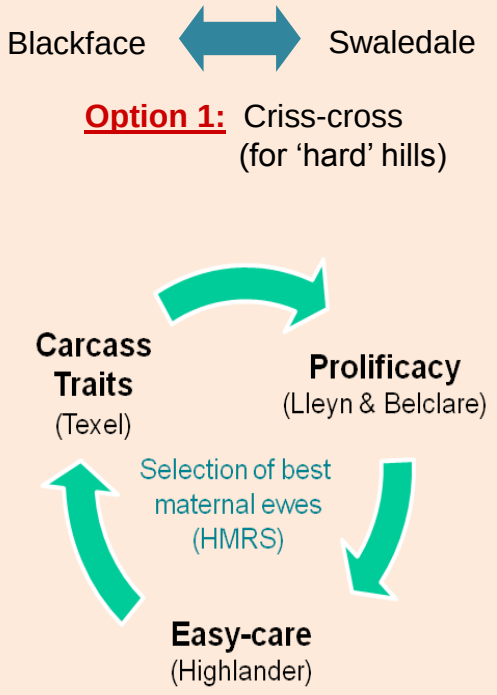
- **Ewe fertility** and **lamb growth performance** are the main constraints on profitability
- Efficiency of **crossbred ewes** shown to be equal or superior to that of purebred Blackface (BF), in particular Lleyn x BF and Swaledale x BF
- 3-way crosses: to introduce additional traits

Performance of new hill ewe types on 6 commercial flocks (1 and 2 crop ewes)

Ewe breed	Mating weight (kg)	Lambs born per 100 ewes lambed	Lambs weaned per 100 ewes lambed	Ewe efficiency (kg lamb weaned per kg ewe)
Blackface X	47	131	114	0.92
Swaledale X	48	156	136	0.96
Belclare X	53	149	120	0.91
Highlander X	50	154	131	0.97
Lleyn X	51	128	113	0.88
Texel X	53	134	110	0.82

- **High level of performance (average 1.21 lambs weaned/ewe)**
- **Efficiencies: 15-20% higher than BF ewes (except Texel X)**

Replacement breeding strategies for hill sheep flocks



Working in partnership with industry

Selecting ewes for maternal traits

Hillsborough Management Recording Scheme

- Objectives:
  - Identify ewes in commercial flocks suited to easier-care systems
  - Breed replacement sheep that will require less intervention at lambing in future easier-care systems

- Recording & analysis:
  - Step 1: Simple recording of key traits for prolificacy and easier-care traits

    (provision of summary report)
  - Step 2: Simple recording of lamb live weights

    (provision of performance index of ewes)

    Ewes and replacements ranked on performance on a scale 0-100

Hillsborough Management Recording Scheme

Lambing booklet

Step 1:
Lambing book

Key traits for 'easier management':

Lambing ease →

Mothering ability →

Lamb viability →

Ewe no:	*52*	Date of lambing:	*21/03/05*
Ewe breed:	*B*	Sire breed (ID)	*LL*
Ewe details			
Age at lambing:	1-yr	(2-yr)	3yr+
Lambing difficulty score:	No help	Little help	Manual delivery: (OK) / Difficult
If helped Why?	Management	(Oversized)	Malpresented
Mothering ability:	(Follows whatever)	Stands well back	Leaves lambs
Lamb details			
Lamb tag no:	22	23	24
Lamb sex:	(M) / F	M / (F)	(M) / F
Fostered to:	Ewe no	Ewe no	Ewe no
Lamb viability:	(Up & suck) / Slow suck / Help suck	Up & suck / (Slow suck) / Help suck	Up & suck / Slow suck / (Help suck)
Date of mortality:			
General ewe problems			
Teat problems:		(Yes)	
Insufficient colostrum:		(Yes)	
Prolapse:		(Yes)	

Step 2:
Lamb live weight book

Key traits for productivity: number of lambs reared per ewe and lamb weight

Hillsborough Management Recording Scheme

Summary reports (examples)

From lambing book

Farm name	2010	
Ewe Details		**% of total**
Total number of ewes	84	
Average number of lambs per ewe	1.5	145.2
No. of ewes with 1 lamb	43	51.2
No. of ewes with 2 lambs	34	40.5
No. of ewes with 3 lambs	7	8.3
No. of ewes lambed unaided	55	65.5
No. of ewes that needed some help	18	21.4
No. of ewes that needed manual help	9	10.7
Unavailable data	2	2.4
No. of ewes who follows lamb whatever	73	86.9
No. of ewes who stands well back	2	2.4
Unavailable data	9	10.7
Lamb Details		**% of total**
Total number of lambs	122	
Number of lambs born dead	1	0.8
Number of lambs born alive	121	99.2
No. of lambs up to suck	116	95.9
No. of lambs slow to suck	0	0.0
No. of lambs needing help to suck	5	4.1

From lamb live weight book

Farm name **2011**

Ewe	Sire	Age	No lambs	LDS	MA	WWT	INDEX
281	BL	3	2	1	1	77	**100**
304	T(P)	2	2	1	1	92	**98**
211	S(M)	3	2	1	1	92	**87**
310	T(F)	2	3	1	1	113	**86**
272	T(G)	3	3	1	1	119	**85**
109	T(P)	3	2	1	1	77	**84**
286	S(B)	3	2	1	1	89	**84**
207	S(M)	3	2	1	1	85	**83**
153	S(B)	3	2	1	1	88	**83**
287	S(B)	3	2	1	1	85	**82**
200	T(F)	3	2	1	1	92	**81**
302	T(P)	2	2	2	1	92	**81**
280	T(F)	3	2	1	1	91	**80**
140	T(F)	3	2	1	1	90	**80**
251	S(T)	3	2	1	1	84	**79**
177	T(V)	3	2	1	1	78	**77**
94	S(W)	3	2	2	1	78	**74**
205	S(M)	3	2	2	1	98	**73**
265	T(G)	3	3	2	1	127	**72**
326	S(M)	2	2	2	1	81	**70**
...	**...**	**...**	**...**	**...**	**...**	**...**	**...**

Hillsborough Management Recording Scheme

Towards easier care systems

Case study

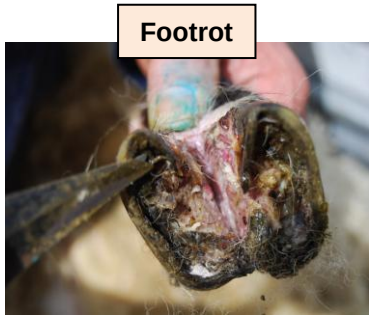
Average number of ewes in the flock: 85 (mostly Blackface)

	2007	2008	2010	2013	Trend
Easier management traits					
% ewes lambed unaided	65	55	67	80	+
% ewes who follows lamb	77	72	97	97	+
% lambs up to suck	93	95	96	94	+
Productivity traits					
% ewes with > 1 lamb	42	41	49	47	+
% lambs born alive	97	98	99	98	+

Diagnosis and treatment of lameness in sheep

Do you know the cause ?

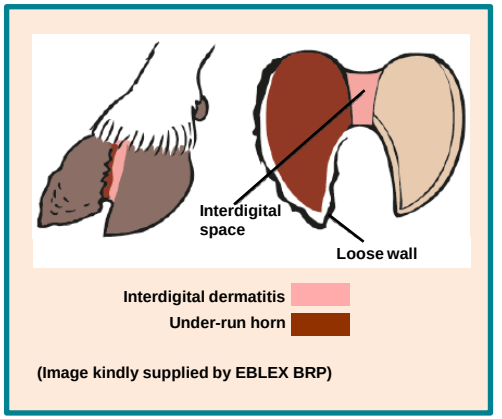
- Lameness can cause long-term pain and increase production costs (due to reduced feed intake) and treatment costs
- Knowing the cause of lame sheep is the first step towards its treatment, control and prevention
- Main issues identified in NI sheep flocks surveyed:



Towards a better control

Booklet available to:

- Better diagnose the cause
- Identify appropriate treatment options
- Know how to prevent the conditions
- Follow best practice for foot bathing, foot trimming



Diagnosis and treatment of lameness in sheep

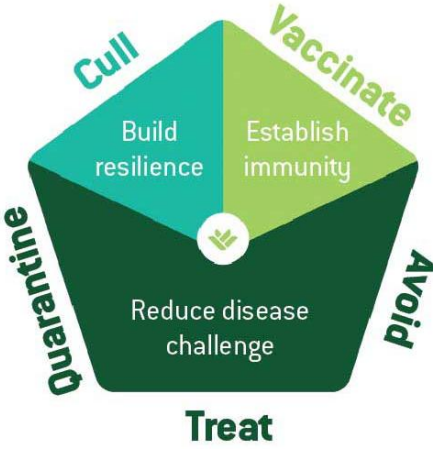
Treatment and prevention

Key points

- Always separate lame sheep and treat last
- Always record or mark treated animals
- Seek veterinary advice if necessary
- In most cases, routine trimming of all feet is unnecessary
- When foot trimming, clean and disinfect foot shears and treatment area, and dispose of any hoof trimmings
- After treatments, animals should stand on a hard, clean and dry surface to maximise efficacy

The 'Stamp out lameness' Campaign

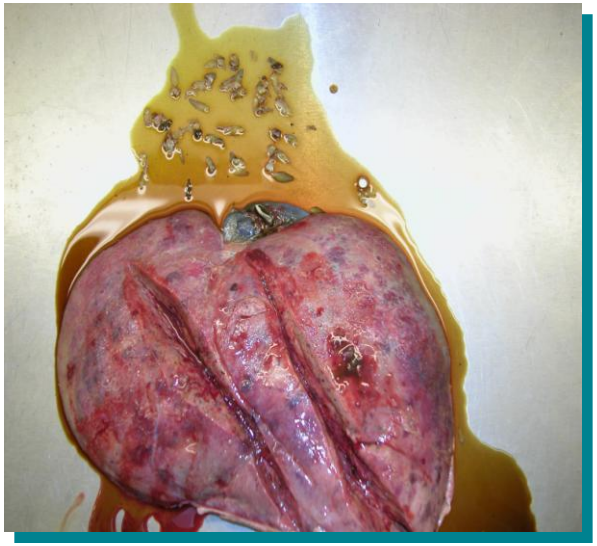
1. Cull badly or repeatedly infected animals
2. Quarantine incoming animals
3. Correct diagnosis and prompt treatment
4. Avoid spreading infection at handling and gathering
5. Adopt a footrot vaccination program



Treatment of Liver Fluke in Sheep

Key Issues

- Choose the right product
- Re-infection and re-treatment – no residual effect
- Use of adulticides
- Avoid unnecessary use of combinations
- Correct dose rate, drenching / application technique



Indoor lambing system

Feeding strategy at John and Billy Martin's Farm

- Produce high quality silage to reduce concentrate input
- Main lambing starts mid March
- Housed end of December meal introduced 3-4 weeks pre lambing
- Blend of 60% barley, 25% sugarbeet pulp, 15% soya, 2.5% molasses, 2.5% minerals

Silage Analysis 2013	
Dry-matter %	29.4
ME (MJ/kg DM)	11.4
CP (% DM)	12.2
D-value (% DM)	71
Ammonia (% total N)	7.0

- Triplets 0.25kg, twins 0.15kg, singles receive minimal meal
- Rate adjusted when lambing starts based on lamb weights

Indoor lambing system

Silage and concentrate diets

- Produce high quality silage to reduce concentrate input
- Match concentrate requirements with forage quality to ensure
  - Viable lambs
  - Udder development
  - Adequate colostrum
  - Maternal bonding

Silage Quality		
	Good	Poor
Dry-matter %	28.4	13.3
ME (MJ/kg DM)	11.2	8.4
CP (% DM)	12.1	8.2
D-value (% DM)	67.3	56.4
Concentrate feed over 6 weeks (kg)	12	28

- Feed rate driven by forage quality
- Must be cost effective

Indoor lambing system

Concentrate supplementation

Key issues:

- Assess nutritional status of ewes and establish litter size
- Know the feeding value of your silage
- Consider the pattern and frequency of meal feeding
- Concentrate composition is important

Energy: - Target 11-12 MJ/kg
- Cereals: feed whole with hay or processed with silage
- Beet pulps/soya hulls

Protein: - Target 17-21% CP & 45-55 g/kg DUP

Vit/Min: - Selenium 0.2-0.4 mg/kg
- Vitamin E 100-150 IU/kg

Benchmarking Farm Performance

John and Billy Martin, Greyabbey, Newtownards

Physical performance

	2011/12	2012/13		2012/13 Average	2012/13 Top 25%
Number of ewes	483	468		187	232
Lambs sold/ewe	1.57	1.68		1.48	1.62
Concentrates fed (kg/ewe)	71	81		69	52
Av. carcass weight (kg)	20	20		21	22
Kg carcass/ha	398	402		236	302

Benchmarking Farm Performance

John and Billy Martin, Greyabbey, Newtownards

Financial performance (£/ewe)

				2012/13	
	2011/12	2012/13		Average	Top 25%
Lamb sales	128	127		108	123
Replacement cost	-9	-7		-12	-9
Total output	124	125		99	118
Total variable costs	46	53		50	42
Gross margin	84	74		49	75
Gross margin £ per Ha	1049	878		374	624
Ewes/ha	13	12		7	8

Researching the way forward

Other current sheep research projects

- Interrelationships between trace element status, gastrointestinal parasite infection and growth performance of lambs
- Development of sustainable livestock systems to promote biodiversity within hill areas (by identifying breeding and grazing strategies)
- Factors affecting eartag retention in sheep
- Effects of breed and forage type on methane emissions from sheep
- Meat quality of entire male versus castrate lambs finished on forage-based diets

NOTES