

MACAULAY LAND USE RESEARCH

INSTITUTE

FARM REPORTS

AND

SUMMARY OF FLOCK RECORDS

1987

Not for publication

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# I FARM REPORTS 1987

## GLENSAUGH FARM

### 1. WEATHER

The very mild Autumn of 1986 continued over the Xmas period. In early January however, the heavy snow falls and hard frosts were more typical of the time of the year. Deep snow and quite severe drifting led to blocked roadways for several weeks. In late January a strong thaw led to flooding along the lower lying ground and milder weather returned for the remainder of the winter with the exception of a few periods of hard frosts. A fine dry early 'Spring' led to a good summer for grass growth, with regular rainfall ensuring bumper crops. The Autumn conditions have been relatively mild with little frost or snow and grass has persisted well to the end of November.

#### RAINFALL (mm) (taken at Fettercairn)

			(50 yr mean)
1986	December	151	93
1987	January	69	87
	February	44	66
	March	110	60
	April	78	56
	May	59	77
	June	116	60
	July	104	83
	August	73	88
	September	62	78
	October	96	89
	November	58	100
	TOTALS	<u>1020</u> mm	<u>937</u> mm

### 2. SHEEP

- (a) Tupping 1986 Plenty of Autumn grass allowed Crossbred ewes to come to the tups in good condition and supplementary feeding of these ewes on low ground began on 29.11.86. The hill ewes were a little lean at tupping time and supplementary feeding for them began on 12.1.86 with sugar beet pulp nuts.
- (b) Winter Feeding Winter feed costs for all the ewes were considerably lower during 1986/7 than the previous year. A much earlier spring and the onset of grass reduced the period concentrates were fed to nursing ewes. The cross bred ewes had silage - throughout mid and late pregnancy to appetite, which also reduced the need for concentrate feed. A cost for silage consumed/head has not been included in the winter feed costs of the cross bred ewes as presented in Table 1. Individual intakes were very variable and ewe genotypes were mixed at this time to minimise poaching damage to grassland.

After Scanning ewes were group fed according to foetal load on either silage alone or silage and up to 450 g concentrates. Twin bearing ewes were housed four weeks prior to lambing and fed hay and up to

900 g concentrates depending on genotype. Single bearing ewes lambed outside and were fed silage. Both hay and silage were available for ewes after lambing.

Cairn and Birnie Blackface ewes and Finella Blackface and North Country Cheviot ewes were fed on hay and concentrates throughout. The Birnie ewes received Barley as part of their experimental treatment at tupping.

Overall winter feeding was both simplified and cheapened by the use of good grass silage for the cross bred ewes; 580 ewes received silage, of these 6 died from Listeriosis. The winter housing for lambing does not at present lend itself to silage feeding, so a change in dietary roughage takes place at housing time.

Details of feed inputs are presented in Table 1.

TABLE 1 Winter Feed of Sheep 1986-87

Flock	Dates Fed	HAY		CONCENTRATES			Total Cost
		Amount kg	Cost	Dates Fed	Amount kg	Cost	
Cairn BF	3/1 - 26/3	26.2	2.04	12/12 - 5/5	51.1	6.45	8.49
Birnie BF	12/12 - 26/3	29.1	2.27	10/1 - 12/5	47.2	6.01	8.28
				BARLEY 12/11 - 10/1	29.9	3.58	
Finella BF	28/12 - 24/4	31.7	2.47	12/12 - 5/5	48.4	6.01	8.48
NCC	28/12 - 24/4	31.7	2.47	12/12 - 5/5	48.4	6.01	8.48
* EFBF	15/12 - 24/4	38.6	3.01	29/11 - 5/5	80.7	10.05	13.06
* GF	15/12 - 24/4	38.6	3.01	29/11 - 5/5	80.7	10.05	13.06
* EFNCC	15/12 - 24/4	32.3	2.52	29/11 - 5/5	57.5	7.19	9.71
* NCCSHET	15/12 - 24/4	32.3	2.52	29/11 - 5/5	57.5	7.19	9.71
* HB	15/12 - 24/4	41.3	3.22	29/11 - 5/5	85.7	10.67	13.89
Hoggs	7/1 - 15/4	41.1	3.21	29/11 - 15/4	43.4	5.65	8.86

\* Silage pre/post lambing

Hay at £78/Tonne Sugar Beet Pulp at £115/Tonne Concentrates at £130/Tonne  
Barley at £120/Tonne

(c) Lambing Details on a flock basis are shown in Tables 2 and 3. In total 1406 live lambs were born to 1119 ewes and gimmers tupped.



From scanning in February multiple bearing ewes were managed separately from the rest of the flock and most of the cross bred ewes bearing twins lambed inside. The prevailing weather conditions throughout April and May were so good that lambing outside progressed extremely well and deaths due to climatic influences were very low.

- (d) Lamb Mortality Overall up to weaning this was 9.2% of lambs born alive. This represented a significant improvement on the previous year's performance (1986 figure was 15.6%) and as mentioned was almost entirely due to the better weather at lambing time. Fewer lambs were born premature and weak. The abortion problems of the previous season, were largely resolved through a vaccination programme being applied to the cross bred sheep. Enzootic abortion isolated in 1986 and all purchased and home bred gimmers (except Blackfaces) are given Coopers Ovine Enzootic Abortion Vaccine pre-tupping.

Table 2 summarises flock performance.

TABLE 2 Lamb Mortality 1987

Flock	Ewe Breed	Born Alive	Deaths			
			Birth to Marking	Mark to Weaning	Total	%
Cairn	BF	282	30	4	34	12.1
Birnie	BF	224	21	4	25	11.2
Finella	BF	135	2	4	6	4.4
	EF BF	136	10	3	13	9.6
	GF	155	9	2	11	7.1
	NCC	96	7	2	9	9.4
	EF NCC	80	4	0	4	5.0
	NCC SHET	130	8	2	10	7.7
	HB	168	13	4	17	10.1
Overall		1406	104	25	129	9.2%

Marking to weaning losses were roughly half of the previous year and were at a minimum in each flock.

- (e) Table 3 summarises weaning percentages and weights of the various hefts. Overall a significant improvement in both numbers of lambs weaned and % weaned per ewes to the tup was recorded during 1987 on previous years.

1985 - 102%  
 1986 - 105%  
 1987 - 114%

In addition the weaning weight of most groups of lambs were up on the previous year. Most notably the Suffolk crosses out of half-breds and Greyface ewes showed big improvements in growth rates over the season. Blackface lambs were weaned in good order at slightly higher weights than last year although numbers on Cairn and Birnie were slightly down.

Lambs were weaned in early August directly onto silage aftermaths and newly established seeds. All the ewes were put out onto hill grazings before flushing on inbye areas ready for tugging in November.

TABLE 3 Weaning Percentages and Lamb Liveweights 1987

Flock	Ewe Breed	Ewes to tup	Lambs Weaned		Weaning Weights		
			No.	%	Singles	Twins	
Cairn	BF	250	248	99.2	105.5	31.0	28.0
Birnie	BF	201	199	99.0	105.0	33.1	29.2
Finella	BF	119	129	108.4	92.4	29.8	26.7
	EF BF	77	123	159.7	154.0	37.8	30.7
	GF	100	144	144.0	127.7	38.0	31.9
	NCC	104	89	85.6	68.1	31.6	26.4
	EF NCC	58	76	131.0	100.0	33.1	27.3
	NCC SHET	103	120	116.5	114.4	33.0	26.0
	HB	107	151	141.1	111.8	36.1	30.4
Overall		1119	1279	114.3	105.2		

- (f) Lamb Crop Disposal - Lambs were grouped according to weaning weights ready for sale through the store rings during August/September. Hartwood Research Station took all the Blackface wethers and spare ewe lambs as well as the East Friesland cross lambs and smallest Suffolk lambs. Details below.

TABLE 4. Lamb Sales 1987

27/8 to Hartwood

263 B.F. lambs @ 90p/kg Lwt  
 99 EFX BF and NCC £1/kg Lwt  
 69 Suffolk x lambs @ £1.05

431 Av. £27.80/head nett

Store lamb sales through Auction Rings

<u>Type</u>	<u>No.</u>	<u>Av. Price/head</u>
Suffolk cross	540	£35.30 nett
Blackface Ewe lambs	68	£33.50 nett
EF x BF	8	£34.97 nett

Overall Sales 1987

1049 lambs averaged £32.02 nett £33592.50

(1986 850 lambs averaged £28.60)

Suffolk cross lambs were £3.50/head up on last year  
Blackface ewe lambs £10/head up on last year

All lambs - Overall increase of £3.42 per head on 1986 prices

- (g) Stock Ewe Lambs 220 stock ewe lambs were retained as replacements. They will not be housed in 1987/8 as in previous years but overwintered outside on silage and concentrates. With the dispersal of the Finella Blackface and Cheviot Hill stocks there will be fewer home bred ewe lambs to overwinter.

- (h) Cast Ewe Sales Regular cast ewes of all breeds met a generally enhanced trade in 1987. Between February and April 1987 76 ewes of all breeds either Tup eild or having lost lambs were sold to average £26.42 (up £4.42/head on 1986).

Regular casts and draft ewes sold in Autumn 1987 met a greatly enhanced trade viz:-

Correct 4 crop Blackface ewes sold to £35.50/head  
Broken mouthed Blackface ewes sold to £33.00/head

Broken mouthed Greyface ewes sold to £34.00/head  
Broken mouthed East Friesland x ewes sold to £31.00/head

The Finella stocks of Blackface and North Country Cheviot ewes, East Friesland cross Cheviot ewes and gimmers were dispersed at Edzell on 26/9/87.

A very good sale with keen demand for all classes of breeding ewes resulted in better than expected prices for ewes and gimmers (see below).

Average Prices/head of Dispersal Ewes (Nett)

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<u>Breed</u>	<u>Gimmers</u>	<u>1 crop</u>	<u>2 crop</u>	<u>3 crop</u>
Blackface	£53.00	£52.00	£46.00	£41.50
Cheviot	-	£48.00	£50.50	£43.00
EF x NCC	£59.00	£50.00	£47.00	£44.50

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- (h) Wool Sales The weight of wool graded was 3306 kg which realised £3058.03 (exclusive of VAT). This resulted in an average price of 92.49p/kg compared to 92.70p in 1986.
- (i) Sheep Purchases 1987 A major change in ewe genotypes took place in 1987. The Finella Blackface, Cheviot and East Friesland x Cheviot ewes were dispersed and replaced with 360 Greyface ewes, specifically for the Agroforestry systems work. These regular aged ewes were purchased from one source to minimise health problems in establishing the flock.

100 Greyface Gimmers averaged £77.50/head  
101 Greyface 1 crop ewes averaged £75.00/head  
60 Greyface 2 crop ewes averaged £69.00/head  
70 Greyface 3 crop ewes averaged £68.00/head  
34 Greyface 4 crop ewes averaged £55.00/head

In addition the regular aged Suffolk rams that had been used on the flock were also purchased at between £160 - £270 per head.

Regular purchases of Half-bred and Shetland Cheviot gimmers at £90 - £75 per head were completed in the Autumn.

- (j) Tupping 1987 The mating groups were as follows:

Early lambers (March 25th onwards)

111 Greyfaces  
118 Half-bred  
113 Shetland x Cheviots  
84 East Friesland x Blackface

Agroforestry ewes (April 10th onwards)

364 Greyfaces

Hill ewes (April 20th onwards)

258 Cairn Blackfaces  
204 Birnie Blackfaces

All cross ewes mated to Suffolk rams and Blackface ewes to Blackface rams.

Autumn grass production has been good, particularly on Cairn and Birnie, and ewes have taken tups readily and in good condition. The mean condition scores of the Cairn Blackface ewes pre-tupping was 2.8 and the Birnie Blackface ewes was 2.6 (Birnie ewes body condition was reduced for experimental requirements).

### 3. CATTLE

- (a) Breeding Cows Fifty three Blue Grey cows were mated to Charolais bulls and 51 produced calves. The only calf lost in spring proved to be the last one born on 27/4/87 (a large bull calf of 53 kilos); one cow proved to be not in calf.

Calving outside during February, March and April was trouble free with no calving difficulties and no health problems amongst the young calves, giving the stock a good start to the grazing season; this is reflected in their subsequent performance up to weaning. Removal of calves was delayed until 23rd October this year. Plenty of Autumn grass and a need to give calves a chance to eat silage before housing resulted in much higher weaning weights. Male calves were up by 47 kg/head and female calves by 43 kg/head (Table 6) compared to their weights obtained in 1986.

TABLE 6 Calving and Calf Growth Summary

No.	Breed	Av Birth Wts kg		Av Wean Wts kg		Av Age	Av Daily LWT Gain	
		M (20)	F (31)	M	F		M	F
<u>1987</u>								
51	Charolais x Blue Grey	48.25	45.5	302	284	238	1.07	1.00
<u>1986</u>								
32	Charolais x Blue Grey	46.9	45.8	255	241	207	1.0	0.94

No creep feeding of calves was done in the Autumn so grass alone sustained good levels of production throughout the season. Fifteen cows with calves at foot were maintained on the Cairn Hill grazings, whilst the remaining 36 cows with calves grazed mainly the Finella Hill; cows and calves grazed the inbye areas to clean up fields after silage and maintain pastures for sheep stocks.

Some 43 Blue Grey heifers purchased in May and run with an AA and a Limousin bull on rented grazings during the summer were brought home to Glensaugh in late August and grazed the Finella Hill. These cattle will be overwintered on straw and big bale grass silage in Hardstance and Cleek Hillock, formerly occupied by the Goats.

Cattle Sales and Purchases Home bred, overwintered suckled calves were sold in April 1987 at extremely good prices (up to 137p/kg lwt). Some 68 store cattle (mainly Continentals) purchased during February were also sold in April to advantage.

Six Aberdeen Angus cross heifers were sold fat to AMMCO in addition to 2 Friesians and one AA x rig that had proved troublesome and unthrifty since weaning.

Two Cast Blue Grey cows were sold to Grazing Ecology (MLURI) at Cleish and the 7 year old Charolais bull, which was proving too heavy for some Blue Greys, was sold fat.

TABLE 7 Store Cattle and Cast Cow Sales

	<u>No.</u>	<u>Top Price/head</u>	<u>Av Price/kg</u>
11/4/87	63 Bullocks	£497	121.9p
Laurencekirk	46 Heifers	£433	109.2p
24/4/87			
AMMCO	3 AA Heifers	Av £349.80	1.79p/kg
Banchory			D.cwt
18/6/87			
AMMCO	3 AA Heifers	Av £370.59	1.89p/kg
Banchory			D.cwt
22/7/87			
AMMCO	2 Friesian Bullocks	£479	1.74p/kg
Banchory	1 AA Rig	£307	1.63p/kg
			D.wt
<u>Cow and Bull Sales</u>			
12/1/87	Laurencekirk	1 Charolais Bull wt. 1280 kg	- £739 net
25/5/87	MLURI	2 Blue Grey Cast Cows	- £375/head

Cattle Purchases Forty three Blue Grey heifers running with Aberdeen Angus and Limousin Bull were purchased through the Livestock Agents Mathers 'Kintore' at £515/head. Scanning results indicate 36 have held to the bull; the remaining 7 are being synchronized and AI'd as September calvers.

Winter Feeding 1987/8 Since weaning in October 51 suckler cows have received 1 kg high magnesium cobs and ad lib barley straw. These cattle have been synchronised and AI'd during the summer. Thirty one cows (60%) holding to AI will be housed in December and their body condition manipulated for reproductive studies to be carried out at Hartwood in Spring 88. The remaining 20 cows naturally served by a Charolais Bull will be outwintered on arable silage straw and big bale grass silage.

In calf and bulling heifers will be fed barley straw and 1 kg/head/day high magnesium cobs whilst they continue to forage on East Finella Hill. Winter feeding based on big bale grass silage will commence in early December.

Store cattle will be overwintered on silage and barley, the intention being to produce a quality stores ready to make maximum gains at grass in 1988.

#### GOATS

In 1987, 235 kids were born to the 256 nannies which were either served naturally or by AI or were part of the embryo transfer programme in autumn 1986.

The Hard Park field was transferred to the Deer Project in the spring. The nannies were kidded on the reseed above the Hard Park and were roaded onto the Bows field (6.4 ha) after dehorning and vaccination for John's disease. Thirty nannies and their kids (40) were kept at Bush for a lactation study, the remainder being held on the Bows until 31st July. Thereafter they were held on rough grazings. Male kids were weaned at 3 months of age and were held in the Small Den until housing from 21st September to 28th October following an outbreak of coccidiosis. Adult male goats were summered on the hill.

Thirteen Tasmanian or Icelandic cross feral male kids were sold at the CBL Cashmere Stock Sale on 24th October 1987 leaving 111 males and 96 female kids which were transferred to Sourhope.

Adult stock comprising 286 females (98 ferals, 114 crosses, 70 domestics and 4 Icelandics) 7 ovariectomised females, 11 castrates, 51 males and 7 vasectomised males were moved from Glensnaugh to Sourhope. The transfer was completed by 28th October 1987. At this time there were 7 vasectomised and 3 entire bucks on loan to SCPA members.

#### Land Use

Spring grass reseeding, under whole crop barley taken as silage was successfully completed on Lower Cottar and Drive 1 (7.4 ha in total). These fields were extensively subsoiled before ploughing and received heavy applications of FYM.

Arable silage yields were not heavy but quite adequate given the wet season and were secured as big bale silage. Tup Park was ploughed in August and successfully sown back to ryegrass, Timothy and white clover mixture; providing some late clean grazing for stock ewe lambs.

Grass seeds mixture used in 1987 was as follows:-

	6 kgs P.R.G. Bastion
	4 kgs P.R.G. Fantoom
	3 kgs P.R.G. Morenne
	2 kgs P.R.G. Talbot
	6 kgs P.R.G. Perma
	3 kgs P.R.G. Magella
	4 kgs Italian R.G. Bartolini
	6 kgs Timothy Scots
	1 kg White clover New Zealand Huia
	1 kg White clover Rivendel
Rate	<u>36 kgs</u> /Hectare Broadcast

Grass silage making began on June 19th and some 30 ha was both ensiled in the pit, and baled to be stored in big bags, finishing by July 8th. Two hectares of mature grass was baled for hay (550 bales) and a further 16 hectares of second cut material secured in big bags and a temporary pit in the concrete muck midden. Altogether 1100 big bales of grass and arable silage and 600 tonnes of pit silage were made in 1987.

Forty eight hectares of feeding quality barley straw was baled and carted home from a local Mearns farms

Hard Park (4.8 ha), and part of Steading field (2 ha) and Woodsides (0.7 ha) was deer fenced and taken over by the Red Deer research programme.

Woodland The planting programme initiated in 1986 was continued; Gladhills roadside banking (2 ha) was planted with mixed hardwoods and Hybrid Larch was planted in 0.5 ha by the Birnie roadside gateway. Upper Cottar (3.6 ha) was given over to an IFS Agroforestry project involving nitrogen and water relations of grass and trees on grazed upland agroforestry systems. Wild Cherry (*Prunus Avium* L) planted at 625 stems/ha is the hardwood species to be evaluated under various treatments. A weather station has been established on this site.

A major agroforestry systems experiment has been initiated during 1987, and will commence properly in 1988, Lower Redstones, Upper and Lower Birnie and Upper and Lower Croft have been marked out. Tree support posts have been located and fence lines for some 21 grazing blocks and 9 forestry blocks established.

General Maintenance The office block and laboratory accommodation have been re-roofed with cedar-wood tiles, floor tiling has also been replaced during 1987. Exterior preservative paintwork was also completed on the office block. The roof and gutters of the farm buildings were repaired and renewed as necessary. The staff bungalows were checked over externally, walls and roofs repainted and rotted window frames renewed.

Hundreds of tons of gravel have been carted from the Quarry hole at Loch Saugh to areas at Hard Stance, Gladhills and Mid Finella to make hard cattle feeding areas.

Equipment A new Fahr 4 drum mower was purchased in June. The 2 wheel drive ATV was replaced with a 4 WD Suzuki ATV in March. This has proved to be a most versatile and invaluable machine in daily use by staff.



## SOURHOPE FARM

### 1. WEATHER

November and December were cool and damp with few completely dry days. The New Year brought snow and low temperatures but some sunny days. February was cool and showery with the snow mostly at higher altitudes. March brought sunny days and frosty nights interspersed with very wet periods. April seemed likely to continue this pattern but rapidly improved to give the longest dry period of the year lasting into May, which then turned into a cool month with drizzly days. Apart from one short spell at the end of the month June was little better. July started well with some real summer days before the rain returned, and through the rest of the month and August and September there were very few dry days. The latter half of September brought some relief from rain but clear skies saw early frosts. October was cool and dull with frosty weather towards the end of the month.

#### RAINFALL (mm)

1986	November	68.6	
	December	137.6	
1987	January	128.7	
	February	50.4	
	March	117.5	
	April	98.8	
	May	59.9	
	June	103.2	
	July	104.9	
	August	163.3	
	September	55.0	
	October	136.9	
		<u>1224.8</u>	<u>48.2 in</u>
	Ten year mean	<u>1064.3</u>	<u>41.9 in</u>

### 2. SHEEP

- (a) Tupping 1986 A wet summer, followed by a mild autumn with plentiful grass growth, saw all breeding stock come to the tup in good body condition. During the tupping period the weather was cool and damp with very little snow and only a few light frosts.
- (b) Winter Feeding Snow falls in early January necessitated the feeding of hay and feed blocks with sugar beet pulp cubes being introduced a week later. A change to protein cobs was made in the second half of March. Concentrate feeding continued throughout lambing, ewes nursing twins were fed high protein concentrate until the end of May. Hoggs were introduced to feed at the beginning of December and fed until they returned to their hefts at the start of April.

A total of 75.5 kg dry matter (hay, sugar beet nuts, concentrates and feed blocks combined) was fed on average to all outwintered ewes at a cost of £8.83 per head. This compares with 86.9 kg dry matter at a cost of £10.39 for the winter of 1985-86. The average feed cost of all 1656 outwintered ewes and gimmers was £8.83, the range for individual hefts was from £6.45 to £11.11.

The average cost for 427 outwintered hoggs was £6.30 compared with £6.61 the previous year.

All stock from Rigg and Gairs hefts were again inwintered, the hoggs housed on 6th January and the ewes on 19th January. The amount fed to 588 inwintered ewes was on average 130 kg DM at a cost of £11.85 compared with 148 kg DM and £14.58 the previous year. All Rigg and Gairs ewes were scanned mid-February to determine foetal numbers. The feeding level of concentrate was increased as lambing approached, with a high protein concentrate (18% C.P.) being fed from mid-March to twin bearing ewes at the same daily rate as the medium protein concentrate (14% C.P.) being fed to the single bearing ewes.

For the inwintered hoggs feed costs were £7.35 compared with £7.77 in 1985-86.

All outwintered ewes were also scanned, and on hefts where feed sites and fencing allowed, the twin-bearing ewes were fed separately with an 18% protein concentrate replacing the 14% crude protein concentrate fed to single bearing ewes, from the middle of March.

The expenditure on feed for all outwintered sheep, i.e. ewes, gimmers, ewe hoggs and tups, expressed per outwintered ewe to the tup was £10.98.

Feed data for both inwintered and outwintered sheep are shown in the following tables, the feed items being costed as follows:

	1987 <u>Per tonne £</u>	1986 <u>Per tonne £</u>
Hay	62.00	64.00
Green Keil *	156.00	141.00
Ewebol Cobs **	145.64	143.48
Ewebol pencils	140.30	140.20
Super Ewebol cobs	162.00	156.50
Super Ewebol pencils	159.90	155.58
Sugar beet pulp cubes	116.00	115.43
Ewe and lamb food	195.00	180.00
Lamb supplement pencils	158.66	156.00
Barley	133.33	130.00
Nutrikem H.E. feed blocks	198.00	-

\* Mixture of dried molasses, sugar beet pulp and dried grass with added minerals, in cube form.

\*\* Concentrate fed to outwintered ewes in cob form, to inwintered ewes in pencil form.

TABLE 1 Hogg Feed Data

	Hay (kg)	Green Kell* (kg)	Sugar Beet Pulp Cubes (kg)	Feed Blocks (kg)	Rye cobs or Pencils (kg)	Ewe and Lamb Feed (kg)	Average Cost/hogg £
Outwintered	19.4	24.0	1.0	0.75	6.7	0.5	6.30 6.61**
Inwintered	46.8	27.8	-	-	-	0.5	7.35 7.77**

\* Mixture of dried molasses, sugar beet pulp and dried grass with added minerals in cube form

\*\* 1985-86 costs

Total weight fed: Outwintered 52.3 kg  
Inwintered 75.1 kg

TABLE 2 Ewe Feed Data

		Hay (kg)	Feed Blocks(kg)	Beet Pulp(kg)	Concs (kg)	Average cost per Ewe (£)
Outwintered Ewes and Gimmers	Storm feed to 28/2	13.9	2.7	12.8	-	2.94 (3.80)*
	Pre-lambing feed 1/3-14/4	7.9	2.2	10.0	10.8	3.72 (3.94)*
	Post-lambing feed from 15/4 (including that fed to twin nursing ewes)	1.8	1.2	0.2	12.0	2.17 (2.65)*
	Total	23.6	6.1	23.0	22.8	8.83 (10.39)*
Inwintered Ewes and Gimmers	Pre-lambing feed to 14/4	69.2	-	23.8	17.4	9.32 (11.05)*
	Post-lambing feed from 15/4 (including that fed to twin nursing ewes)	7.9	-	2.4	9.7	2.26 (3.53)*
	Total	77.1	-	26.2	27.1	11.58 (14.58)*

\* 1985-86 costs

Total weight dry matter fed: Outwintered 75.5 kg  
Inwintered 130.4 kg

(c) Lambing Normal bodyweight loss occurred between pre-tupping and the start of winter feeding, but the ewes responded well to pre-lambing feed and entered the lambing fields in good condition. Very few problems were encountered during lambing, the weather being warm and sunny throughout most of the period. The eventual outcome was a most successful lambing with 801 pairs of twin lambs being present at 'marking-time'.

The inwintered ewes from the Rigg and Gairs hefts were again lambed in the inwintering sheds.

It was important to obtain accurate lambing data from the 121 ewes that had been inseminated with 4 Thoka sires. These ewes were lambed in the hay-barn which had been sub-divided into four sections and the ewes sorted according to size. Ninety nine ewes lambed to the Thoka

sires with 178 lambs born. Seventy-eight female lambs are being retained at the station for further investigation.

(d) Wool Crop This year saw the new unbanded method of presentation. The wool was packed immediately after shearing, and not having to make a band to wrap around the fleece saved some time and effort in the clipping shed. Ewe and hogg fleece weights were similar to those of 1986 with the total weight of graded wool from the station being 5,626 kg at an average price of £1.00 per kg. This compares with 5,959 kg and £1.00 in 1986. With 90 wethers less on the station the total wool receipts showed a fall of £332 or 5.5% from the previous year.

(e) Weaning

i) Performance. Marking weights were similar to those of 1986, but the weaning weights were disappointing despite the abundant grass growth during the late spring and early summer. Weaning percentages for South Country Cheviot, North Country Cheviot (including N.C.C x S.C.C.) and Blackface ewes were 107.5, 126.9 and 128.1 respectively. A detailed breakdown, by heft, of weaning percentages and weaning weights is given in Table 3.

ii) Disposal of lambs. 1565 lambs were sold store (636 Blackface, 638 N.C.C. x S.C.C., 108 B.F. x Cheviot, 133 South Country Cheviot and 51 'Thoka' x Cheviot).

Average prices realised in the sale ring for these were:

Blackface	£30.70 per head at an average of 97.3p/kg liveweight. (£27.35 and 90.3p/kg in 1986).
Cheviot N.C.C. x S.C.C	£33.57 per head at an average of 117.8p/kg liveweight. (£31.70 and 105.8p/kg in 1986).
B.F. x Cheviot	£31.36 per head at an average of 108.2p/kg liveweight. (£27.08 and 94.6/kg in 1986).
South Country	£33.99 per head at an average of 115.5p/kg liveweight. (£31.43 and 103.5p/kg in 1986).
Thoka x Cheviot	£32.20 per head at an average of 103.8p/kg liveweight.

Thirty eight Blackface lambs were sold to M.L.U.R.I. (Bush) at an average of £29.00 per head and 405 Blackface lambs sold to Hartwood at an average of £26.00 per head. Also 15 very unthrifty (shott) lambs were sold locally for £10.00 per head. The overall average for the above 2023 lambs sold was £30.77 per head which compares with an average of £29.73 per head for comparable sales in 1986.

In addition 52 twin Blackface lambs and 3 single lambs were sold (with dams) at approx. 2 weeks of age to M.L.U.R.I. Animal Production and Nutrition Dept. Seventeen lambs were finished off grass and averaged £29.92 per head.

Eighty three lambs were housed in early October for finishing on Green Keil and hay ad lib. Twenty nine have so far been sold at an average of £26.00.

A summary of the disposal of the 1987 lamb crop is as follows:

Ewe lambs retained as stock replacement	-	555
Tup lambs for breeding	-	6
Lambs sold store	-	1580
Lambs sold finished	-	46
Lambs sold to M.L.U.R.I.	-	498
Thoka lambs retained for further investigation	-	78
Lambs as yet unsold	-	54

- (f) Draft and Cull Ewes During the year 69 draft or cast ewes have been sold to Animal production Dept. at an average of £24.42 per head. In addition 29 ewes with young lambs were sold to Animal Production and Nutrition Dept. in the spring.

Details of the autumn sales of draft and cull ewes are as follows:  
[This sale data includes 15 young sheep kept as stock ewe hoggs in 1986].

	<u>£/head</u>
42 Cheviot draft ewes 6½ years old (F.W.)	42.00
49 Cheviot draft ewes 6½ years old (warranted below)	23.00
35 Cheviot ewes (feeders)	23.00
25 Blackface ewes (feeders)	20.00
96 draft or cast Blackface and Cheviot ewes sold fat	27.19
10 unthrifty (shott) ewes sold locally	10.00

There are 64 fattening ewes remaining, and 82 draft Blackface ewes are being retained at the station for sale to Medical Research Council in January 1988.

TABLE 3 Weaning Percentages and Lamb Liveweights

Flock	Ewes to Tup	Lambs Weaned		Weaning Weights		
		Total Weaned	% 1986	% 1987	Singles(kg)	Twins(kg)
SCC Fasset	199	214	119.8	107.5	29.0	25.9
NCC x SCC NEHL/Auchope	660	822	132.9	124.5	26.8	26.0
NCC Park Law	163	223	138.7	136.8	28.2	23.4
Total NCC (+ NCC x SCC)	823	1045	134.0	126.9	27.1	25.4
BF Alderhope	294	425	132.0	144.5	29.0	26.5
BF Banks	340	410	123.9	120.6	-	-
BF Rigg	278	338	149.0	121.6	28.8	25.7
BF Gairs	310	393	147.1	126.7	27.8	26.3
Total Blackface	1222	1566	137.4	128.1	28.5	26.3
Station Total	2244	2825	134.6	125.9	-	-

These totals include lambs sold to Bush Site in April/May with their dams.

- (g) Death Rates, Veterinary Treatment The overall death rate of the sheep stock in 1986/87 was 2.8%, with the death rate of ewes, gimmers and hoggs being 2.9%, 2.2% and 2.8% respectively. The overall death rate in 1986 was 2.5%.

The entire sheep stock was worm drenched in the autumn, inwintered stock being re-dosed at housing. Outwintered stock were dosed again just before lambing. Twin lambs were dosed at marking and then at 3-4 weekly intervals throughout the summer until weaning. Single lambs were dosed at marking, mid-July and weaning.

Outwintered stock were dipped against ticks in late March/early April. Banks and Alderhope hefts were not tick dipped because of the very wet weather. The entire sheep stock were dipped with a scab approved dip in late July/early August and again in October. The horns of all Blackface lambs were treated twice with Cypor during the summer to prevent headfly attack.

In the autumn all retained stock ewe lambs received an initial vaccination of Heptavac-P at weaning and a booster six weeks later. All sale lambs received Ovivac-P at weaning and a booster six weeks later. All sheep stock received a booster vaccination of Heptavac-P before lambing.

During October all retained stock lambs received their first, and three year old ewes, their second cobalt bullet.

Twin-bearing Alderhope ewes and all Park Law ewes were given a 4 gm copper oxide needle during early March. All Alderhope and Park Law twin lambs were given a 2 gm capsule of copper oxide at marking.

Eye trouble still sporadically affects the sheep stock, but fortunately to a far lesser degree than experienced a few years ago, with reported cases quickly responding to treatment.

- (h) Tupping 1987 The high summer rainfall ensured good grass growth allowing the ewes to come to the tup in good body condition, with weights and condition scores similar to those of 1986.

Four Thoka 'x' rams were again used this year to inseminate the 1982 age group of N.E.H.L. ewes (99 ewes) using the endoscopy method. The ewes were housed in early November and sponges inserted to synchronise oestrus.

### 3. CATTLE

The suckler herd comprised 45 cows and 6 in-calf heifers in December 1986. The herd has been used extensively as a means of grazing control on the Development Projects and other areas.

- (a) Winter Feeding High magnesium cow cobs were introduced in December and fed at 1.0 kg/head/day until the end of May. After a short period of straw feeding (supplemented with Granstock) a change to silage feeding was made in December.

- (b) Calving Performance and Calf Growth Forty five calves were born in the spring, with one calf dead at birth and another with deformed legs was put down. One cow was lost after calving with peritonitis. Three cows calved in autumn '86, one with a set of twins. Two cows aborted during early winter and one cow was barren. This gave a total of 47 calves on the station at the end of spring.

Over the five weeks prior to weaning and sale, all calves were offered creep feed. Calf performance data (excluding the autumn born '86 calves) are given in Table 4.

- (c) Calf Disposal Six Hereford x suckler calves (including the 4 autumn born calves) averaged £303.66 (97.8p/kg) at the autumn calf sales. The 35 spring born Charolais x calves averaged £333.20 (115.0p/kg).



(d) Replacement During the summer and autumn 5 cast cows were sold. In May 5 Aberdeen Angus x Friesian purchased bulling heifers were put straight to the bull. Thus the herd at the close of the year comprises 45 cows and 5 heifers. Thirty five cows have been run with a Charolais bull, kindly made available by Redesdale E.H.F, with the remaining cows and heifers in-calf to a Hereford bull.

TABLE 4 Calf Performance

Breed	Numbers	Average Birth Weight(kg)	Average Weaning Weight(kg)	Average LWG Birth-Weaning(kg)	Average Daily LWG (kg)
Hereford x					
Bullocks	3	34.6	278.3	243.7	1.06
Heifers	2	33.0	257.0	224.0	0.98
All Hereford x	5	34.0	269.8	235.8	1.03
Charolais x					
Bullocks	16	42.6	304.3	261.7	1.16
Heifers	22	42.1	295.3	253.2	1.11
All Charolais x	38	42.3	299.1	256.8	1.13

The 4 autumn born Hereford x calves not included in the above figures.

TABLE 5 Calf Sales

	Number Sold		Weights* (kg)				Price per head (£)		Price per kg (£)							
	'87	'86	'87	'86	'87	'86	'87	'86	'87	'86						
Bullocks	15	14	2	12	303.0	344.0	286.0	281.8	378.86	386.00	300.00	281.83	1.25	1.12	1.05	1.00
Helpers	20	17	-	3	279.9	293.0	-	257.0	298.95	310.41	-	242.00	1.07	1.06	-	0.94
All Calves	35	31	2	15	289.8	316.3	286.0	276.9	333.20	344.54	300.00	273.86	1.15	1.09	1.05	0.99

\* Weights given are those at sale ring entrance

This table excludes the 4 autumn born calves which realised:- 2 bullocks average liveweight 352 kg - £340.00/head  
2 helpers average liveweight 305 kg - £280.00/head

Six calves are being overwintered

#### 4. GOATS

In 1987 the goat stock and their equipment were moved from Glensaugh to Sourhope.

During the summer a single offset electric wire was erected on the goat area comprising both Wether Paddocks, Kaim Knowe, Mary's Paddock and Gairs E3. Also a small section of Gairs hill was enclosed into the goat area and a single offset electric strand erected on Far Broom field to hold adult male stock.

The hogg wintering shed was adapted in the autumn (using purchased Ritchie equipment) to house the young goat stock. Estimates are being sought to convert the metabolism shed to a general purpose goat building. Also new goat/sheep handling pens are being constructed at the Gairs sheep handling site.

There is a total of 212 feral and feral cross adult females, of which 109 were inseminated using fresh semen from Tasmanian and Icelandic bucks. The same bucks, plus one feral, are being used for natural service on the remaining stock. In addition 70 domestic type females have been used in an embryo transfer programme, together with 37 animals on loan from CBL members.

Ninety six female kids and 106 male kids were housed on arrival from Glensaugh at the end of October. The adult male stock stands at 68 bucks including 14 vasectomised animals. Seven entire males and 5 vasectomised bucks are on loan. Also there are 11 castrates and 5 female teasers (ovariectomised).

#### 5. LAND USE

(a) Conservation A total of 11.1 ha of grass has been ensiled, and 13.7 ha cut for hay.

(b) Fertiliser Only routine fertiliser applications were made during the year.

(c) Drainage Approx. 1000 metres of open drains cut in the summer of 1986 on Schill green and Gairs E1 have now been piped and backfilled. Existing field drains have required their usual routine attention. Estimates are being sought to cut an open drain at the bottom of Fasset hill near the cowshed, the wetness of this area still causing considerable problems during the winter feeding period of cattle.

(d) Fencing Apart from electric fencing of the goat area no new fences have been erected, but general fencing repairs have continued throughout the year.

#### 6. BUILDINGS

Electric storage heaters were installed in the top bungalows and oil central heating in the Officer-in-Charge's bungalow. The garages of the bottom houses were re-felted and electric lights and power points installed.

Auchope house has required considerable renovation, with most rooms replastered and the re-slating of the north facing roof now nearly completed.

7. EQUIPMENT

Purchases have been made as follows:

- a) A second-hand Ford 4610 four-wheel drive tractor to replace the hired 3610.
- b) A new Allman 510 sprayer plus two hand lances.

## HOUSE O' MUIR FARM

### 1. WEATHER

Conditions for tupping in November and December were reasonable though there was a considerable amount of rain during November. There was hard frost with snow showers in the first half of January giving way to milder conditions later. February weather was mixed with frost, snow and a little rain and varied temperatures. Snow and frost continued through March and cold wet weather in the first half of April made conditions difficult for the 'inbye' lambing. However, the hill lambing from mid-April was helped by mainly dry and sunny weather. May and early June was cold and there were only a few decent spells at the end of June through July, August and September for hay and silage making. October was wet though mild allowing good late herbage growth.

<u>RAINFALL</u> (mm)		
1986	November	88.9
	December	155.5
1987	January	57.9
	February	42.8
	March	83.8
	April	67.1
	May	56.1
	June	98.1
	July	85.9
	August	101.3
	September	64.8
	October	120.5
	TOTAL	1022.7

### 2. SHEEP

(a) Tupping 1986 Five hundred and forty four ewes were put to the tup in November. Of this number 176 were mated with Border Leicester rams to produce Greyface lambs for experimental use off the farm.

(b) Feeding Hay feeding was started to inbye ewes on December 20th and to hill ewes on January 11th; feeding ceased at the end of April. Concentrates were fed to inbye ewes from February 11th and to hill ewes from early March. Twin rearing ewes were kept on concentrates until late June.

Average hay use was 28 kg per ewe and average concentrate use was 600 g per head per day before lambing, i.e. close to 33 kg per ewe.

Twin-rearing ewes were fed approximately 225 g/day until the end of June.

At £75 per tonne for hay and £153 for concentrate feeding costs per ewe were £6.00 for hill ewes and £8.93 for 'inbye' ewes.

(c) Lambing High death rate before and during lambing in experimental ewes inbye was associated with stress and bad weather in early April. The hill lambing went well in the better weather later on. Five hundred Blackface lambs and 175 Greyface lambs were marked.

(d) Weaning

	Ewes to ram 1986	Lambs weaned 1987		Lambs weaned 1986	
		No	%	No	%
Hill	368	473	129	438	130
Inbye	176	202	115	226	124
TOTAL	544	675	124	664	128

- (e) Lamb Disposal Lamb performance was again good, especially in the Blackfaces. The top draw Blackface wedder lambs made third top price at the principal sale at Lanark; these were up 80p/head on 1986 prices. The second draw were £4/head higher and ewe lambs were £5.70 higher.

Sale details:

Category	Blackfaces	Greyfaces
Wedders sold store	229	38
Wedders sold fat	18	46
Ewes sold store	110	24
Ewes sold fat	13	-
Unsold	10	Deaths 4
Ewe replacements	<u>120</u>	<u>63</u> (for Hartwood)
	500	175

Prices

Blackface stores:		Lambs sold fat averaged
Top draw wedders	65 @ £34.60	£32.51
Second draw wedders	60 @ £34.00	
Top draw ewe lambs	60 @ £35.50	
Second draw ewe lambs	50 @ £27.00	

- (f) Cast Ewes Averaged £27 per head.

- (g) Ewe Hogs were away wintered as usual on aftermath and undersown stubble. These returned to House O' Muir at the beginning of March for four weeks box feed training before being hefted on to the hill. Hay and concentrate costs were approximately £3/head.

- (h) Wool The value of the clip was slightly less than in the years previous; £1831 (c.f. £1995 in 1986).

3. CATTLE

Wintering 54 cows wintered through 1986/87; details are:

- 16 Hereford x Friesian autumn-calving heifers
- 9 Hereford x Friesian spring-calving heifers
- 9 Luing cows (transferred from Glensaugh in late autumn)
- 20 Experimental cows (Hereford x Friesian and Blue Grey)

Cattle were fed silage and straw with concentrates as required for the different calving groups.

Eight Hereford x Friesians have been transferred to Hartwood, seven with calves at foot; one calf died following a difficult calving.

Sixteen Hereford x Friesians were transferred to Hartwood after weaning, the calves being retained at House O' Muir.

Twenty four Heifers were purchased in-calf for Hartwood in September and October 1987, these have calved and will be wintered and bulled at House O' Muir. These consisted of 14 Blue-Greys and 10 Hereford x Friesians. A further 5 Hereford x Friesians were bought in October with calves at foot.

Two of the 9 Luing cows were sold as cast cows; the remaining 7 have calved and are being mated with a Charolais bull from November 5th together with the 5 Hereford x Friesian heifers bought with calves. The remaining 24 heifers will be mated with the Charolais from February 1st.

Disposals Details of heifers and bullocks disposal as stores or finished animals are:-

<u>Stores</u>	Sex	No.	Price (£/head)	Price (P/kg)
	Bullocks	1	465.00	186.00
	Heifers	10	376.60	182.40
<u>Fat</u>	Bullocks	7	381.71	109.00
	Heifers	10	364.70	101.80

Ten bullocks and heifers will be wintered and sold fat or store.

#### 4. LAND USE

Four hundred tonnes of silage were made together with hay from 3 hectares from fields at House O' Muir and Bush.

General maintenance of fences and drains was carried out over the year.

Two tonnes/acre of lime and 4 cwts/acre of superphosphate was applied to 8 hectares of reseeded pasture at House O' Muir.

## HARTWOOD FARM

### 1. WEATHER

The late autumn of 1986 was very wet and resulted in the fields that were grazed by sheep at mating being poached to an extent that many of the ewes were housed by the beginning of December. However, the winter was not severe except for two weeks in the middle of January when there was a considerable fall of snow and frost. Lambing in late March and early April was during a miserable damp and cold spell although there was not much rain and the barley sowing was delayed. The 5.5°C at 100 mm soil temperature was reached on 14th April. Despite wet spells during the early summer silage making was carried out during a moderately good spell. Most of the rain in September fell at the start of the month and so harvest proceeded well. Wet conditions and poor sward heights resulted in systems cattle needing to be fed by 17th September, and due to the wetness of the ground all the cattle were housed by 21st October. The mild, wet weather in the early autumn however resulted in good grass growth and ewe mating has gone well up to late November. Autumn field work had to be stopped in late October due to soft soil conditions, however at the end of November ploughing and dung spreading were back in progress.

		<u>RAINFALL</u>	
			<u>AV.</u>
1986	November	152	102
	December	220	102
1987	January	84	89
	February	63	70
	March	97	62
	April	50	64
	May	41	79
	June	78	77
	July	90	95
	August	176	112
	September	213	111
	October	<u>144</u>	<u>103</u>
		1408 mm	1066 mm

being 132% of AV

(Nov '85 - Oct '86 was 1248 mm)

### 2. SHEEP

- (a) Mating 1986 As so often in the past very wet weather was experienced during the mating period. As a consequence fields poached badly, particularly on experimental plots where the stocking rates were high.

Rams joined the Greyface systems (304 ewes) and Reproductive Studies flocks (124 ewes) on 27th October. The balance of the Greyface flock (321 ewes) started mating on 3rd November. The Blackface flock (232 ewes) started mating on 12th November.



- (b) Late Autumn and Early Winter Management The reproductive study taking place on Sheepbrig and Railway fields had to be stopped prematurely on 10th November when poaching became a serious problem. The flock was mixed with the balance of the ewe stock and grazed various other parts of the farm, including ground previously occupied by cattle. On 23rd December 221 Greyface ewes were housed in the plastic sheds and the remaining 224 ewes were sent to a neighbour who had a field of spare grass. These ewes returned to Hartwood on 13th January when they were housed in the plastic sheds.

The Greyface systems flock was housed on 1st December as soon as the rams were removed. The condition of the swards at the time and the prospect of more rain to come led to the decision to house much earlier than usual. After housing the weather deteriorated further and had the plots still been stocked very severe sward damage would undoubtedly have occurred.

The Blackface flock was mated in Nurses' Home and Newmill Cottage fields. On 19th December they were moved to Liquo where they were kept for the remainder of the winter.

(c) Winter Feeding

I Systems Studies GF (304) Prior to housing ewes were fed up to 300 g/head/day of 14% CP concentrate and 1 kg/head/day of hay. Feed levels were dependant on sward heights on individual plots. After housing on 1st December silage was fed ad-lib. Consumption was measured at 4.2 kg/head/day. Concentrate feeding (14% CP) was started on 22nd January at 150 g/head/day and remained at this level until 6 weeks pre-lambing when feeding was increased weekly according to predicted foetal load and expected lambing date. Silage was replaced by hay at 4 weeks pre-lambing.

II Balance of Ewe Stock GF (445) These ewes were all housed in the plastic sheds at Hartwood. Most were fed silage but some were fed hay as the penning arrangements did not allow easy access to silage. The feed barriers and feed passage in the small plastic shed were removed this year turning the whole shed into a straw bedded court. This increased the capacity of the shed considerably, allowing more Greyfaces than normal to be housed.

Very heavy snowfalls around the middle of January caused one of the plastic sheds to collapse under the weight of accumulated snow. Some drifts around the farmyard were over 7 feet deep. Fortunately no ewes were hurt but they had to be turned out in appalling conditions until the damage to the shed, which was considerable, could be repaired. Until scanning on 28th January, the ewes were managed in a similar way to the systems flock.

After scanning a new flock was created for the Animal Nutrition Department to investigate the role of sugar beet pulp as a supplement to silage in the diet of the pregnant ewe and as a supplement to grass in early lactation. This experiment required 160 twin bearing ewes. Of these ewes, 40 were individually penned in the metabolism unit, the remainder being group housed in the plastic shed.

III Reproductive Potential BF (232) Feeding for this flock was started on 3rd December at 300 g/head/day of 14% CP concentrate. This

was increased to 600 g/head/day on 19th December and ad-lib silage introduced. This was fed on the old road in Liquo thus providing a hard surface for feeding.

IV Wethers and Tups These animals were wintered on the Moor as usual and were fed silage and 100 g/head/day barley until the onset of grass growth in spring when the wethers were again used on grazing experiments by Plants and Soils Department.

V Plants and Soils Flock BF(14) This group of older ewes are kept for detailed study of nitrogen cycling and were wintered on spare areas around the Greyface systems fields. They were fed 300 g/head/day of 14% CP concentrate.

(d) Lambing and Weaning

% Lambs born alive was as follows:

Greyface systems	160%
Reproductive performance	151%
Balance of ewe stock	138%
Reproductive potential BF	117%
OVERALL LAMBS BORN ALIVE	149%

Lambing performance this year was better than the previous year although there is still room for improvement. This reduced performance is in part due to a higher than usual death rate among ewes. An outbreak of Listeriosis just before lambing in a group of mainly twin bearing ewes caused 11 deaths.

Weather conditions this year at lambing were a slight improvement on 1986. Although often cold and wet there were spells of drier weather. In an effort to reduce lamb losses due to exposure, ewes and lambs were generally transferred to larger groups in hay sheds and other vacant buildings. Turnout was often delayed for several days until the weather was suitable and lambs were strong and fit. Only when the weather was particularly good were animals turned out straight from the lambing sheds. This change in management undoubtedly saved many lambs since they were generally fitter and there was less mismothering once turned out to fields.

As in 1986 the ewes had to be rearranged into different groups to satisfy experimental requirements. Over 100 ewes were required for a nutritional study group and had to be twin rearing. The systems flock again had to be balanced for age of ewe with a rearing percentage of 150 on each plot.

Weaning percentage in the crossbreds was 125% an improvement on 1986. The Blackface flock was disappointing; weaning percentage was only 101%.

(e) Lamb Disposal

<u>Sold Store</u>			<u>Av Price/Hd</u>
20/ 4/87	Motherless lamb	1	£10.00
19/ 8/87	MLURI Animal Nut. Dept	7 Suffolk x	£39.40
21/ 8/87	L S Smellie	100 Suffolk x	£38.10
18/ 9/87	L S Smellie	150 Suffolk x	£36.33
8/ 9/87	L S Smellie	5 Tups	£20.40
25/ 9/87	L S Smellie	100 BF	£34.50
25/ 9/87	L S Smellie	36 EF x	£32.45
2/10/87	L S Smellie	210 BF	£29.75
9/10/87	L S Smellie	100 BF Ewes	£25.94
9/10/87	L S Smellie	147 BF Wethers	£27.83
13/11/87	L S Smellie	209 BF	£20.13
13/11/87	L S Smellie	28 Suffolk x	£33.28
<u>Sold Fat</u>			
7/ 7/87	L S Smellie	12 Suffolk x	£37.16
21/ 7/87	L S Smellie	22 Suffolk x	£33.94
18/ 8/87	L S Smellie	30 Suffolk x	£35.30
15/ 9/87	L S Smellie	40 Suffolk x	£39.48
22/ 9/87	L S Smellie	57 Suffolk x	£38.26
29/ 9/87	L S Smellie	81 Suffolk x	£35.62
24/11/87	L S Smellie	176 Suffolk x	£31.60

NOTES: Sheep Variable Premium still to be calculated on the last draw of 176 fat lambs.

40 BF lambs on a rape finishing experiment  
350 Suffolk x still finishing on rape  
116 store lambs

(f) Wool Crop

GF ewes	2.70 kg/head
GF gimmers	3.25 kg/head
BF ewes	2.13 kg/head
Rams (Suffolk & BF)	2.00 kg/head

The whole wool clip grossed £4101.00.

(g) Draft and Cast Ewes 102 cast ewes were transferred to the Animal Production Department for experimental work. The remainder were either sold for slaughter or as breeding ewes. The total number of cast ewes was 157. Of the 1982 age group, 42 ewes have been retained for a further year since they are fit for further breeding.

(h) Ewe Deaths and Health Problems The overall death rate in adult Greyfaces this year was 10.5%. Jaagseikte remains the most serious problem, accounting for almost 30% of Greyface deaths. The situation was made worse this year by an outbreak of Listeriosis just prior to lambing time. Unfortunately this was most serious in a group of twin bearing ewes thus reducing the lambing percentage.

At lambing time watery mouth proved to be a problem in young lambs. Routine dosing with an antibiotic was carried out in an effort to minimise losses.

- (1) Mating 1987 Ewes came to mating in a very good condition this year with a good supply of grass at foot, indeed supplementary feeding was unnecessary until 22nd October, almost a month later than in 1986.

This year an experimental group of gimmers and old ewes has been synchronised and treated with Pregnant Mares Serum Gonadotrophin. This flock will lamb earlier than usual before the main lambing starts.

<u>Ewe Breed</u>	<u>Sub Flock</u>	<u>No.</u>	<u>Ram</u>	<u>Mating Date</u>	<u>Synchronised</u>
Greyface	Systems Studies	307	Suffolk	26/10/87	No
Greyface	Gimmers and Cast Ewes	192	Suffolk	21/10/87	Yes (PMSG)
Greyface	Non Experimental	268	Suffolk	2/11/87	No
Blackface	Reproductive Potential	212	Blackface	12/11/87	No

### 3. CATTLE

- (a) Winter and Supplementary Feeding Thirty five winter calving cows were brought inside on 28th August 1986 to regulate body condition prior to a winter experiment. The remainder of the winter calving group entered the shed on 28th October 1986. By the end of October 1986, sward heights on spring calving systems sites had reduced to the level where the first cattle had to be brought in, and after weaning of spring calves was complete on 13th October 1986, all systems cows were kept in, although spare spring calvers remained out until 10th November 1986. Good weather during August and September 1986 gave autumn calves a good start and this group remained outside on good grass until 28th October 1986.

Weather during the spring of 1987 was also reasonable and thirty experimental winter calvers were turned out on 23rd April 1987. Thereafter, both sheds were quickly cleared and were empty by 13th May 1987.

Winter calvers, brought in early, and systems cows were given big bale hay and silage firstly before going onto hay rations and pit silage respectively over the winter. The autumn calving group was also fed on a silage based winter diet.

Experimental winter calving cows were fed as two groups, the 'high' group receiving 7 kg chopped hay + 7 kg 14% crude protein concentrate per head per day and the 'low' group receiving 7 kg hay and 1 kg concentrate.

Systems spring calvers and the autumn calving cows were also fed at two levels. Mean levels for both lots during the winter were 24 and 21 kg/hd/day.

High group autumn calvers were fed 40 kg silage and 2 kg barley/hd/day through the winter while the low group were fed 40 kg/hd/day silage alone although this was reduced to 30 kg on 19th January 1987 and then to 25 kg on 28th March 1987. Calves from this group were worked up to 1 kg/hd/day barley as creep feed and, by the end of the winter, were also consuming about 1 kg each per day.

One stirk, born in late spring 1986 but unsuitable for sale was retained. This was in-wintered on hay and barley.

Minerals were on offer to all grazing cattle and were included in winter rations, while high magnesium cow cobs were fed to cows during the spring and autumn high risk 'staggers' periods.

Heavy rainfall occurred throughout the autumn of 1987 and many cattle grazing areas quickly became waterlogged and poached. Grass growth declined dramatically, necessitating the removal of some systems cows from their experimental areas as early as 17th September. Further heavy rainfall during mid October meant that cattle had to be withdrawn from many areas and by 21st October, the last cows were inside for the winter.

Details of supplementary feeds and rations for the winter of 1986-7 are given in Table 1.

TABLE 1 Winter and Supplementary Feed Consumption

Cows in Atcost Shed - Hay Based Diet

Total Feed Costs	= £12,382
Average Number of Cows in Shed	= 64
Feed Cost Per Cow	= £193

The breakdown of feeding costs is shown below.

(a) Winter Calvers (Nutrition, Body Condition and Reproduction Study)

Hay fed at 7 kg/hd/day  
Concentrates fed at 1 or 7 kg/hd/day

34.5 Tonnes Concentrates	@ £133/T = £4588
60.0 Tonnes Hay	@ £ 78/T = £4680
2.0 Tonnes High Mag Cobs	@ £146/T = £ 292
0.9 Tonnes (High Phos) Minerals	@ £357/T = £ 321
	(High Mag)
	(Trace Elements)
	(Vitamins)

(b) Winter Calvers not on Experiment

5.5 Tonnes Concentrates	@ £133/T = £ 732
20.0 Tonnes Hay	@ £ 78/T = £1560
0.7 Tonnes High Mag Cobs	@ £146/T = £ 102
0.3 Tonnes Minerals	@ £357/T = £ 107

Cows in Indecon Shed - Silage Based Diet

Total Feed Costs	= £17,280
Average Number of Cows in Shed	= 118
Feed Cost per Cow	= £146

The breakdown of feeding costs is shown below.

(a) Spring Calvers (Systems and Spares)

95 Bales Silage	@ £16/Bale = £1520
200.0 Tonnes Silage	@ £16/T = £3200
2.2 Tonnes High Mag Cob	= £ 321
0.9 Tonnes Minerals	= £ 321

(b) Autumn Calvers

56	Bales Silage		= £ 896
300.0	Tonnes Silage		= £4800
7.2	Tonnes Barley	@ £100/T	= £ 720
1.8	Tonnes High Mag Cobs		= £ 263
0.7	Tonnes Minerals		= £ 250
(c)	210.0	Tonnes Silage	= £3360
	12.6	Tonnes Barley	= £1260
	1.3	Tonnes High Mag Cobs	= £ 190
	0.5	Tonnes Minerals	= £ 179

(d) One Overwintered Stirk

0.5	Tonne Hay	@ £ 78/T	= £ 39
0.3	Tonne Barley	@ £100/T	= £ 30
Total Feed Cost			= £69

Six Bulls Over Winter

7.6	Tonnes Hay		= £593
2.1	Tonnes Barley		= £210
0.1	Tonne Minerals	@ £357/T	= £ 36
Total Feed Costs			= £839
Feed Cost per Bull			= £140

Supplementary Creep Feed for Autumn and Winter Calves

11.4	Tonnes Hay		= £889
6.0	Tonnes Barley		= £600
3.0	Tonnes Calf Mix (for Winter Calvers	@ £190/T	= £570
Total Feed Cost			= £2059
Number of Calves			= 100
Feed Cost per Calf Over Winter			= £21

- 
- (b) Rebreeding Bulls were run with autumn calving cows in the Indecon shed from 17th November 1986 till 15th January 1987.

Oestrus detection procedures were used on winter calving cows on experiment in stalls in the Atcost shed and these were led to the bull as appropriate. Other spare winter calvers were run loose with bulls in small groups in both sheds. This re-breeding period ran from 21st January to 31st March 1987. A number of Blue-Grey cows from the winter group were held back from the bull and subsequently synchronised and A I'd in preparation for further experimental work when they calve in spring 1988. A few cows not holding to service during this period were later run with the bull as part of the spring calving group.

With one bull purchased at Perth in late 1986 and another acquired from Bronydd Mawr, the number of Charolais bulls at Hartwood rose to seven. To these were added a hired bull plus another on loan from Craibstone Farm, Aberdeen. This enabled each of the eight groups of spring calvers to run permanently with a bull while leaving one to run

with the spare non-experimental cattle. Bulling lasted from 13th May till 23rd July. In contrast to previous years, there was therefore no requirement to move a bull on a daily basis through a number of systems experimental plots to cover cows. This was shown later to have had a beneficial effect on the number of cows pregnant.

As usual, bulls were rotated regularly round different sub-groups at each bulling.

- (c) Calving 147 calves were born live at Hartwood between 1st December 1986 and 1st December 1987. The maximum number of young stock on the farm rose to a peak of 215 during September before the start of the calf sales.

Winter calving began on 4th November 1986 and went on till 20th January 1987 and thereafter spring calving ran from 17th February till 7th May 1987, coinciding with turnout.

Autumn calving took place mainly on experimental plots from 3rd August to 26th October 1987. Due to bad weather, over grazing and poaching was a problem and these cattle were housed just before calving was complete.

Calving difficulties were minimal among winter and spring calvers, though severe difficulties as a direct result of high birth weights were often experienced at autumn calving. Many of these calves were born at over 50 kg and some at more than 60 kg. Mean birth weights are shown in Table 2.

From 8th November until the time of this report, 1st December 1987, 18 calves have been born in the winter calving group.

Numbers of calves born per hundred cows mated was; 60 in winter 1986-87, 86 in spring 1987, and 87 in autumn 1987. The poor performance of the winter calvers may be connected with the lower than normal quality straw based diets being fed at the time of re-breeding. Suspected poor fertility in one aged bull may also have been a contributory factor.

TABLE 2 Mean Birth Weights (kg) of Charolais Cross Calves

<u>Breed</u>	<u>Heifers</u>	<u>Bulls</u>
<u>Winter born calves 1986-87</u>		
Charolais x Hereford Friesian	39.0	42.3
Charolais x Blue Grey	35.3	40.4
<u>Spring born calves 1987</u>		
Charolais x Hereford Friesian	43.2	46.7
<u>Autumn born calves 1987</u>		
Charolais x Hereford Friesian	48.4	51.0

- (d) Cattle Disposals and Calf Weaning Weights to 1st December 1987 No calves were required for work at Glensaugh this year. The first group of forty eight (autumn and winter born) were sold at Strathaven on 24th September followed by twenty at Lanark on 7th October and forty at Hamilton the following day, at which sale, Hartwood cattle achieved the top market price per kilogram. A final draft, mainly of spring born calves was sold at Hamilton on 5th November.

A group of four calves, unsuitable for sale, has been retained for overwintering.

Three cast cows were sold at Lanark Market and ten Hereford Friesian in-calf cows at Hamilton during December 1986. In May, two non-pregnant cows from Hartwood went to the Department of Animal Production and Nutrition, while a further seven cast cows and two in-calf cows went to Hamilton market in October and November. In addition to these disposals, six cows have gone over the last year as fallen or dead stock. Two cows did not recover from difficult calvings and were unable to rise, while four died of ill health. Most of these cows were on experiments.

Details of suckled calf sales are given in Table 3, and information on other sales is given in Table 4. Charolais cross calf growth rate data are shown in Table 5.

TABLE 3 Sale of Suckled Calves

<u>Sold to/at</u>	<u>Date</u>	<u>Breed</u>	<u>Sex</u>	<u>No</u>	<u>Price/Head</u>
<u>1986/87 Autumn and Winter Calves</u>					
Strathaven Market	24/ 9/87	Ch x	M	16	£394
	24/ 9/87	Ch x	F	22	£357
	24/ 9/87	Lim x	M	3	£291
	24/ 9/87	Lim x	F	5	£284
	24/ 9/87	H x	F	2	£266
Lanark Market	7/10/87	Ch x	M	13	£298
	7/10/87	Ch x	F	7	£294
Hamilton Market	8/10/87	Ch x	M	16	£392
	8/10/87	Lim x	M	2	£339
	8/10/87	Ch x	F	19	£310
	8/10/87	H x	F	2	£225
	8/10/87	Lim x	F	1	£231
<u>1987 Spring Calves</u>					
Hamilton Market	5/11/87	Ch x	M	23	£334
	5/11/87	H x	M	2	£282
	5/11/87	Sim x	M	1	£264
	5/11/87	Lim x	M	6	£302
	5/11/87	Ch x	F	27	£295
	5/11/87	Sim x	F	2	£259
	5/11/87	Lim x	F	2	£289



TABLE 4 Disposals of Cows

<u>Sold to/at</u>	<u>Date</u>	<u>Breed</u>	<u>Number</u>	<u>Price/Head</u>
Lanark Market	1/12/86	HF	3	£293
Hamilton Market	4/12/86	HF	10 (in calf)	£360
Hodgkinson Stock Uplifter	27/ 1/87	HF	1	NIL
Animal Prod/Nutrition	19/ 5/87	HF	2	£350
Hodgkinson Stock Uplifter	21/ 8/87	HF	1	£ 5
Hodgkinson Stock Uplifter	15/ 9/87	HF	1	£ 5
Hodgkinson Stock Uplifter	21/ 9/87	HF	1	£ 5
Hodgkinson Stock Uplifter	24/ 9/87	HF	2	NIL
Hamilton Market	14/10/87	HF	7	£295
Hamilton Market	5/11/87	HF	2 (in calf)	£362

TABLE 5 Calf Growth 1987

	<u>Hereford x Friesian Cow</u>		<u>Blue Grey Cow</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
<u>Calves born in autumn 1986</u>				
Average weaning weight (kg)	286.00	277.00	-	-
Average L.W.G. (kg/day)	0.84	0.83	-	-
Average age of all autumn calves at weaning: 289 days				
<u>Calves born in winter 1986/87</u>				
Average weaning weight (kg)	307.00	280.00	263.00	235.00
Average L.W.G. (kg/day)	0.92	0.88	0.83	0.77
Average age of all winter calves at weaning: 275 days				
<u>Calves born in spring 1987</u>				
Average weaning weight (kg)	237.00	229.00	-	-
Average L.W.G. (kg/day)	0.98	0.95	-	-
Average age of all spring calves at weaning: 193 days				

- (e) Replacements and Transfers from House O' Muir Nine replacement Hereford Friesian in-calf heifers were purchased in February 1987 for the spring calving herd. A total of sixteen Blue Grey and thirteen Hereford Friesian heifers was bought during the autumn as replacements for the autumn and winter calving groups. All were in-calf to Limousin bulls except for five bought at Lanark, those having calves at foot. All the above cattle went to House O' Muir.

During the last year, cattle were transferred to Hartwood from House O' Muir in three lots: nine Hereford Friesian heifers with calves at foot on 13th December 1986 for the winter calving herd, nine Hereford Friesian heifers with ten calves for the spring calving herd on 20th

May 1987, and fourteen Hereford Friesian heifers as autumn calver replacements on 8th June 1987.

Five young calves have been bought from local farms for fostering during the year. During mid 1987, ten cows and five heifers with calves, plus the bulls Newhouse Atom and Kersknowe Under, all bought by the Department of Animal Production and Nutrition, were transferred to Hartwood.

Details of cattle purchases are given in Table 6.

TABLE 6 Cattle Purchases

<u>Purchased from/at</u>	<u>Date</u>	<u>Breed</u>	<u>Sex</u>	<u>Number</u>	<u>Price/Hd</u>
<u>In-calf Heifers</u>					
					£
Sinclair, Glendevon, Perth	12/ 2/87	HF		9	650
Currie, Haswellsykes, Peebles	10/ 9/87	BG & HF		8 & 8	620
Carlisle Market	22/10/87	BG		8	655
Lanark Market	3/11/87	HF		5*	728
					*with calf at foot
<u>Calved Heifers</u>					
Dept of Animal Prod/Nutrition	May 1987	HF		5	FOC
<u>Cows</u>					
Dept of Animal Prod/Nutrition	May 1987	HF		10	FOC
<u>Bulls</u>					
Dept of Animal Prod/Nutrition	May 1987	CH		2	FOC
<u>Calves</u>					
					£
Parkin, Daviesdykes, Newmains	8/ 1/87	HF	F	1	80
Biggar Market	17/ 2/87	Sim x	F	1	135
Colquhoun, Brow, Newmains	12/ 3/87	Hx	M	1	100
Dept of Animal Prod/Nutrition	May 1987	CHx, Limx	M&F	5	FOC
Waugh, Watsonmids, Newmains	17/ 8/87	Fr	M	1	70
Hunter, West Tarbrax, Shotts	16/ 9/87	AAxF	M	1	110
Hamilton Market	11/11/87	CHx	F	1	289 <sup>x</sup>
					<sup>x</sup> Re-purchased from market

- (f) Cattle Health Calves born outside during this autumn were entirely free from scour, though it became fairly common towards the end of calving in both the winter and spring groups. These calvings took place inside. Those cases which occurred were promptly and effectively treated and scour never became a serious health problem among young calves.

Pneumonia and respiratory symptoms arose from time to time during the inwintering period and also occasionally during the earlier part of the

grazing season. Most cases were treated successfully although two calves died, one from House O' Muir after repeated treatment died during winter and another died suddenly at grass on the Greengate systems experiment.

General health of calves was good and few serious problems arose. Three young calves were treated for lumpy jaw and one for joint ill. There was some lameness among young stock towards the end of the grass season, possibly associated with the prolonged wet conditions underfoot. These responded well to treatment. There was also some lameness in adult cattle, and three bulls were also treated for foot infection earlier in the year, though none was serious.

At winter calving, two cows prolapsed and through the year, four cows had to be treated for mastitis. Four other cows were treated for eye infection.

One cow was put down in January, being unable to rise following a difficult calving, while an autumn calver had to be disposed of for similar reasons. During late summer and autumn, four cows died of natural causes. Two died from 'staggers', the first on 21st August, and the second on 24th September and two others died from pericarditis and chronic unthriftiness/acetonaemia respectively. Both cows were on veterinary treatment and observation and all were on experiment.

All spring calvers were given E.Coli/Rotavirus anti-scour vaccine approximately one month before calving.

Over the summer, young cattle were dosed at regular intervals with Systemex wormer.

High magnesium cow cobs were fed to cows at turnout and also around time of re-entry to the sheds. High magnesium licks were always accessible to cattle as were trace element supplements both indoors and outside,. As usual, high phosphorous supplements were on offer at bulling.

#### 4 LAND USE

##### Cropping Summary 1987

<u>Crop</u>	<u>Area</u>	<u>Yield</u>
Barley	20 ha	64 t
Silage	25 ha 2 out )	
	26 ha 1 out )	1200 t
	12 ha Surplus to Systems)	+ 200 - 4x4 bales
Hay	7 ha	55 t
Rape	11 ha	-
Grass Reseed	35 ha	-

The last of the barley, variety Golf, was sown towards the end of April. The crop established reasonably well, but for the wet areas in some fields. Despite a slow start the weeds took a good check except for day-nettle that persisted and produced a dirty sample at harvest. There were no fungal problems and the crop was ready for harvest by the second week in September. Our own combine did not prove equal to the job required and a contractor commenced combining on the 19th September, avoiding the rain. The rotational grass fields only managed at best 2.5 t/ha. This is

the last season that barley will be grown at present. One field reverts to the Scottish Home and Health Department and negotiations are in progress concerning a project of coppicing with the Central Scotland Countryside Trust on another. This will release some 10 ha from cereals for rotational grass.

The grass in the early spring grew well allowing an early closing off of the fields for silage from sheep grazing. The 25 ha for two cut silage were ready for cutting by the end of May but rain prevented a start until June 4th. The 25 ha for only one cut silage were completed by the end of June. The second cut silage was conserved during the first week in August. A large proportion of the crop was ensiled with an additive of sulphuric acid. The resulting fodder was of an above average analysis although in common with most other samples in the area the crude protein is lower than desired.

One field that was not cut for silage was left and cut for hay at the beginning of July, and although about 1.5 ha was lost due to the weather, some good quality hay was gathered.

The rape, variety Hobson, was broadcast at the beginning of July and got an excellent start developing into a good crop on which 567 Suffolk x lambs were grazed with 176 sold fat at the end of November.

This year 29 ha of the reseeded grass were drilled by the end of May with the balance on June 20th. The early sown grasses got off to a good start and overall weed control was a success using Atistell, however, the later 6 ha did not establish quite so well and similar to the barley were in competition with day nettles. The clovers have not established well despite a high level of phosphate and potash in the seed bed. In order to graze the reseeds 836 extra lambs were brought on from Sourhope and Glensaugh at weaning, in late August, and have done a good job of producing a fairly tight sward.

In rotation 70 t of ground magnesium lime were spread mainly in the fields for barley.

Moles have again proved to be a major nuisance and outside assistance is going to be necessary to try and remove this pest.

## 5. GENERAL ITEMS

Buildings Routine roof and rhone repairs have been carried out over the year. Rosehall house and the old steading have been demolished as have the bull pens at the Home Farm.

A retaining wall and extra concrete have been extended to contain the dung at the east end of the Indescon shed.

Drainage Rationalisation of surface water around the silage pit and slurry store has resulted in less water being stored in the slurry store and going away clean.

Various small wet areas in fields were investigated and damaged drains reinstated.

Roads Internal roads have all had a considerable amount of work done to repair pot-holes and gateways.

Fencing Small stretches of internal fencing have been improved or built while some 400 metres of march fencing have been carried out.

Hostel A smoke detector and fire alarm have been installed in the Hostel/Flat.

Vermin A considerable number of foxes have again been killed during the year. The rabbit population appears to be in a healthy state and may prove to be a problem in grazing experiments next season.

## RED DEER FARM

### 1. WEATHER

The weather in the early part of the winter was extremely wet but mild, thereafter snowfalls were infrequent and much less than in recent winters. March and April were wet but reasonably mild. The summer was cool and wet with little sunshine. The growth of both the sown pastures and the hill vegetation was exceptionally good throughout the season.

### 2. RED DEER

(a) The 1986 Rut The weather during the rut was good and hinds settled early. The hinds were in very good condition throughout the period.

(b) Winter Feeding All the grass fields were cleared of stock in late November and early December. The wintering groups were again set-up on the Upper Farm hill, the Main Farm hills and on Cairn Henney. Supplementary feeding of all stocks commenced in early December and continued through the winter and the wet spring into May. The Cairn Henney group held the largest of the farm hinds, and most were carrying Wapiti-hybrid and cross calves. The amount of feed consumed and the costs are detailed in Table 1.

(c) Calving The first calf was born to a melatonin treated hind on 15th May at the Loch hills. The mean dates of calving of the various groups were as follows:

Pure bred red deer	-	15th June
Wapiti x red (melatonin)	-	7th June
(Wapiti x red) x red	-	16th June
Wapiti x (Wapiti x red)	-	1st July

Some 20 of the hinds bred to the Wapiti bull were treated with melatonin hence the much earlier calving date compared with last year (24th June). Pure-bred Wapiti have a much longer gestation period of 250 days compared with 233 days in pure red deer, hence the late birth dates of the 3/4 Wapiti offspring.

The overall calving percentage was 79% and reflects the lower performance levels of the 16 and 17 year old hinds, and the high percentage of yield hinds in the Wapiti breeding groups. The reproductive performance of the cohorts are given in Table 2.

(d) Weaning The higher weaning weights recorded this year are due firstly to the continuous growth of grass throughout the summer period, and in case of the Wapiti hybrids, the much earlier birth dates. All of the 201 weaned calves were housed at the Steading. The weaning weights of the red deer, Wapiti hybrids and Wapiti crosses, are shown in Table 3.

TABLE 1 Winter feeding levels costs for all adult stock

Group	Period fed	Hay		Concentrates		Total feed cost/hd
		kg/hd	cost/hd	kg/hd	cost/hd	
Birnie (47)	15.12.86- 8. 5.87	129	£ 9.03	15	£ 2.05	£ 11.08
Upper Farm(125)	12.12.86- 7. 5.87	132	£ 9.24	25	£ 3.42	£ 12.66
Green- shiels(21)	9.12.86- 8. 5.87	280	£19.60	86	£11.78	£ 31.38
Yearlings (18)	4.12.86- 8. 5.87	129	£ 9.03	101	£13.83	£ 22.86
Cairn Henney(66)	12.12.86-28. 4.87	198	£13.86	40	£ 5.48	£ 19.34
Pere Davids (6)	1.12.86- 8. 5.87	395	£27.65	45	£ 6.16	£ 33.81
Wapiti bulls (3)	1.12.86- 6. 5.87	790	£55.30	390	£53.43	£108.73
Housed hinds (48)	2.12.86-27. 2.87	115	£ 8.05*	40	£ 5.48*	£ 13.53*

\* Housed from 28.2.87 and fed special diet (not costed).  
Hay costed at £70/t and conc. costed at £137/t.

TABLE 2 Reproductive Performance of Cohorts

	Hinds to stag	Hinds died	Hinds yeld	Calves born	Calves born dead	Died B-W	No weaned	Weaning %
A	2	-	-	2	-	1	1	50
B	34	2	5	27	1	1	25	74
C	17	1	2	14	-	2	12	71
H	38	-	8	30	1	6	23	61
J	24	1	6	17	2	4	11	46
K	13	1	1	11	3	-	8	62
P	26	1	3	22	-	3	19	73
R	44	-	10	34	1	3	30	68
T	43	2	5	36	-	3	33	77
V	28	-	4	24	2	2	20	71
X	22	1	5	16	-	6	10	45
Z	18	1	6	11	-	2	9	50
	<u>309</u>	<u>10</u>	<u>55</u>	<u>244</u>	<u>10</u>	<u>33</u>	<u>201</u>	<u>65%</u>

TABLE 3 Weaning weight of calves (nos. in brackets)

		Liveweight (kg) Sept 86	Liveweight (kg) Sept 87	Average birth date
Red Deer	M	38.2 (96)	39.5 (88)	15 June
	F	35.2 (75)	35.8 (66)	15 June
F1 Wap x red	M	38.9 (11)	57.9 (7)	8 June
	F	39.4 ( 5)	51.5 (6)	6 June
F2 (Wap x red) x red	M	32.0 ( 6)	41.6 (17)	21 June
	F	41.0 ( 6)	41.7 (13)	10 June
F2 Wap x (Wap x red)	M	-	51.0 ( 2)	5 July
	F	-	55.0 ( 1)	24 June
NB Red deer excluding 'late born calves' i.e. from hinds put to stag late.	M		39.7 (77)	12 June
	F		36.0 (56)	13 June



- (e) Disposal of the Calf Crop All the weaned calves were retained for experimental use on the station.
- (f) Calf Sales No calves were sold this year.
- (g) Sales of deer to the farmed venison market Sales of prime venison in the London stores of the Waitrose supermarket group have been very disappointing this year so far. The average weekly consignment of 6.5 carcasses compares with 18.5 carcasses last year. The price offered this year is according to a sliding scale which relates to the time of slaughter. The price paid in October was 275.6 pence per kg. d.c.w. and is expected to rise over the winter to a peak in March. The sales recorded to date are shown in Table 4.

TABLE 4 Prime Venison Sales

Date of sale	No.	Av. Carcass Wt.	Price/hd
29/ 9/87	2	56.5 kg	£155.71
13/10/87	8	51.9 kg	£143.13
20/10/87	5	50.5 kg	£139.21
20/10/87	3	59.7 kg	£164.44 *
27/10/87	8	48.6 kg	£133.88
3/11/87	4	44.9 kg	£123.67
10/11/87	8	44.1 kg	£121.60
17/11/87	4	43.1 kg	£118.85
26/11/87	6	41.1 kg	£113.22
4/12/87	7	37.0 kg	£102.16

\* Wapiti hybrid stags.

- (h) Venison Sales to the Game Market (Culls) Herd culls were sold to the game dealers Mitchell of Letham. The prices obtained varied throughout the season and varied from 110 pence/kg to 147.4 pence/kg in skin carcass. The sales of game venison to Europe and particularly West Germany have been difficult as a result of the Chernobyl accident, and this is still affecting prices. The numbers sold and the prices obtained are detailed in Table 6.

TABLE 5 Venison Sales to the Game Market

Date	No.	Av. Carcass Wt.	Price/hd
4/ 2/87	3 stags	81.2 kg	£89.33
17/ 2/87	2 hinds	38.0 kg	£41.75
6/ 7/87	1 hind	36.3 kg	£48.00
15/10/87	1 stag	44.0 kg	£64.99
24/10/87	1 stag	44.0 kg	£64.99
24/10/87	1 calf	20.4 kg	£30.15
6/11/87	1 stag	59.1 kg	£71.50

- (i) Breeding Replacements 25 yearling red deer hinds have been retained for future stock replacement. In the immediate future they will be used for investigating the influence of nutrition/body weight on the time of first oestrus.

Another six Wapiti hybrid hinds calves have been retained for the hybrid herd.

- (j) Hind Deaths The deerstocks continued to be monitored for the presence of mycobacterial infections. Of the ten hinds which died during the year 7 died or were culled from the herd because of Johne's disease. Two died on the hill from unknown causes, another had to be shot after having an accident.

- (k) Calf Deaths A special investigation into the causes of perinatal losses will be conducted at Glensaugh in 1988.

As in previous years unacceptable losses occurred in the calves at calving time, and shortly after. A total of 43 calves died. The number of stillborn and Dystokias was 10, the Cryptosporidin/clostridial infection accounted for at least 16, another 4 died of hypothermia, 2 broke legs and had to be shot. One calf died with a hole in heart problem, one calf drowned in a water-trough and 9 died from unknown causes, probably Crypto/clostridial infections.

- (1) The 1987 Rut The weather during October was extremely wet but very mild, November was mild, dry and sunny with occasional frosts and no wind. The rut went well in almost ideal conditions. The dates of release of stags and bulls to the various groups of hinds are detailed in Table 7.

TABLE 6 Stag Release Dates 1987

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1.	Pere David bulls to pure hinds	- running all summer
2.	Wapiti bulls to red hinds	- 23/9/87
3.	Wapiti bulls to hybrid hinds	- 23/9/87
4.	Wapiti F1 hybrid bulls to red hinds	- 1/10/87
5.	Red stags to hill group	- 1/10/87
6.	Red stags to Upper farm reseeds	- 1/10/87
7.	Red stags to Loch Hills area	- 13/10/87
8.	Inseminations with PD semen on red hinds	- 24/9/87 (melatonin treated hinds), - 25/11/87 (untreated hinds).

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### 3. FENCING

The Hard Park was fenced for deer in the early spring and carried an experimental group of 60 hinds and their calves during the summer months.

Part of the Steading field was fenced (2 ha) for further studies related to the nutrition of weaned calves.

A stretch of the western perimeter fence in the Mid Shank field on the Upper Farm reseeds was renewed with a Cyclone deer net. This is the first stage in the gradual replacement of the fences on the Upper Farm reseeds.

A 2 ha plot was fenced on the Cairn Henney heather hill for grazing ecology studies.

The temporary fencing erected around the Hogg Park at Loch hills is now beginning to deteriorate. A small section was dismantled and replaced with Cyclone net.

### 4. HANDLING PENS

The converted sheep pens at the Loch hills were improved by replacing the extended sheep gates with full size deer gates, hung on new gate posts.

II SUMMARY OF FLOCK RECORDS 1986-87

GLENSAUGH

TABLE 1. Reconciliation of Ewe Numbers 1986-87

Flock	Breed	Ewes and Gimmers November '86	Cast and Cull	Deaths		Gimmers brought in		Ewes & Gimmers November '86	Hoggs kept November '86
				No	%	Home Bred	Others		
Cairn	B.F.	250	78	11	4.4	59	-	258	82
Birnie	B.F.	201	57	7	3.5	64	-	204	74
Finella	B.F.	119	99	2	1.7	-	-	-	-
	E.F. B.F.	77	21	7	9.1	35	-	84	36
	G.F.	100	19	8	8.0	-	38	111	-
	N.C.C	104	98	6	5.8	-	-	-	-
	E.F. N.C.C	58	85	3	5.2	30	-	-	28
	N.C.C. Shet	103	21	9	8.7	-	40	113	-
	H.B.	107	22	7	6.5	-	40	118	-
Tree	G.F.	-	-	-	-	-	95 + 265	364	-
Total		1119	-	60	5.4	-	-	1252	220

All Finella North Country Cheviots sold  
 All Finella East Friesland x Cheviot sold except 28 hoggs  
 All Finella Blackface sold except 15 ewes and gimmers to Cairn and  
 3 ewes to Birnie

## GLENSAUGH

TABLE 2. Liveweight of Sheep Nov '86 - Nov '87

Flock	Breed	Ewes		Gimmers		Hoggs	
		1986	1987	1986	1987	1986	1987
Cairn	B.F.	55.1	57.1	47.2	48.5	33.7	35.6
Birnie	B.F.	57.5	55.4	50.0	46.0	35.7	39.0
Finella	E.F. B.F.	64.6	56.6	52.9	50.4	35.8	36.0
	G.F.	67.7	68.5	77.7	64.5	-	-
	N.C.C. SHET	50.5	49.3	51.9	46.7	-	-
	H.B.	70.3	72.7	76.5	75.6	-	-
Tree	G.F.	-	78.7	-	62.0	-	-

GLENSAUGH

TABLE 3 Cattle Numbers Reconciliation

	No. at 1/12/86	Births	Age Transfers	Purchases	Deaths	Sales	Age Transfers	No. at 1/12/87
Cows	62	-	-	-	-	11	-	51
Heifers	-	-	-	43	-	-	-	43
Bulls	2	-	-	-	-	1	-	1
Stores	50	-	-	80	-	118	51	63
Calves	9	51	51	-	-	9	-	-
TOTALS	123	51	51	123		139	51	158

## SOURHOPE

TABLE 1 Reconciliation of Ewe Numbers 1986-87

Flock	Ewes and Gimmers Nov '86	Draft and Cull Ewes	Ewe Deaths	Gimmers brought in	Ewes and Gimmers Nov '87	Hoggs Nov '87
SCC Fasset	199	47	7	54	199	49
NCC x SCC NEHL/ Auchope	660	138	16	146	652	160
NCC Park Law	163	46	3	49	163	42
BF Rigg	278	56	8	62	276	68
BF Gairs	310	67	2	69	310	70
BF Alderhope	294	59	13	73	295	77
BF Banks	340	73	14	85	338	89
Total Blackface	1222	255	37	289	1219	304
Station Total	2244	486	63	538	2233	555
Thoka X Retained for investigation sent from Bush Site				7		78 3

SOURHOPE

TABLE 2 Pre-tupping Weights of Ewes, Gimmers and Hogs  
November 1986 and November 1987

Flock	Ewes		Gimmers		Hogs	
	1986	1987	1986	1987	1986	1987
BF Rigg	60.1	57.5	53.6	49.8	34.2	33.1
BF Gairs	*60.4	57.7	53.4	50.5	36.1	31.3
BF Alderhope	58.8	57.6	52.7	50.4	34.1	34.1
NCC x SCC NEHL/ Auchope	59.8	61.2	50.0	50.9	38.5	33.8
NCC Park Law	63.2	63.2	54.7	53.9	35.6	34.2

\* Correction to figure printed in 1986 report.



HOUSE O' MUIR

TABLE 1 Reconciliation of ewe numbers

Ewes & Gimmers Nov. 1986	Cast	Sold to Anim. Prod. & Nutr. Dept.	Deaths	Gimmers	Ewes & Gimmers Nov. 1987
544	54	3	28	116	575

TABLE 2 Reconciliation of cattle numbers

Autumn Calvers	Nov. 1986	Purchases	Deaths	Sales	4 Nov. 1987
Luing	7	-	-	-	7
Hereford x Fr. <sup>+</sup>		NA	-	NA	13 <sup>+</sup>
Blue Grey <sup>+</sup>		NA	-	NA	16 <sup>+</sup>

Calves Nov. 1986	Born	Purchases	Deaths	Sold	4 Nov. 1987
13	25	1	1	28	10

<sup>+</sup> Hartwood stock calving and wintering at House o' Muir

NA - Not applicable

HARTWOOD

TABLE 1 Reconciliation of Ewe Numbers, December 1986 - December 1987

<u>Breed</u>	<u>Ewes &amp; Gimmers Dec 86</u>	<u>Purchases &amp; Transfers</u>	<u>Deaths</u>	<u>Sales &amp; Transfers to Research A/C</u>	<u>Ewes &amp; Gimmers Dec 87</u>
Blackface	232	-	16	4	212
Greyface	749	357*	94	181	831*
TOTAL	981	357	110	185	1043

\* Includes 64 ewe lambs currently at House O' Muir

TABLE 2 Wethers

<u>Breed</u>	<u>Adult Wethers Dec 86</u>	<u>Purchases &amp; Transfers</u>	<u>Deaths</u>	<u>Sales &amp; Transfers</u>	<u>Adult Wethers Dec 87</u>
Blackface	55	-	-	15	40

TABLE 3 Pre-mating weights of Greyface ewes and gimmers (kg)

	<u>October 1986</u>		<u>October 1987</u>	
	<u>Ewes</u>	<u>Gimmers</u>	<u>Ewes</u>	<u>Gimmers</u>
Systems flock	76.2	67.7	79.8	67.7

HARTWOOD

TABLE 4 Reconciliation of Cattle Numbers Run on Hartwood 1st December 1986 - 1st December 1987

	<u>At</u> <u>1/12/87</u>	<u>Births</u>	<u>Purchases</u>	<u>From</u> <u>HOM</u>	<u>From</u> <u>Bronydd</u> <u>Mawr</u>	<u>To Dept</u> <u>Animal</u> <u>Prod/Mult</u>	<u>To</u> <u>HOM</u>	<u>Deaths</u>	<u>Sales</u>	<u>Other</u> <u>Losses</u>	<u>At</u> <u>1/12/87</u>
Adult Cattle	184	-	-	32	-	2	-	6 (3 sold)	22	-	186
Bulls	5	-	-	1	1	-	1	-	-	-	6
Calves	78	147	5	19	-	-	-	7	171	2	69
Stirks			1*							(put down)	1
TOTAL	267	147	6	52	1	2	1	13	193	2	262

\* Re-purchased from market

N.B. This reconciliation deals only with cattle actually at Hartwood, and does not therefore include stock which although bought for the farm, went to House O' Muir at purchase and are there at 1st December 1987.

RED DEER

TABLE 1. Reconciliation of stock numbers 1986-87

STOCK	NOS AT 1.12.86	AGE TRANSFER	CALVES BORN	PURCHASES	DEATHS	SALES	AGE TRANSFER	NOS AT 1.12.87
AGED STAGS	17	2	-	-	3	3	-	13
PRICKETS	2	-	-	-	-	-	2	0
YOUNG STAGS	0	112	-	-	6	45	-	61
STAG CALVES	110 + 2+	-	107	-	16	-	112	89 + 2+
MATURE HINDS	278	21	-	-	14	-	-	285
JINNOCKS	23	25	-	-	2	-	21	25
YOUNG HINDS	28	78	-	-	3	1	25	77
HIND CALVES	88	-	82	-	21	-	78	68 + 3*
TOTALS	548	238	189	0	65	49	238	623

+ gathered after 1.12.86, but not tagged

\* Not gathered

RED DEER

MAPITI CROSSES

TABLE 1 (a). Reconciliation of stock numbers 1986-87

STOCK	NOS AT 1.12.86	AGE TRANSFER	CALVES BORN	PURCHASES	DEATH	SALES	AGE TRANSFER	NOS AT 1.12.87
AGED BULLS	3	2	-	-	1	-	-	4
PRICKETS	3	1	-	-	-	1	2	1
YOUNG BULLS	5	17	-	-	4	7	1	10
BULL CALVES	18	-	32	-	7	-	17	26
MATURE COWS	-	3	-	-	-	-	-	3
JINNOCKS	3	4	-	-	-	-	3	4
YOUNG COWS	4	9	-	-	-	-	4	9
COW CALVES	11	-	25	-	7	-	9	20
TOTALS	47	36	57	0	19	8	36	77

## RED DEER

TABLE 2 Liveweights of breeding hinds (nos. in brackets)

Cohort	Liveweight September 86	Liveweight March 87	Liveweight September 87
A	90.0 ( 2)	84.5 ( 2)	87.5 ( 2)
B	86.5 (33)	81.7 (32)	83.1 (31)
C	85.6 (18)	79.3 (16)	82.3 (16)
H	85.4 (30)	81.6 (36)	83.4 (37)
J	82.5 (17)	80.6 (22)	83.5 (23)
K	85.5 (11)	85.9 (11)	84.9 (12)
P	86.0 (16)	81.4 (25)	85.4 (25)
R	87.6 (47)	85.0 (42)	86.2 (44)
T	87.6 (38)	85.4 (42)	87.5 (44)
V	90.4 (28)	86.7 (28)	90.0 (26)
X	77.6 (22)	78.5 (20)	82.1 (18)
Z	75.9* (28)	73.4 (25)	78.6 (22)
D	-	46.2 (25)	64.1 (21)

\* Including nine artificially reared hinds, mean weight 95.0 kg.