



SHEEP

Finishing hill lambs

Latest Teagasc research on finishing hill lambs on autumn pastures and on an all-concentrate diet.

The Scottish Blackface breed accounts for approximately 22% of the 2.5 million ewes in Ireland. The majority of these Blackface sheep are maintained on hills or marginal land that is not suited to other sheep breeds or farm enterprises. The majority of the hill breeds are bred pure with an emphasis on producing flock replacements for retention or sale. A proportion of the ewes, particularly in the better hill areas, are crossed with either maternal breeds to produce quality replacements, or with terminal breeds, producing lambs for slaughter. Typically, the cross-bred lamb would be 3-4kg heavier at weaning than the

purebred hill lamb. Profits from these hill sheep enterprises are very much dependent on prices obtained for lambs sold. A large proportion of these lambs become available for sale annually from August onwards. Many hill lambs are sold to lowland finishers and reappear in the spring as hoggets. In recent years, prices for hill lambs, and in particular light hill lambs in the autumn, have been disappointing. This paper summarises the results of recent Teagasc studies and examines the options to improve the marketability and profitability of store hill and cross-bred lambs.

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Market

Traditionally, Ireland has relied on the Mediterranean markets, including Portugal, Spain and Italy, to take the lambs from the hill flocks. In the past, these markets required carcasses from 10kg and upwards, with preferences for carcasses from 12 to 15kg. While hill lambs meet these weight requirements, demands from these markets have declined in recent years. There has been a 54% decline in the level of exports to the three Mediterranean countries, and an 87% decline in the combined Portuguese and Spanish markets. In the past number of years, purchasers of store hill lambs in the autumn achieved good margins on these lambs because of good lamb and hogget prices in late winter/early spring.

Performance of hill lambs on lowland pastures

In the autumn of 2014 Teagasc purchased Scottish Blackface wether and ram lambs from five farms in the Mayo, Galway and Sligo area. On arrival, lambs were dosed for fluke and worms, and received 8:1 clostridial and orf vaccinations. Lambs were placed on pasture and their performance measured

until December 2015. Interestingly, the performance of the light lambs (<25kg) surpassed the performance of the heavier lambs. This might indicate that there was some compensatory growth in the lighter lambs.

From Mid-October to mid-November the performance of all lambs declined to an average of 45g/day. After mid-November, daily liveweight gain declined to 0g/day. During the autumn grazing period the performance of ram and wether lambs was similar (**Table 1**).

Options for dealing with hill lambs

Because of the variability among hills and in the amount of green land available, there is no single option that best fits all hill farms. Therefore, a number of options are discussed in terms of their advantages, disadvantages and expected lamb performance.

Option 1: Sell at weaning

If good quality autumn grass is scarce or not available, it is advisable to sell the store lambs in August and prioritise available grass and feed supplies to improve the body condition of ewes and ewe replacements.

Table 1: Performance of Scottish Blackface male lambs on lowland pastures – Athenry 2014.

	Lamb weight category (kg)		
	<25	25.1-30	>30
Weight on August 1 (kg)	24.3	27.3	30.5
ADG to October 10 (g/day)	145	110	104
10-week gain (kg)	10.2	7.7	7.3
Weight October 10 (kg)	34.9	35.3	38.1

Advantages:

- extra grass made available for ewe lambs and breeding ewes;
- savings on flock health costs; and,
- improved cash flow.

Disadvantages:

- poor prices for light lambs;
- limited markets; and,
- lamb potential not exploited by primary producer.

Option 2: Graze and sell mid-November

This requires excellent quality grass and grassland management. Usually lambs fail to perform for the first two weeks after going onto new pasture, or after they are purchased in.

Advantages:

- heavier lambs;
- greater sale options; and,
- possibly higher prices.

Disadvantages:

- less grass for ewe lambs and breeding ewes;
- additional flock health costs; and,
- delayed cash flow.

Expected lamb performance**August to end September:**

115g/day or 0.8kg/week.

October 1 to mid November:

60g/day or 0.4 kg/week.

Total liveweight gain after 12 weeks:

7.2kg.

This option would apply to purchasers of store hill lambs. Where lambs are being bought for autumn grazing, it is important that they are purchased early in the autumn to maximise the gain from grazed grass.

Option 3: Graze + supplementary meal feeding at pasture and sell mid-November

This also requires excellent quality grass and grassland management + meal feeding (300g/lamb/day) by trough.

Advantages:

- heavier lambs;
- greater sale options; and,
- possibly higher prices.

Disadvantages:

- less grass for ewe lambs and breeding ewes;
- additional flock health costs;
- cost of concentrates (€6.30/lamb); and
- delayed cash flow and cash to purchase meal.

Expected lamb performance**August to end September:**

155g/day or 1.1kg/week.

October 1 to mid November:

100g/day or 0.7kg/week.

6-9kg concentrates required for 1kg liveweight gain.

Total gain after 12 weeks = 11kg.

The direct cost of the meal consumed per lamb will vary from €6.30 (€250/tonne) to €8.82 (€350/tonne).

The key question is: will the extra liveweight gained (expected to be about 4kg) by the lamb be more than covered by the price obtained for the lamb in November?

Option 4: Finish lambs on all-meal diet after weaning

This requires housing the lambs and finishing them on an all-meal diet.

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Advantages:

- extra grass for ewe lambs and breeding ewes;
- heavier lambs; and,
- French lamb prices.

Disadvantages:

- cost of meal;
- large quantity of meal required, particularly for light lambs;
- a long finishing period for light lambs;
- additional flock health costs;
- facilities;
- delayed cash flow and cash to purchase meal; and,
- lambs finished before price rise in spring.

Option 5:

Grazed for a period followed by finishing on all-meal diet

With this option the lambs are grazed until the end of October, or even longer when kept at a low stocking rate.

During this period lambs would be expected to gain on average about 7-10kg if grazed on very good quality grass. At the end of the grazing period, lambs would be housed and finished on an all-meal diet.

This is in fact the system that is followed by many lowland farmers. Store hill lambs are purchased in the autumn and grazed on grass until December.

Table 2: Performance of light and medium weight Scottish Blackface and Texel cross Scottish Blackface when finished on an all-concentrate diet.

	Scottish Blackface		Texel x Scottish Blackface	
	Light	Medium	Light	Medium
Starting weight (kg)	24.8	29.1	24.9	29.9
Days on full diet	73	61	65	60
Total meal intake (kg)	89.4	72.6	82.2	77.6
Daily intake (kg)	1.24	1.19	1.26	1.3
ADG (g/day)	206	197	277	230
FCE	6.4	6.8	4.6	5.7
Liveweight gain (kg)	14.2	11.3	17.0	13.2
Slaughter weight (kg)	39.0	40.4	41.9	43.1
Carcass weight (kg)	17.1	17.6	17.4	19.3
Carcass conformation				
% 'U'	0%		20%	
% 'R'	80%		80%	
% 'O'	20%		0%	
KO%	43.81	43.63	41.60	44.60
% carcass >15kg (French)	96		100	

Kill out details

Gender = Ram
 LW = 45.8kg
 Carc Wt = 21.9kg
 Grade = O3L
 ADG = 200 g/day
 KO% = 47.81



Table 3. Performance of heavy Scottish Blackface and Texel X Scottish Blackface lambs on an all-concentrate diet.

	Scottish Blackface		Texel X	
	Ram	Castrate	Ram	Castrate
Start weight (kg)	36.9	36.0	40.8	41.2
Final live weight (kg)	46.3	43.8	54.1	52.9
Days on full diet	36	36	36	36
ADG (g/day)	255	218	364	315
Total gain (kg)	9.2	7.8	13.1	11.3
Daily feed intake (kg)	1.42	1.41	1.66	1.63
FCE	6.29	7.08	4.73	5.51
Carcass weight (kg)	20.65	20.47	25.60	25.82
Kill out (%)	45.0	47.1	47.0	48.1
Carcass fat score (1-5)	3.22	4.21	3.04	3.77
Carcass grade (1-5)	2.57	2.57	3.72	3.68

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Results from a study in Athenry recorded no effect of shearing of the lambs at the start of the indoor feeding period.

Advantages:

- heavier lambs at start of meal feeding period;
- reduced meal requirement;
- French lamb prices;
- higher prices in the period from January to March; and,
- reduced finishing period.

Disadvantages:

- less grass for ewe lambs and breeding flock;
- additional flock health costs;

- facilities; and,
- cash flow?

Performance of Scottish Blackface and Texel X Scottish Blackface lambs on an all-concentrate diet (Study 1)

In recent years, Teagasc at Athenry has conducted a number of studies on the finishing of wether and ram Scottish Blackface and Texel cross Scottish Blackface store lambs on an all-concentrate diet. The ration fed was 70% cereal ration with 15% protein and a UFL = 1. The diet was formulated for this

Table 4. The impact of varying meal prices, factory lamb price and mortality on margin per lamb.

	Lamb starting weight (kg)		
	25	30	35
€20 increase in meal price	€-2.31	€-1.55	€-1.05
20 cent increase in lamb factory price	€3.70	€3.70	€3.70
1 percentage point increase in lamb mortality	€0.42-0.52	€0.50-0.65	€0.65-0.80

purpose and contained 0.5% ammonium chloride to mitigate the risk of urinary calculi. The ration was initially offered at 300g/lamb/day and increased by 200g/lamb/day every three days until full feeding was achieved. This usually took 12-14 days. A small quality of silage (400g/day wet weight) was offered to lambs. The performance of light and medium Scottish Blackface and Texel cross lambs is summarised in **Table 2**. The Texel cross lambs had higher performance than the Scottish Blackface lambs, had higher intake, were more efficient converters of ration to liveweight gain, and had better carcass conformation. Almost all lambs reached French market specification. In a subsequent study (Study 2) lambs were purchased at the end of July and grazed for a period during the autumn, and then housed and finished on an all-concentrate diet. These lambs were heavier when placed on the all-concentrate diet. Diet and feeding arrangements were similar to Study 1. Lamb mortality in this study was 1 lamb from 200 or 0.5%. Results are summarised in **Table 3**. Ram lambs of both breed types had a higher daily gain and were more efficient converters of ration to liveweight gain than castrated wether lambs. As expected, ram lambs had lower killing out rates, particularly Scottish Blackface ram lambs. Scottish Blackface lambs had significantly poorer conformation than Texel cross lambs with ram lambs. At carcass weights of 20.5kg, the carcasses from Scottish Blackface lambs were becoming over fat. This would suggest that when finishing Scottish Blackface wether lambs on an all-concentrate diet, the target carcass weight should not be more than 18.5-19kg. Ram lambs can be brought to a heavier carcass weight without becoming over fat.

Shearing of lambs

Results from a study just completed in Athenry recorded no effect of shearing of the lambs at the start of the indoor feeding period. Shearing had no effect on average daily gain, feed intake, feed conversion efficiency or final carcass weight. Not surprisingly, kill out percentage was 1.2 percentage points higher in shorn lambs. Based on these results, there is no benefit to shearing lambs at the start of the indoor feed period. If you are contemplating shearing of hill lambs, it is probably best to do it in August.

Variation in lamb performance

A significant feature of all of the recent studies at Athenry has been the observed significant variation in the liveweight performance of lambs on an all-concentrate diet. Much of this variation in performance is directly related to the intake of concentrate feed by the lamb. Lambs with high intakes of 1.8-2.0kg per day will perform at close to 450-500g per day, while lambs eating less than 1kg per day will perform at about 100g per day. Therefore, in any group of lambs there is going to be a mixture of low- and high-performing lambs. To avoid lambs becoming overweight and over fat it is vitally important to weigh lambs on a regular basis, particularly as they approach slaughter weight.

Factors affecting margins per lamb

The impact of varying meal prices, factory lamb price and mortality on margin per lamb is presented in **Table 4**.

The impact of changes in meal prices is most significant when feeding lighter lambs and aiming to bring them to "French" weights,

reflecting the fact that they require larger meal inputs. Increasing factory lamb price has a consistent effect across the different lamb weight ranges. The impact of increased lamb mortality is greatest with heavier lambs, reflecting the increased value of a heavier lamb at the start of the feeding period.

Conclusions

A decline in demand for light hill lambs in recent years has led to poor prices being paid for these lambs. However, through careful management value can be added to these lambs. Every effort should be made, through planned grassland management, to maximise weaning weight.

There are then a number of options open to deal with these weaned hill lambs. They can be sold directly for slaughter for the limited light carcass market, they can be sold as stores for further feeding, or they can be successfully fattened by the producer on a high concentrate diet to achieve the French type carcass. Greater than 95% of male Scottish Blackface lambs are capable of producing carcasses of >16kg. Even light hill lambs can be finished on an all-concentrate diet.

To improve the economics of the system, the objective should be to maximise the lamb gain from autumn pasture. The latter requires excellent sheep husbandry to minimise lamb loss and maximise lamb performance. It is vital to be able to obtain a quality ration at a competitive price. The ration must be formulated for intensive feeding of lamb.

Take home messages

- If good quality autumn grass is scarce or not available, it is advisable to sell the store lambs in August and prioritise available grass and feed supplies to improve the body condition of ewes and ewe replacements.
- If purchasing, quarantine procedures should be followed once lambs arrive on the farm.
- Lambs should be vaccinated against clostridial diseases and pasteurised, possibly orf (if purchased) and dosed for internal parasites, including liver fluke.
- Maximise weight gain from autumn grass. Best liveweight gains are achieved from August to the end of October, but grass quality must be good and well managed at all times.
- If you are planning to put lambs on an all-concentrate diet, prepare a budget in advance.
- If you are finishing lambs on an all-concentrate diet, ensure that the diet is formulated for this purpose. Initially offer 300g/lamb/day and increase by 200g/lamb/day every three days until full feeding, and continue to offer a small quantity of long roughage (hay, silage or straw). Ensure that lambs have water at all times.
- When on a full concentrate feeding, regularly weigh lambs and market as they become fit.