Finishing Store Lambs on Autumn Pastures and on All-Meal Diets.

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Take Home Messages

- If planning to finish store lambs prepare a budget in advance and assess all options.
- On hill farms, if good quality autumn grass is scarce or not available, it is advisable to sell the store lambs in August/September 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 pasturella, possibly orf (if purchased) and dosed for internal parasites including liver fluke.
- Aim to maximise weight gain from autumn grass. Best liveweight gains are achieved in August to end of October but grass quality must be good and well managed at all times.
- If finishing lambs on an all concentrate diet, ensure diet is formulated for this purpose, initially offer 300 g/lamb/day and increase by 200 g/lamb/days every 3 days until full feeding, and continue to offer a small quality of long roughage (hay, silage, or straw). Ensure that lambs have water at all times
- When on a full concentrated feeding, regularly weigh lambs and market as they become fit.
- Differences between different strains of Scottish blackface lambs are small and almost all hill lambs are capable of meeting French market specification.

Introduction

The majority of Blackface and their crosses sheep are maintained on hills or marginal land that is not suited to other sheep breeds or other farm enterprises. The majority of the hill breeds are purebred with an emphasis on producing flock replacements for retention or for sale. A proportion of the ewes, particularly in the more favourable hill areas are crossed with either maternal breeds to produce quality replacements or crossed with a terminal breed producing lamb for slaughter. Typically the crossbred lamb would be 3-4 kg heavier at weaning than the purebred hill lamb. Profits from these hill sheep enterprises is very much dependant 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 market place as hoggets the following spring. In recent years, prices for hill lambs and in particular light hill lambs in the autumn have been disappointing while the price for hoggets in the spring has been good. Here we examine the options to improve the marketability and profitability of store lambs. .

Market

Traditionally, Ireland had been relying on the Mediterranean markets including Portugal, Spain and Italy to take the lambs from the hill flocks. In the past, these markets required carcases from 10kg and upwards, with preferences for carcases 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 lambs in the autumn achieved good margins on these lambs because of good lamb and hogget prices in late winter early spring.

Performance of store lambs on lowland pastures.

Ireland's strength in sheep production lies in its ability to produce meat from an almost entirely grass-based diet thus giving us a competitive advantage over many of our EU competitors. Potential exists to finish store lambs from the hills or more marginal land on lowland grassland farms. Tables 1 and 2 outline the typical lamb growth rates and weight gain achievable from lambs grazing high quality grass swards. Various lamb finishing options are outlined below but regardless of system the aim is to achieve as much liveweight gain from grass as possible as this is the most economical feed we have available. Consideration needs to be given to the quantity and quality of grass that will be available on the farm as this will dictate the number of lambs and what weight gain will be achievable over a given time period. Consideration also needs to be given to the demands of other stock on the farm for grass as the autumn and winter progresses. Formulating a plan in July or early August as to how you plan to provide sufficient high quality grass for the finishing period will be critical to its success or failure. An example here might be the strategic application of nitrogen to boost supply and division of the grazing area available with temporary fencing to improve grass utilization and animal performance by allowing regular access to fresh grass.

Table 1. Typical performance of lowland terminal sired lambs on good quality grass

Time period	ADG (g/day)	Kg gain/week
Aug/Sept	160	1.1
Oct/Nov	115	0.8
12 weeks gain (kg)		11.7 kg
Dec/Jan	<50	<0.35

Typical performance of hill bred lambs on good quality grass is shown in Table 2.

Table 2. Typical performance of hill bred lambs on good quality grass

Time period	ADG (g/day)	Kg gain/week
Aug/Sept	160	0.8
Oct/Nov	115	0.4
12 weeks gain (kg)		7.2
Dec/Jan	<50	<0.35

In the autumn of 2014 Teagasc purchased Scottish Blackface wether and ram lambs from 5 farms in Mayo, Galway and Sligo area. On arrival lambs were quarantined for 48 hours. All lambs were foot bathed and inspected subsequently for any signs of lameness.

Table 3. Performance of Scottish Blackface male lambs on lowland pastures at Athenry

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

They were treated for liver fluke with a closantel-based product and for gastrointestinal nematodes with a group 5 -SI–and an Group 3 –ML. Lambs also received an 8:1 clostridial, pasturella and orf vaccinations. Lambs were placed on pasture and their performance measured until December 2015. Interestingly, the performance of the light lambs (<25 kg) surpassed the performance of the heavier lambs (see Table 3). 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 45 g/day. After mid-November daily liveweight gain declined to 0 g /day. During the autumn grazing period the performance of ram and wether lambs was similar (Table 3).

Hill flock options for dealing with male 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.

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.

Advantages	Disadvantages
• Extra grass made available for ewe lambs and breeding ewes. • Savings on flock health costs • Improved cash flow	• Poor prices for light lambs • Limited markets. • 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 2 weeks after going onto new pasture or are purchased in. 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.

Advantages	Disadvantages	Expected Lamb performance
• Heavier lambs • Greater sale options • Possibly higher prices	• Less grass for ewe lambs and breeding ewes. • Additional flock health costs • Delayed cash flow	• August – end Sept: 115g/day or 0.8 kg/week • 1st Oct – mid Nov: 60g/day or 0.4 kg/week • Total liveweight gain: After 12 weeks = 7.2 kg

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. The direct cost of the meal consumed per lamb will vary from €6.30 per lamb (€250/ tonne) to €8.82 (€350/ tonne). The key question is will the extra liveweight gained (expected to be about 4 kg) by the lamb more than be covered by price obtained for the lamb in November.

Advantages	Disadvantages	Expected Lamb performance
• Heavier lambs • Greater sale options • Possibly higher prices	• Less grass for ewe lambs and breeding ewes. • Additional flock health costs • Cost of concentrates (€6.30/lamb) • Delayed cash flow and cash required to purchase meal	• August – End Sept: 155g/day or 1.1 kg/week • 1st Oct – mid Nov: 100g/day or 0.7 kg/week • 6-9kg concentrates required for 1 kg liveweight gain. • Total gain after 12 weeks = 11kg.

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

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

Advantages	Disadvantages
• Extra grass for ewe lambs and breeding ewes. • Heavier lambs • French lamb prices	• 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 required to purchase meal. • Lambs may be finished before price rise in spring.

Option 5. Graze for a period followed by finishing on all-meal diet

With this option the lambs are grazed until 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 7-10 kg if grazed on very good quality grass. At the end of grazing period lambs are housed and finished on an all meal diet. This is in fact the system that is followed by many lowland purchasers of store lambs. Then lambs are purchased in the autumn and grazed on grass until December and then finished on an all concentrate diet.

Advantages	Disadvantages
• Heavier lambs at start of meal feeding period • Reduced meal requirement • French lamb prices achievable • Typically higher prices in January-March. • Reduced finishing period	• Less grass for ewe lambs and breeding flock • Additional flock health costs • Facilities • Delayed cash flow

The finishing of store lambs in the autumn and winter period can be achieved using a range of different feeding options. Here key areas to ensure optimal lamb performance when finishing lambs on concentrates are outlined.

Concentrate feeding of lambs

The purpose of supplementing lambs with concentrate feed is to provide them with a concentrated form of energy and protein in a digestible form which is also balanced to provide essential vitamins and minerals.

Table 4. Energy density of various ingredients when included in lamb finishing diets.

High Energy	Medium Energy	Low Energy
Cereals (Maize, Barley, Oats, Wheat) Pulps (Citrus & Beet) Soyabean Meal Distillers Grains Peas & Beans Molasses (<5%) Oil (small quantities)	Maize Gluten Soya Hulls Rapeseed Meal	Pollard / Wheat feed Palm Kernal Sunflower Oatfeed Cottonseed

Growing lambs (less than 35kg) have an additional requirement for protein and should receive a diet containing 13-14% crude protein. Lambs that are well grown and in the finishing phase will not benefit from dietary crude protein levels above 11or 12%.

Key points when finishing lambs on concentrate diets

- It may be necessary to train lambs to eat concentrates 2-3 weeks prior to housing – outdoor with creep feeders or indoors with access to roughage.
- If finishing lambs on an all concentrate diet, ensure diet is formulated for this purpose, initially offer 300 g/lamb/day and increase by 200 g/lamb/days every 3 days until full feeding, and continue to offer a small quality of long roughage (hay, silage, or straw). Ensure that lambs have water at all times.
- Pen size should not be more than 30 lambs and each lamb should be allocated at least 0.8m² of floor space.
- Ensure that the sheep house is well ventilated and adequately bedded in straw bedded sheds.
- Ensure that there is adequate trough space for lambs –especially during the time that they are being built up to ad-lib concentrates. (need 30cm per lamb of trough space)
- If lambs are being fed indoors ensure that a clean fresh supply of water is available at all times
- Avoid too much starch or finely ground ingredients.
- Coarse or slightly cracked ingredients are more slowly digested and therefore create a safer feed. The downside however is that coarse feeds tend to attract birds and lambs tend to sort and leave behind unpalatable ingredients (rapeseed, distillers etc.)
- Look at ingredients to assess quality
- Mineral vitamin inclusion essential for longer feeding periods
- If finishing males lambs include ammonium chloride for long keep lambs to prevent urinary calculi. Inclusion rate is 0.5%
- There should be no need for additional mineral vitamin supplementation where properly balanced concentrates are being fed.
- When on a full concentrated feeding, regularly weigh lambs and market as they become fit. A proportion of lambs can finish very quickly.

- Wether lambs become over fat at lighter weights than ram lambs.
- Hill lambs become over fat at lighter weight than crossbred or lowland lambs
- If lambs are being fed indoors ensure that concentrate feed is available at all times

Teagasc studies
Performance of Scottish Blackface and Texel X Scottish Blackface lambs on an all concentrate diet

In recent years, Teagasc at Athenry have 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 and soya bean ration with 15% protein and a UFL =1. The diet was formulated for this purpose and contained 0.5% ammonium chloride to mitigate the risk of urinary calculi. The ration was initially offered at 300 g/lamb/day and increased by 200 g/lamb/days every 3 days until full feeding was achieved. This usually took 10-12 days. A small quality of silage (400 g/day wet weight) was offered to lambs.

Study No 1. The performance of light and medium Scottish Blackface and Texel cross lambs are summarised in Table 5. The Texel cross lambs had higher performance than the Scottish Blackface lambs, had higher intake and were more efficient converters of ration to liveweight gain and had better carcass conformation. Almost all lambs reached French market specification of > 16 Kg.

Table 5. 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 > 15 kg (French	96		100	

Study No. 2: In a subsequent study lambs were purchased at the end of July and grazed for period during the autumn and then housed and finished on an all concentrate diet. When housed, diet and feeding arrangements were similar to Study 1. These lambs were heavier compared to lambs in study 1 when first placed on the all-concentrate diet. Lamb mortality in this study was 1 lamb from 200 or 0.5 %. Results are summarised in Table 6.

Table 6. Performance of heavy Scottish Blackface and Texel X Scottish Blackface lambs on an all concentrate diet.

	Scottish Blackface		Texel x Scottish Blackface	
	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)	20.7	20.5	25.6	25.8
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

Rams 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 rams lambs had lower killing out rates, particularly Scottish Blackface ram lambs. Scottish Blackface lambs had significantly poorer conformation than Texel cross lambs.

At carcass weights of 20.5 kg, the carcasses from Scottish Blackface wether 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 be not more 18.5-19 kg. Rams lambs can be brought to a heavier carcass weight without becoming over fat.

Comparative performance of Cheviot, Connemara-Mayo, Lanark and Perth type males lambs.

Teagasc have recently undertaken to examine the performance of Cheviot, Connemara-Mayo, Lanark and Perth type males lambs when finished on an all-concentrate diet. All lambs were castrated. Preliminary results are presented in Table 7. The performance of the Cheviot lambs, measures as average daily gain (ADG), was significantly higher than the 3 Scottish Blackface breed types which were all similar. The Connemara-Mayo Scottish Blackface had a similar kill out percentage (KO %) to the Cheviot lambs. However, both Cheviot and Connemara-Mayo Scottish Blackface lamb types had significantly higher KO% that the Lanark and the Perth types. Connemara-Mayo Scottish Blackface bred type tended to be fatter and have poor conformation that the other 3 breed types which were all similar. All lambs were deemed suitable for the French market and achieved premium price.

Table 7. Comparative performance of Cheviot, Connemara-Mayo, Lanark and Perth type males lambs on an all-concentrate diet.

	Breed type			
	Cheviot	Conemara Mayo Scottish Blackface	Lanark Scottish Blackface	Perth Scottish Blackface
Weight at Start (kg)	29.5	29.9	29.0	28.9
Days on diet	62	62	62	62
ADG (g/day)	226	191	200	202
Final weight (kg)	42.6	40.9	41.4	41.5
Carcass weight (kg)	19.2	18.3	17.8	17.7
Kill out (%)	45.0	44.7	43.0	42.5
Conformation score	2.5	2.2	2.5	2.6
Fat Score	3.0	3.3	2.9	2.8

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 had no effect on average daily gain, feed intake feed conversion efficiency or final carcass weight. Not surprisingly kill out percentage (KO %) was 1.2 percentage points higher in shorn lambs. Based on these results there is no benefit to shearing lambs at start of indoor feed period. If contemplating shearing of hill lambs it is probably best to do it in August when lambs are still at grass and shearing will reduce the risk of fly strike.

Variation in lamb performance.

A significant feature of all of the recent studies at Athenry has is the 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 1.8-2.0 kg per day will perform at close to 450-500 g per day while lambs eating less that 1 kg per day will perform at about 100 g 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.

Selecting lambs for slaughter

The weight at which lambs are drafted for slaughter will depend on market specification, particularly the maximum carcass weight paid, kill out rate (KO%) which, is very much a function of breed, gender, diet and degree of finish. Producers should also avoid over-fat carcasses as these are discounted and it's expensive to lay down fat. Carcass fatness is mainly affected by gender (ram, wether or ewe lamb) and breed. Scottish Blackface wether lambs reach an adequate carcass fat cover (fat class 3) at about 18 kg carcass

weight with Texel x Scottish Blackface wether lambs having an adequate fat cover at 20 kg. For lambs on an all concentrate diet, KO % will increase by approx. 5 percentage points by comparison to un-supplemented lambs. Rams lambs reach heavier carcass weights before adequate fat cover is achieved. Suggested minimal drafting weights are presented in Table 8.

Table 8. Suggested minimal drafting weights for male lambs finished on an all-meal diet.

Breed	Gender	Target Carcass weight (kg)	Expected KO%	Minimal weight at drafting (kg)
Conn-Mayo Scottish Blackface	Wether	18	45	38
Conn-Mayo Scottish Blackface	Ram	20	43	44
Texel x Scottish Blackface	Wether	21	47	42
Texel x Scottish Blackface	Ram	23	46	47

Evidence to-date suggests that KO% is 1 to 2 percentage points lower for Perth and Lanark type Scottish Blackface lambs. Consequently, drafting weight can be increased by 1 to 2 kg for such types. If lambs are recently shorn minimal drafting weight can reduced by 1 kg. Lambs can be drafted at lower weight but will result in lower carcass weights. There may also be a lack of fat cover on ram lambs when drafted at lower weights.

Lambs that refuse to eat

It's been our experience that a small proportion (<2%) of hill lambs refuse to eat or a very shy feeders. Usually they stand at the rear of the pen when meal is fed and get progressively thinner with time. It's best to remove them and put them on pasture. Good stockmanship is vital as is avoiding overcrowding and having large numbers of lambs in a single pen.

Lamb health

If purchasing lambs, it is always preferable to purchase lambs from a known source and with known flock health and vaccination records. Purchased lambs should, on arrival on the farm, be given a "quarantine" dose for gastrointestinal worms and liver fluke, foot bathed and housed for 48 hours. They should be vaccinated against clostridial diseases and pasturella pneumonia. Lambs should remain segregated from other sheep on the farm for at least 4 weeks. Anthelmintic resistance in worm populations is a real threat and so quarantine drenching is important to avoid inadvertently importing resistant worms and fluke. For instance, results from a study in Athenry which screened the purchase of 350 store lambs from 32 farms recorded liver fluke in 9 % of flocks. Lameness is also significant and can lead to very poor performance in store lambs. When animals are housed, lameness spreads quickly as sheep are in close proximity to each other. The most frequent way that footrot or contagious ovine digital dermatitis (CODD) enters a farm is through the importation of infected sheep. All lambs should be foot bathed on arrival (see Table 9) Any lame lambs must be treated as a separate group. Regular foot bathing, such as every two to three weeks is advisable during the housed period.

Withdrawal dates

When administering any products to food producing animals, producers must be cognisant of withdrawal dates. For some products the withdrawal dates are long. The current weight of the lamb and expected slaughter dates must be considered when selecting products to be administered.

Table 9.Treatment plan for purchased lambs

Reason	Treatment †	Comments
To prevent the introduction of resistant roundworms	**Option 1** Moxidectin e.g. Cydectin 0.1% , Moxigro plus monepantel (Zolvix)	Keep off pasture for a minimum of 24 hr and turn out to contaminated ground preferably the driest part of the farm if fluke is also a consideration (see below)
	Option 2 Derquantel (STARTECT)	
To prevent the introduction of resistant liver flukes	**Option 1** Closantel eg Flukiver	Put to graze on driest part of the farm a minimum of 4 weeks and repeat treatment 6 or 7 weeks later for closantel and nitroxynil based products respectively
	Option 2 Nitroxynil eg Trodax **Option 3** Rafoxanide eg. Ridafluke	
To prevent the introduction of more virulent footrot strains or Contagious Ovine Digital Dermatitis (CODD) ‡	Examine sheep. All lame sheep should be segregated, maintained as one group and treated according to clinical presentation / diagnosis. All animals should be footbathed zinc sulphate /copper sulphate solutions); Any of these will cure Scald, prevent and control footrot but has no effect on CODD. There is no licensed product available for CODD although "lincomycin and spectinomycin soluble powder or tylosin soluble powder (100g per 200L of water) have been used in early cases of CODD with some success. This can be repeated after 48 hours if necessary" ‡.	Stand sheep on a dry surface for 1 hour after footbathing. Place on pasture where sheep have not grazed for a minimum of 2 weeks. Maintain isolated from the main flock for a minimum of 4 weeks . Continue to monitor sheep throughout this period for any signs of lameness. Isolate any lame sheep and treat as necessary
To prevent the introduction of scab	Treat with plunge dip or from the macrocyclic lactone grou p (injectable formulation)	Maintain isolation from the main flock
Vaccinations to prevent clostridial diseases and pasturella pneumonia	Use multivalent vaccines according to manufacturer's recommendations. Unvaccinated lambs or lambs of unknown status require a primary course consisting of two injections four to six weeks apart.	Most cases of clostridial disease are fatal. Pasteurellosis can also be fatal. These vaccines are probably the two most effective vaccines used in sheep and will substantially reduce these losses.
Orf	When orf is already present in your flock or it appears in bought in lambs, isolate the affected lambs and vaccinate all other lambs.	If orf is not already present on your farm and you do not expect it is present on the bought in lambs, do not vaccinate as you will be introducing the problem.

†*All treatments should be administered in accordance with the manufacturer's instructions with attention to withdrawal periods*

‡ *Adapted from O'Leary (2010) Eradication and control of Lameness of Sheep. Veterinary Ireland Journal I Volume 4 Number 7*

Factors affecting margins per lamb.

The impact of varying meal prices, factory lamb price and mortality on margin per lamb is presented in Table 10. 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.

Table 10. 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	€-1.78	€-1.24	€-0.70
20 cent increase in lamb factory price	€3.80	€3.80	€3.80
1 Percentage point increase in lamb mortality	€0.56-0.59	€0.63-0.70	€0.69-0.75
Impact of grass quality (August to Mid Oct) on margins			
Poor-Average	€4.11	€4.11	€4.09
Average – Good	€3.18	€3.18	€4.41
Total Poor-Good	€7.29	€7.29	€8.50

Teagasc has developed a Store Lamb Finishing Calculator which can be used to examine the impact of varying lamb purchase and sale prices, concentrate price, performance at pasture, lamb mortality, veterinary costs, lamb type (hill or crossbred), gender (wether or ram) on gross margin. This is available to all Teagasc advisers and provides much useful information on factors affecting gross margins.

Conclusions

A decline in demand for light hill lambs by the Mediterranean markets in recent years has led to poor prices 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 and crossbred store 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 (which requires excellent sheep husbandry to minimise lamb loss and maximise lamb performance) as well as obtaining a quality ration formulated for intensive feeding of lamb at a competitive price.