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HILL FARMING RESEARCH ORGANISATION

FARM REPORTS AND SUMMARY OF FLOCK RECORDS

1978

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I. FARM REPORTS - 1978

A. GLENSAUGH

WEATHER

The first snowstorm of the winter occurred in late November just after the tups went out to the ewes. By mid December the weather had improved although wet in the main. January remained open but still wet and mild. Snow again fell in February and in March and this weather was very hard on all outwintered stock. April started off very wet and cold with snow and sleet and this turned to heavy rain by the end of the month. May was much better with a very dry spell towards the end of the month and in early June it was very hot. Most of June was dry and warm and this continued into July but broke by the middle of the month. Thereafter July and August were generally wet and indeed at times cold. September continued misty and wet but October was quite the best, as was November apart from the last week, autumn for some time. Late November and early December were characterised by torrential rain and widespread flooding.

SHEEPSTOCKS

Most of the hefts came to the tup in good condition, the Cairn and Birnie were not so good but even so, were better than last year. The flocks wintered well in what was a nasty winter and although the Cairn and Birnie flocks got a set-back in mid-winter, they recovered and all hefts were in good shape by the end of March. The lambing was accompanied by atrocious weather and lambs were lost both from exposure and drowning. The weather in late June and early July was excellent and the clipping of both hoggs and ewes was completed without hold-ups and the wool was dispatched in good order. The wool-crop realised a total of £3,613.

Lamb growth was similar to last year but in general the lambs lacked bloom at weaning and because of experimental treatments some lambs were fed a concentrate supplement before being sold store.

Pneumonia affected the West Finella ewes at mating time, only the crosses were affected and the Lochhills greyfaces during March. Losses occurred in both flocks.

The winter and spring feeding programme for all hefts is shown in Table A. The costs are rather less than last year and this was due to the shorter winter storm feeding period.

TABLE A

Winter Feeding

Flock	Hay		Concentrates		Total cost per head
	Period	Total per head (kg)	Period	Total per head (kg)	
<u>Ewes</u>					£
Cairn	10 Jan - 28 April	57.3	6 Jan - 12 May	26.13	6.69
Birnie	10 Jan - 28 April	48.3	6 Jan - 12 May	25.6	6.05
East Finella	31 Dec - 3 May	61.10	17 Mar - 12 May	22.7	6.55
Mid Finella	31 Dec - 3 May	47.49	7 Mar - 12 May	25.28	5.95
West Finella	31 Dec - 3 May	45.80	7 Mar - 12 May	24.37	5.74
Greyfaces	20 Nov - 3 May	105.6	24 Nov - 12 May	40.32	11.38
<u>Hoggs</u>					
Finella (all flocks)	9 Jan - 12 April	65.27	19 Dec - 28 April	25.5	7.12
Cairn } in	4 Nov - 28 April	76.3	4 Nov - 28 April	44.11	9.95
Birnie } wintered	4 Nov - 28 April	76.3	4 Nov - 28 April	44.11	9.99

Costed at: Hay @ £60/tonne; Concentrates @ £115/tonne

Lamb mortality was well down on last year and most deaths occurred at birth or shortly thereafter. East Finella although down on last year was high at 18.9% but this figure includes 6 slaughtered for experiments. The losses on all flocks are shown below in Table B.

TABLE B

Lamb Mortality

Flock	Born alive	Dead			
		Birth to marking	Marking to weaning	Total number	%
Cairn	168	10	5	15	8.92
Birnie	208	12	7	19	9.13
Mid Finella	200	12	0	12	6.00
West Finella	214	16	0	16	7.47
East Finella	232	29	15	44	18.96*
Greyfaces	412	29	0	29	7.03
TOTAL	1434	108	27	135	9.41

* Includes 6 lambs slaughtered for experiments

Lamb Disposal

All lambs were sold store in August and September. They were well sold and prices were all up on last year. The numbers sold and the heft of origin is shown with the prices realised in Table C.

TABLE C Lamb Sale Prices 1978 - By Heft

Heft	Breed	No. Sold	Av. Price	Range	
Cairn	BF	85	£14.50	£ 5.35 - £17.50	
Birnie	BF	96	£14.55	£ 5.35 - £17.70	
West Finella	BF	26	£12.76	£ 5.35 - £17.50	
	crosses (BL x BF and TEX x BF)	34	£22.32	£12.70 - £22.30	
	Dorset x's	108	£22.49	£12.70 - £24.70	
	All breeds	168	£20.95	£ 5.35 - £24.70	
Mid Finella	BF	26	£15.46	£ 5.35 - £17.70	
	crosses (BL x BF and TEX x BF)	30	£20.51	£12.70 - £22.30	
	Dorset x's	98	£23.33	£17.90 - £24.70	
	All breeds	154	£21.45	£ 5.35 - £24.70	
East Finella	NCC	117	£23.18	£ 9.10 - £28.50	
Greyfaces	Dorset x's	G4	383	£23.48	£12.70 - £24.70
		G3	130	£21.12	£12.70 - £24.70
	All Greyfaces	513	£22.88	£12.70 - £24.70	

The prices, both the range and average for each breed is shown in Table D.

TABLE D

Lamb Sale Prices - By Breeds

Breed	No. Sold	Av. Price	Range
BF	233	£14.43	£ 5.35 - £17.70
Crosses	64	£21.47	£12.70 - £22.30
Dorset x's	719	£22.88	£12.70 - £24.70
NCC	117	£23.18	£ 9.10 - £28.50

The cast and culled ewes from all hefts were sold to HQ Research Account at the following prices.

BF	-	all ages	-	£22.00	per head
Cheviot	-	all ages	-	£24.00	per head
Greyface	-	all ages	-	£24.00	per head

CATTLE

All Blue-grey and Hereford-Friesian x cows were due to calve in February and March. Some seven calves were purchased at £50.60 each to replace those lost at calving, or shortly thereafter. A total of 89 calves were weaned on the 4th of September. Due to the experimental treatments applied to the cows during the suckling period a large number of the calves were small. After weaning the calves were affected by pneumonia and lungworm. All the calves were housed in late September by which time they had suffered a considerable set-back. They were then fed silage, hay, straw, bruised oats and Stocklic Super (Urea/molasses). The weaning weights are shown in Table E.

TABLE E Weaning weights of calves (kg)
on 4th September 1978, numbers in brackets

Breeding	Heifers	Bullocks
Charolais x Blue-grey	176.2(11)	186.7(17)
Charolais x Hereford Friesian	194.5(13)	207.3(21)
Aberdeen Angus x Blue-grey	190.0(2)	150.0(2)
Aberdeen Angus x Hereford Friesian	197.5(4)	190.0(3)
Hereford x Blue-grey	231.6(3)	248.0(4)
Pure Friesian*	-	184.0(6)
Pure Ayrshire*	-	145.0(1)

*Bought-in for fostering

STORE CATTLE

The 60 calves overwintered in the cattle courts in the old steading on silage, concentrates, hay and straw, were sold at Laurencekirk in January and February at the following prices:- Prices of weaned calves sold in September are given for comparison.

TABLE FStore Cattle Sales

Store Cattle	Price Per Kilo L.W. (Pence)		
	Sale on 10.9.77	Sale on 8.1.78	Sale on 4.2.78
<u>Charolais Crosses</u>			
Bullocks	76.3	67.6	80.2
Heifers	62.5	62.4	74.5
<u>Aberdeen Angus Crosses</u>			
Bullocks	58.5	67.2	70.5
Heifers	52.2	56.7	65.7

HERD REPLACEMENTS

To make up a suitable group for a Rotovirus Vaccination trial, bulling heifers were purchased as follows.

Hereford x Friesian - February 1978 - four at £250
 Blue-grey - February 1978 - three at £340
 Blue-grey - May 1978 - one at £370

Due to a change in policy heifers were purchased in the autumn ready to go to the bull in November for autumn calving as follows:-

6 Blue-grey bulling heifers - £370/hd.
 6 Hereford x Friesian bulling heifers - £305/hd.

CHANGE IN CATTLE POLICY

The beef cattle herd has been split into two groups to provide an autumn and a spring calving herd. The numbers involved in each breed is shown on Table 4 in the Summary of Herd Records.

CROPS

Some 20 tonnes of hay and 300 tonnes of silage were made on the farm. A further 200 tons of hay and 100 tons of straw were purchased locally for feeding in 1978/79.

6.6 hectares of arable grassland, the Steading and Met II fields were resown with Caprice ryegrass, and an excellent take was achieved.

MUIRBURN

The weather was very much against the burning of heather, but some 8 hectares were burned on the Cairn hill in March.

FENCING

The following work was carried out during the year.

- (1) The march fence between the Cairn hill and Glendye was repaired and renewed as required.
- (2) The march fence along Finella with the Forestry Commission was renewed and repaired as required.
- (3) The march fence between the Glad hills and Fettercairn Estate was renewed.
- (4) The roadside fence from the Loch Wood to the Hole-glen field was renewed.
- (5) The fence dividing East and Mid Finella was repaired.
- (6) An area of 20 hectares on the Cairn Hill was fenced to provide the first grass/heath mosaic area.

SHEEP PENS

The pens proposed for handling the Cheviot and Greyface ewes, were re-designed and built on a new site in the Banks field. The pens measure 110 ft. x 40 ft. and include a shedding race, weigh crate, footrot bath and holding pens.

SHEEPHOUSE

The first stage of improving the shed has been completed in time to in-winter the Cairn and Birnie hogs. The old superstructure has been removed and the entire floor is used for the sheep. Sourhope type troughs have been installed to provide eight pens holding 15-18 hogs each.

CAIRN HAY SHED

The shed was blown down in a gale in late winter and has now been re-erected.

Land Rover Garaging

The area to the south of the O.F. wedder shed was roofed to provide garaging for four Land Rovers.

Cattle Unit Storage Shed

The feedstuff storage shed adjacent to the cubicle shed was modified to -

- (a) provide vermin free storage for concentrates
- (b) to obtain maximum use of the storage area by erecting a large weld mesh division
- (c) to meet the health and safety requirements for chopping hay - a new hay box and dust extraction unit was fitted.

Old Steading

Plans have been re-drawn to revert to the original use to which this building was originally designed - i.e. a control cattle court system with bull pens and loose boxes at both sides. Work will commence shortly on the first stage of the conversion.

New Steading Building

The plan to erect a building in the Steading Wood adjacent to the sheephouse was abandoned. A new building was designed and plans drawn up and tenders invited. This building will be erected by F.H. Dale and A. Adamson of Laurencekirk and will be completed during this financial year.

The building measures 120 ft. long, 50 ft. wide and 18 ft. to the eaves and will be sited on the vacant land between the steading and the farm cottages. The building will accommodate all the hay and straw required for the sheep-stocks, commercial cattle, and experimental cows housed in the cattle courts. Two bays (30 ft. x 50 ft.) will eventually be sectioned off to provide vermin free storages for concentrates and a feed handling and mixing plant. This building will release the whole central area of this old steading for cattle court housing.

Water Services

It was discovered during the year that the portocabin office block straddles the main 15" water main from Loch Lee to Stoneburn. The Water Authorities are presently considering what action, if any, is required. A request was made for a 3" main water pipe to serve the farm cottages to replace the present 1½" pipe and also to provide a fire hydrant adjacent to the new shed. This is being provided in 1979, free of charge.

ROADS

The road round the north side of Loch Saugh was reopened to allow the recovery of trees which had blown into the loch.

A new road was made from the handling yards to Mid Finella. This road was extended along the bottom of Mid and East Finella to the rubbish dump and the Clouston reseed road. The road through the Drive field was lifted

and the area re-sown with grass. Access through the Lodge field to the dump has now ceased.

A new road was made connecting the Bows road with the Upper Bows and Upper Coltor fields. This road goes round the east side of the garden at the top of the Bows field.

LOCH SAUGH

The drainage channel cum spawning race at the east end of the loch was completely blocked with silt deposits and weeds and the burn had taken a new course. Some 300 yds. of the ditch was excavated in mid summer and the course was re-established. Members of the Brechin Angling Club helped to cover the race with wire netting to protect the spawning trout and their offspring.

Afforestation

Some 5,400 trees were planted in April and May in areas where trees had died or had been blown down. The Steading Woods, Lochside Wood and areas around the East Lodge and the Bows were re-planted or underplanted. The following species were used.

Douglas fir	-	1600
Hybrid Larch	-	1400
Sitka Spruce	-	1100
Scots Pine	-	750
Noble fir	-	450
Rowan	-	50
Sycamore	-	50

HOUSING

Single Accommodation

The top flat above flat 8 consisting of three rooms and landing was repaired, redecorated, the landing sealed off from the stair well and furnished for accommodating single persons.

Married Accommodation

The house built in late '77 was finally finished in the spring of '78. The water system froze while the house was under construction and this caused a lot of damage to ceilings, walls and decor.

An identical house was built during the summer and was occupied by the Grieve in December.

Bows House

This house has been modernised and brought up to a good standard at a cost of £5,000. Some work remains to be done on the outside of the building but will be completed during the financial year. The shepherd who was re-housed during the alterations, moved back into the cottage at the end of the year.

Flats 7, 8 and 9

The sewerage system failed and several improvements had to be made to get the system operating efficiently. The cost was £650.

STORAGE YARD

A proper yard area was fenced off within the west steading wood and gravelled to provide a suitable area for the storage of fencing materials, experimental equipment, portable pen systems etc. Trees have been planted to screen the yard from the road and the farm cottages.

STAFF

Mr. Kenneth Adam was appointed farm tractorman and took up the appointment on 20th March 1978.

The following students were employed during the summer months and were resident on the station.

Mark Moser, John Calcutt, Stephen Senior, Catherine Senior, Cathy Souter, Ronnie Miller, Robin Jack, Lynne Fairlie, Lennie Bateman.

STAFF DUTIES

Mr. Senior has agreed to act as Fire Officer for the station.

Mr. Barthram has agreed to act as First-Aid Officer for the station.

STAFF TRAINING

Mr. Senior and Mr. Barthram attended a 3 day course in First-Aid held in Aberdeen and organised by the Red Cross.

Mr. R. Smith attended a one week course at the Inverness Technical College on Chainsaw Operation and Maintenance organised by the Forestry Training Council.

B. LEPHINMOREWEATHER

January was a cold month with above average snow cover above 100 ft. February continued cold with a long spell of hard frost and some snow above 1,000 ft; the last week brought a gradual thaw and mild conditions. March was a bad month being very wet and cold with snow mid-month. April began mild but the second week brought snow on cold north winds and lambing began in the worst possible conditions with however a gradual improvement to warm sunny weather excellent for lambing; the last week saw a return to cold north to east winds with snow showers. May and June were dry, warm and sunny with below average growth. July began cold and wet but thereafter was fairly dry but cloudy and dull until the end of the month with odd days of heavy and much needed rain which provided water to the low ground and in-bye fields and also relieved the acute shortage in the domestic supply. August began warm and dry but heavy rain on the 6th set the pattern for the rest of the month. The autumn continued wet and mild and a shortlived warm sunny spell in mid-October was followed by the usual mixed weather with if anything rather heavier rain, more snow, stronger winds and more frequent gales than usual until the end of the year.

Rainfall 1978

<u>Month</u>	<u>Rainfall</u> (mm)
January	211.6
February	99.3
March	226.1
April	20.1
May	15.7
June	60.2
July	87.6
August	154.2
September	327.7
October	125.5
November	255.0
December	184.4
	<hr/>
	1767.4 (69.58 inches)
	<hr/>
1977	1840.7 (72.47 inches)
	<hr/>

SHEEP

Due to the very hard conditions prevailing throughout January and February the Midhill ewes again came through the winter in very lean condition and by mid-March 37 of the poorest ewes had been removed from the hill and grazed in Field 4 until point of lambing on a ration of $1\frac{1}{2}$ lbs. hay and concentrates in line with levels applicable to the main flock. Rumevite blocks were offered to Midhill on 11th January and were available until the introduction of concentrates on 6th March.

Barnacarry ewes were offered Colborn feed block from 27th February until 6th April when a change was made to Rumevite due to the excessive intake of the former; the ewes came through to lambing in excellent condition.

Low-End ewes continued under the experimental regime introduced the previous year under the direction of Dr. A. Russel.

Lamb weaning weights were up on previous years due to the combination of a dry early summer followed by quality grass growth after the July rains. The wet mild autumn brought all ewes through to tugging in excellent condition with Barnacarry less so than the other two hirsels. The overall weaning percentage was 86. Figures for previous years were:-

<u>Year</u>	<u>%</u>
1977	80
1976	88
1975	85
1974	87
1973	97
1972	97
1971	96

Ewe winter feed costs were:-

Barnacarry	£3.50
Midhill	£3.68
Low-End	£4.18

Lamb Sales

79 wedder lambs mainly from Low-End were sold at Stirling on 23rd August to a top of £20.50 for 44 lambs and averaged £18.66 per head; 47 ewe lambs realised £15.50 per head. At Stirling on 6th September, 21 Barnacarry wedder lambs realised £19.40 per head and 89 ewe lambs averaged £12.90. On 25th October at Paisley 15 wedder lambs made £16.40, 13 rigg lambs averaged £12 and 19 mixed ewe and wedder lambs realised £9.60 per head. Of 80 lambs fattened on rape, 67 were sold at Paisley on 8th November at the following prices:-

Fat	24 @ 14 kgs	£18.10
	11 @ 13½ kgs	£17.60
Store	28	£15.80
	4	£13.20

198 wedder lambs were consigned to Bush on 21st August and subsequent sales were:-

<u>Date</u>	<u>Market</u>	<u>No.</u>	<u>Price</u>
30th Sept.	Biggar	30	£15.60
14th Oct.	"	48	£17.30
"	"	1	£10.80
16th Oct.	Dr. Maxwell	20	£16.00
18th Oct.	Meat Research Inst.	12	£18.00
29th Nov.	Gorgie	40	£19.50
6th Dec.	"	33	£13.60
"	"	6	£10.60

Deaths 8

Lamb Sales: Average Prices

	<u>Av. Price</u>
	£
166 Store Wedder Lambs	17
198 Lambs Consigned to Bush 190 Sold	16.50
149 Ewe Lambs	13.53
35 Fat Lambs	18.00

On 27th September at Paisley, 70 draft and cast ewes averaged £13.40 to a top of £17.40 and 2 gimmers realised £20 per head. A further 8 ewes and gimmers were sold at Paisley on 25th October averaging £9.45 per head. 115 draft ewes were consigned to Dr. G. Gunn for experimental purposes at Bush and Sourhope. 15 ewes were sold privately in November at £14 per head. 25 wedder lambs were retained for wedder pool replenishment along with 13 wedder lambs unfinished on rape and 7 ram lambs retained from the Midhill hirsels for breeding purposes.

Hogg Wintering

All hogs were home wintered. Midhill and Low-End hogs were shed wintered from 10th November until 6th April and 21st April respectively. Midhill hogs received 98 kgs hay and 17 kgs concentrates at a cost of £6.03 per head and Low-End hogs received 108 kgs hay and 19 kgs concentrates at a cost of £6.69 per head. Barnacarry hogs were removed from the hill on 19th October and housed on 31st October until 6th March when they returned to the forest plantation at Feorline remaining there until 1st May with supplementation. A total of 98 kgs hay and 21.5 kgs concentrates were fed at a cost of £6.52 per head.

Hay valued at £43 per tonne
Concentrates at £106 per tonne

HILL CATTLE

Winter feeding of the Aug/Sept calvers began on 24th October, 1977 and continued until 14th May. A total of 1½ tonnes of hay, 320 kgs straw and 250 kgs concentrates were fed at a cost of £100 per cow. Total supplement to the calves during the winter was 266 kgs hay and 125 kgs concentrates at a cost of £24.50 per head.

Winter feeding of 10 spring calving cows and heifers began on 29th December on Feorline/Barnacarry hill, the herd returning to the farm on 15th February in preparation for calving. Feeding stopped on 15th May when 15 cows and bulling heifers returned to Barnacarry along with the Luing bull purchased in January, 1978. A total of 1,050 kgs hay and 150 kgs concentrates was fed at a cost of approximately £62 per cow.

6 bullock calves averaging 5½ cwts. were sold at Dalmally in September at £177 each. A further 3 bullocks averaging 5 cwts. realised £148 per head. 5 heifer calves at 5 cwts. realised £140 per head. 9 heifer calves are being over-wintered for stock replacements along with the 10 calves from the spring calving herd.

Of the 22 cows due to calve in August, 1978, all proved in-calf with one set of twins. 1 calf was still-born and the dam subsequently sold. An outbreak of scour in September resulted in the death of a three week old calf but all others responded to treatment. Of the 10 spring calvers, 1 bought in heifer gave birth to twins and a home bred Luig cross cow was sold after giving birth to a dead calf.

Calf Weaning Weights

	<u>1977 (1 yr old)</u>			<u>1978 (1 yr old)</u>		
	No.	Date	Wt. (kg)	No.	Date	Wt. (kg)
Heifers	8	Sept.	301	14	Sept.	263
Bullocks	7	Sept.	300	9	Sept.	274

Numbers at December 1978

	<u>Lephinmore</u>	<u>Barnacarry</u>
Cows	21	1
Calved heifers	-	7
In-calf heifers	-	7
Heifer stirks	9	4
Bullock stirks	-	6
Calves (5 months)	21	-

Hay valued at £45 per tonne

Straw valued at £26 per tonne

Concentrates valued at £96 per tonne

Concentrates (calf rearing) valued at £100 per tonne

ARABLE GROUND

Silage was made for the first time since the early sixties, Fields 2 and 3 being cut in mid-June and mid-August, and a light cut taken from Field 5 also in August, approximately 150 tons being made. The first cut was of good quality and the August cut slightly inferior due to the wet conditions at making. Approximately 6 acres comprising Field 7 and 3 acres of Field 5 were rotovated in the first week of July and sown with rape, white turnip and Italian ryegrass at 10 kgs per acre. Growth was slow due to the partial drought conditions but a wet autumn provided enough keep for 80 lambs from 25th September to 8th November. Prior to sowing basic slag (14% P₂O₅) was applied at 7 cwt. per acre along with 4 cwt. compound fertiliser²(20-14-14). Field 4 was rotovated early in July after treatment with Gramoxone in June and was re-seeded on 18th July with the following mixture:-

6.5 kgs	Certified Barlatra Tetraploid Perennial Ryegrass
9.0 kgs	Certified Barlenna Perennial Ryegrass
6.75 kgs	" Combi " "
6.75 kgs	" Talbot " "
4.75 kgs	" Kampe II Timothy
2.0 kgs	" Scots Timothy
2.25 kgs	" Grasslands Huia White Clover

38.00 kgs per hectare at a cost of £1.63 per kg

Prior to rotovation the hogg litter from the sheep house was spread and after cultivation ground limestone applied at 1.25 tonnes per acre. A mixture of 3 cwts. potassic supers (0-15-15) and 2 cwts. ammonium nitrate (33.5% N) was applied per acre at seeding.

Field 8 West was sprayed with MCPA at 3 pints per acre as was the mid area of the Low-End common grazing.

Heather Burning

With impossible conditions in March and the first half of April no burning was carried out.

Hill Ground and In-bye

Six acres of hill ground reseeded in 1973 at the top end of P2 on the Midhill which was given a dressing of $1\frac{1}{2}$ cwts. compound (15-15-21) per acre in August 1977, was similarly treated in May, 1978.

The 17 and 20 acre paddocks on the Low-End were given $1\frac{1}{2}$ cwts. per acre compound (20-14-14) on 8th May, followed by further applications of $1\frac{1}{2}$ cwts. per acre on the 17 acres on 22nd June and $2\frac{1}{2}$ cwts. per acre on the 20 acres on 26th July; a further $1\frac{1}{2}$ cwts. per acre was applied to the 17 acres on 28th August, allowing in addition to a proportion of the Low-End ewes and lambs, the grazing of the suckler herd and subsequently the weaned calves for much of the summer and early autumn.

During the summer Fields 8 East, 8 Mid and the top and bottom fields of the Low-End common grazings were given a dressing of approximately 10 cwts. per acre of basic slag (14% P₂O₅).

Three acres adjacent to the Low-End seventeen acres previously used as an experimental wedder holding paddock were re-seeded at the beginning of July after application of:-

3 tons/acre Ground Limestone
10 cwts./acre Basic Slag (14% P₂O₅)
3 cwts./acre Compound (15-15-21)

FENCING

Repairs were again carried out to the Barnacarry and Midhill march fences and to the Low-End forest plantation march fence.

A 10 acre area to contain the experimental wedder flock was created on the Low-End hirsle by erecting a 120 metre fence between the Midhill/Low-End division fence and the experimental cattle grazing area.

The need to replace the 6-line wire fence between Fields 5 and 6 provided the opportunity for re-alignment and the provision of more suitable grazing areas for the future needs of the Barnacarry weaned calves.

The stone dyke between Fields 2 and 3 was partially removed and replaced with a rylock fence. Field 3 was divided with rylock fencing to provide along with Field 2, approximately 10 acres for the production of silage and the autumn grazing of the Barnacarry suckler herd.

The burn-side sheep netting fence in Field 1 was made stockproof using rylock.

BUILDINGS

A steel and asbestos 60' x 20' roofed silage pit contained by 15' long x 8' high concrete panels was erected on excavated ground close to the west gable of the sheep house which was partially converted to house 20 cows and calves overnight or in extreme weather. Access to the shed is gained from the wintering area on the shore via Field 1, the stock fording the Lephinmore burn to meet a gravel road and concrete walk-way to the shed. A dung pit and concrete apron is also incorporated.

ROADS

The Midhill hill road is presently being improved through ditch cleaning and deepening and surfacing with shore gravel where necessary. The farm road from the steading to the sheep fank has been made up and re-gravelled. Access through Fields 3 and 2 has been provided to the silage pit to facilitate straw and hay storage and silage removal.

RED DEER

At the request of H.I.D.B. 20 three day old female red deer calves from Islay and Jura were reared from mid-June until consigned to Glensaugh in July. These calves will form part of the nucleus of the red deer herd at Rahoy.

C. SOURHOPEWEATHER

November and December 1977 were cold with east winds. There was some snow in mid November but this only lay for three to four days. The cold but fairly dry weather continued until mid January when 2" of snow fell. There were minor falls but no great accumulation until mid February when there was a heavy fall which lay for a fortnight, with strong winds over the last few days which caused some drifting. Cold but fairly dry weather continued until mid April with the first week of lambing being warm and sunny. However, an abrupt change in the second week to wind, rain and snow, brought the worst lambing conditions for many years. The weather improved slightly in the second half of May and June. However, it was the wettest August since 1962 with rainfall well above the 5 year average. This wet weather continued until mid October when it became unseasonably warm for four days before returning to rain. There were no hard frosts until the end of November so grass growth continued at least until the tups went out.

Rainfall 1977-78

	<u>Month</u>	<u>Rainfall (mm)</u>
<u>1977</u>	November	88.7
	December	77.6
<u>1978</u>	January	66.0
	February	105.5
	March	53.2
	April	90.9
	May	40.7
	June	72.0
	July	96.3
	August	132.1
	September	72.6
	October	58.7
	<u>Total</u>	<u>954.3</u> (37.57 inches)

SHEEP

It will be recalled from the 1977 farm report that the hill sheep stock were, in general, in improved body condition as they were joined with the tup, compared with the previous year, with the possible exception of the Rigg and Gairs stock, where weaning was delayed. This was due to relatively mild autumn weather which ensured continued grass growth into this period. Favourable weather continued over the tupping period and sheep have held their condition well.

Subsequent weather was relatively good until the heavy snowfall in the middle of February. Storm feeding of hay therefore sufficed through till the end of January, with feedblocks and concentrate feeding commencing at the beginning of February. This compared favourably with the previous winter when feedblocks were out on two hefts in mid December and all sheep were fed from early January right through till lambing time.

Feed inputs were, as a result, substantially lower than those of 1976/77. A total of 54.1 kg dry matter (hay, whole oat cubes, concentrates and feed-blocks combined) was fed on average to all outwintered ewes at a cost of £4.34 per head, compared with 62.7 kg at a cost of £5.60 in 1976/77. With the average feed costs for 1575 outwintered ewes (and gimmers) at £4.34, the range for the individual hefts was from £5.30 to £3.41. The average feed cost of all outwintered ewe hoggs was £3.27 per head, compared with £3.28 the previous year.

The Rigg and Gairs ewe stock was again inwintered, all ewe hoggs being housed on 24th January. Rigg and Gairs ewes were all housed on 25th January. A total of 99.3 kg dry matter on average was fed to the ewes at a cost of £6.12 per head, compared with 104.2 kg at a cost of £6.75 in 1976/77. For the inwintered ewe hoggs feed costs were £3.79 per head, compared with £5.33 for 1976/77.

Some feed data for both inwintered and outwintered sheep is shown in the following table, the feed items being costed as follows: (1976-77 prices in parenthesis) - Hay £45/tonne (£41/tonne); Sugar beet pulp cubes £69.70/tonne (£88/tonne); Concentrates* £105.20/tonne (£116.50/tonne); Grass nuts £109.30/tonne (£79.40/tonne); Ewe and lamb food £132/tonne (£114/tonne); Whole oat cubes £83/tonne (97.75/tonne); Rolled barley £88.40/tonne; Stockade feed blocks £124/tonne (£117/tonne); Colborn feed blocks £168/tonne (£151/tonne). Total expenditure on feed for all outwintered sheep, including ewes, gimmers, ewe hoggs, wethers and tups, expressed per outwintered ewe to the tup was £6.35, compared with £7.98 for the previous year.

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

Hogg Feed Data

	Hay (kg)	Ewe and Lamb Food (kg)	Feed Blocks (kg)	Grass Nuts (kg)	Sugar Beet Pulp Cubes (kg)	Concen- trates (kg)	Average Cost per Hogg
Outwintered hoggs	13.6	0.9	0.5	11.8	11.1	3.8	£3.27 (£3.28)*
Inwintered Hoggs	36.5	0.8	-	1.9	15.4	7.3	£3.79 (£5.33)*

* 1976-77 costs

Ewe Feed Data

	Period	Hay (kg)	Sugar Beet Pulp Cubes (kg)	Whole Oat Cubes (kg)	Concen- trates (kg)	Stockade Feed Blocks (kg)	Colborn Feed Blocks (kg)	Average Cost pe Ewe
Outwintered Ewes and Gimmers	Storm Feed (i.e. to 17/3 incl.)	15.4	-	12.3	0.3	1.1	1.0	£2.06 (£3.10)*
	Pre-lambing Feed (i.e. 18/3 to 17/4 incl.)	2.9	2.4	0.3	8.8	0.5	0.9	£1.46 (£1.69)*
	Post-lambing Feed (i.e. from 18/4, incl. that fed to twins)	1.1	-	-	6.8	0.3	0.1	£0.82 (£0.80)
	Total	19.4	2.4	12.6	15.9	1.9	2.0	£4.34 (£5.60)
Inwintered Ewes and Gimmers	Pre-lambing Feed (i.e. to 17/4 incl.)	59.1	18.7	-	12.6	-	-	£5.27 (£5.85)
	Post-lambing Feed (i.e. from 18/4 incl. that fed to twins)	1.4	-	-	7.5	-	-	£0.85 (£0.90)
	Total	60.5	18.7	-	20.1	-	-	£6.12 (£6.75)*

* 1976/77 costs

Bodyweight loss continued through tupping but as feeding was introduced so further bodyweight loss was arrested, and the ewes responded to heavier pre-lamb feeding and entered the lambing fields in good condition. Bodyweight recuperation of all nursing sheep from the end of May through to August was good with the exception of the gimmer and 1-crop ewes on Auchope (Project I), where bodyweight recovery was notably depressed. However these sheep showed a marked improvement in body condition, after weaning, so that at pre-tupping November 1978, all ewes and gimmers were in as good a condition or better, than at pre-tupping the previous year.

Marking weights of lambs, with the exception of the NCC x SCC lambs of Project I (Hairney Law and Auchope), were not so good as in the previous year, and at weaning time the average weaning weight of all lambs for each heft of sheep showed a fall from the previous year, a fall which ranged from 0.7% to 9.4% for the different hefts.

The weaning percentages for South Country Cheviot, North Country Cheviot (including NCC x SCC) and Blackface ewes were 103.7, 105.4 and 104.1 respectively, to give an overall weaning percentage of 104.5 compared with 105.2 last year.

Both ewe and hogg fleece weights were marginally heavier than for the previous year resulting in the total weight of wool graded from Sourhope showing a rise of 2.5% to 5,500 kg, the average price realised being £1.03 per kg.

All ewes were worm drenched in autumn, and thereafter all outwintered ewes re-dosed prior to lambing. All twin-nursing ewes and lambs were dosed mid-May with twin lambs alone being dosed again in mid-June and mid-July. No single-nursing ewes were dosed at marking time this year. All single lambs were worm drenched in the period late June - early July and inwintered ewes were given a worm drench at housing (Panacur).

With reference to cobalt, it will be recalled that the 1977 farm report stated that it was the intention to give a second cobalt bullet to all sheep at Sourhope at the 3-shear age and over. In the past year this has now been carried out, and thus in the ensuing years it will only be necessary to cobalt the 3-shear (2-crop) age in addition to the hogg age each year.

A further departure from previously established practice with respect to lamb vaccination was carried out in 1978: whilst all ewes are on the multi-vaccine system, it had been the practice to give all lambs added protection at marking time against Pulpy Kidney, with a 2 ml injection of P.K. vaccine. In 1978 no vaccination was carried out at marking time, but at the milk clip all lambs were given 5 ml of multi-vaccine with a 2 ml booster vaccination being carried out at weaning. Thus all lambs, whether for stock retention or sale were fully protected against clostridial diseases. It has yet to be decided whether this will become established practice here at Sourhope.

The problem of induced copper deficiency which affects those Blackface lambs grazing the Alderhope reseeds, and which has been referred to in previous farm reports, has been the subject of further intensive investigations in 1978, the results of these studies being reported elsewhere (Annual Report).

Disposal of Lambs

The bulk of the lamb crop was sold through the store market with Cheviot lambs averaging £0.759 per kg liveweight (top price £0.830) and Blackface lambs averaging £0.596 per kg liveweight (top price £0.670). A total of 570 North Country Cheviot lambs (and NCC x SCC) averaged £20.95 per head (£0.783 per kg liveweight) compared with £18.60 the previous year, 320 South Country Cheviot lambs averaged £19.12 per head (£0.717 per kg liveweight) compared with £20.02 the previous year, and 663 Blackface lambs averaged £18.00 per head (£17.50 in 1977). In addition 73 Cheviot x Blackface lambs averaged £18.92 per head. Seventy-four lambs remain to be sold.

The overall average for 1626 lambs sold to date is £19.29 which compares with an overall sale average of £18.84 in 1977.

Details of the disposal of the 1978 lamb crop are as follows:-

Ewe lambs (home-bred) retained as stock replacements	488
Wether lambs retained as wether stock replacements	32
Tup lambs for breeding	17
Lambs sold store	1626
Lambs as yet unsold	74
Total	<u>2237</u>

All South Country Cheviot draft ewes were again sold through the feeding or fat market where they sold to a top of £18.60 and an average of £16.51. North Country Cheviot (and NCC x SCC) draft ewes sold to a top of £25 and an average price of £20.54 per head. Blackface draft ewes sold to a top of £21.00 and an average price of £19.85. The overall average price for all draft ewes sold is £19.02 which compares with the figure of £17.92 for 1977.

Death Rate

The overall death rate of the sheep stock in the 12 months since November 1977 was 4.9%, with the death rate of ewes, gimmers and hoggs being 5.2%, 4.5% and 4.3% respectively. Overall death rate for 1977 was 3.6%.

Sheep Stock Autumn 1978

The very mild autumn weather ensured continued grass growth and all breeding sheep have come to the tup in good body condition. The weather remained open until the last ten days of tugging when a period of continuous rain accompanied by strong east winds, culminated in a severe blizzard with conditions arising that have not been seen since 1963. Breeding sheep wet to the skin have had to withstand 10 days of severe snow conditions to date and there has been a marked fall off in their body condition.

CATTLE

Fifty-six suckler cows were taken through the winter, with hay and cow cobs being fed from late November. Straw and Promax liquid feed were introduced in mid-January and silage a week later. On average each cow received 5.57 tonnes silage, 465 kg hay, 363 kg feeding straw, 42.0 litres of Promax 36, 174 kg of magnesium fortified hill cow cobs and 58.9 kg of potatoes. The cost per cow of all purchased feed, i.e. excluding silage, was £50.70, compared with £50.32 for 1977.

In the 1977 Farm Report, attention was drawn to the fact that, following semen quality tests run on each of the two Hereford bulls, fertility of both bulls was in question. The poor quality semen produced by both bulls, it was suggested, would be responsible for the excessive numbers of cows failing to breed. It was also noted in last year's report that arrangements had been made to borrow an Accredited bull with a proven breeding record, the poorest of the two Sourhope bulls being laid off. Subsequent to the use of the borrowed bull, pregnancy diagnoses of the suckler cows revealed one cow as being barren, this cow being cast in December 1977. The 1978 calving performance was then much improved on the previous year, only two cows, which were subsequently cast, proving not to be in calf. Fifty-four calves were therefore reared from the 56 cows which were overwintered.

The infertile Sourhope bull which was unused in 1977 was sold in January 1978 and a new bull purchased at the Edinburgh bull sales in February. Semen quality tests carried out on this new bull shortly after purchase were not wholly satisfactory and will therefore be repeated. The two Sourhope bulls were used in 1978, with the borrowed bull subsequently being used to cover all the cows as a safeguard.

The management of the suckler herd from April to the end of the year was dictated by their use as "grazing tool" on the Development Project areas, with twelve cows and their calves plus one bull summered at the other H.F.R.O. farm of House o' Muir. Creep feed was offered to all calves over the last 60 days

to weaning. Some calf performance data for 1978 is shown in the following table, one of the calves being a Hereford x Friesian which was bought to "set on" to one of the cows.

Sex	Nos.	Average Birth Weight (kg)	Average Weaning Weight (kg)	Average Liveweight Gain Birth - Weaning (kg)	Average Daily Liveweight Gain (kg)
Bullock	26	41.7	262.1	220.5	0.91
Heifer	28	38.2	233.8	195.6	0.82
All calves	54	39.9	247.5	207.6	0.86

Forty-nine Hereford "x" calves were sold at the October sales to average £192.77, a rise of £46.27 on the previous year. Price and weight data is shown in the following table.

	Number sold		Weight (kg)		Price/head		Price p/kg.	
	1978	1977	1978	1977	1978	1977	1978	1977
Hereford "x" bullocks	26	24	277	256	£220.92	£159.90	79.6	62.5
Hereford "x" heifers	23	23	255	247	160.95	131.90	63.0	53.0
Overall	49	47	267	252	192.77	146.20	72.2	58.0

H.B. Hawick Auction Mart sales weights used. Five Hereford "x" heifer calves are being overwintered.

HUIRBURN

No burning was carried out in the spring of 1978.

CROPPING

A total of 4.5 ha of grass was conserved as hay, and 16.4 ha as silage. The 2.5 ha of the Top Bungalow field, which was in rape in 1977 was put down to grass in the spring of the year.

In mid-May, eight fields were dressed with Ground Magnesium Limestone according to need, and at the same time a total of 12 ha on Park Law and 2 ha within the wether paddock (Far-end Park Law) were spread with 8.1 tonnes/ha (3.3 tonnes/acre) of Ground Magnesium Limestone and 860 kg of Phossac

(20% P₂O₅)/ha. In mid-June, 28.5 ha of Fasset hill received 7.5 tonnes/ha of Ground Magnesium Limestone and 900 kg of Phossec/ha.

FENCING

Considerable fencing repairs were carried out and in addition, a "New Zealand style" grass fence (electric) was erected on the wether paddock.

BRACKEN SPRAYING

No bracken spraying was carried out in 1978.

BUILDINGS

The alterations to the Sourhope hostel were completed in mid-July, and much needed additional hill shed storage accommodation provided by the purchase of 5 ex-railway vans.

DEVELOPMENT WORK

Progress has been maintained in the Development Projects.

Project I

In early March 1978, a total of 27.5 tonnes of Mini-Granulated Slag (10% P₂O₅) was spread on these parts of Paddock 1 in the Hairney Law-Auchope Project accessible to a wheeled tractor, and which had been limed in August 1977, at the rate of 1850 kg/ha (15 cwt/acre). A total of 15 hectares of the 18.2 hectares of Paddock 1 were so treated.

Following the application of slag, the first phase of reseeding within Paddock 1 was begun, with 4.5 ha of ground being reseeded using the paraquat-rotavation technique which had proved so successful in preliminary trials carried out in the previous year. Grass seed was sown in early May and a very successful 'take' of seeds obtained. After reseeding a further extension of an existing fence (electric) was made which in effect sub-divides Paddock 1.

The weight of lamb weaned per ewe mated at 26.5 kg in 1978 does not compare favourably with the figure of 28.3 kg per ewe mated in 1977. Whilst weaning percentage in 1978 was slightly down from the previous year, the principal cause of the fall in weight of lamb weaned/ewe mated, is the fall in average weaning weight of the lambs. This was particularly noticeable for the lambs from the gimmer and 1-crop ewes which are run at Auchope, where the average weaning weight of single lambs was only 23.4 kg, compared with 25.7 kg in 1977.

Project II

The breed changeover from a South-Country Cheviot to a Blackface ewe stock is continuing. It was decided as an interim policy measure that no cattle would be grazed on either the Rigg or the Gairs in 1978, and in the autumn of 1978 stock numbers on both sides were reduced, the Rigg to 271 ewes and the Gairs to 275 ewes.

Project III

The copper studies associated with the reseeds of Project III, were continued and are reported elsewhere.

D. HOUSE Q' MUIRWEATHER

The winter of 1977-78 was again a bad one as far as stock was concerned and the cold, wet weather continued until the end of April with several periods of snow. May was the driest of the summer months. August and September were wet and then October proved to have the lowest rainfall of the year. The weather then changed and November was the wettest month in 1978.

Rainfall 1977-78

	<u>Month</u>	<u>Rainfall</u> (mm)
1977	December	49.3
1978	January	80.5
	February	67.2
	March	88.7
	April	53.0
	May	22.4
	June	48.2
	July	54.5
	August	81.9
	September	87.2
	October	22.0
	November	107.9
	TOTAL	<u>762.8</u> (29.0 ins)

The 10 year average is 810 mm.

SHEEP

In all 474 ewes went to the ram in 1977. Of this number 315 were involved in various research projects. All ewes mated in November were in good condition, mainly due to the two areas of reseed which were used for improving condition. The first snow of the winter fell just before the rams were put out and throughout mating the weather was broken and cold with rain and snow showers. Despite this mating went well and lambing percentages were up on the previous year (144 vs. 105).

A group of 120 ewes in the research programme were not mated until January 1978 and the lambing performance in this group was very poor. It may well have been that these ewes were going off oestrus cycle by that time of year.

Again, as in 1977, the spring of 1978 was cold and wet with a very late start to growth, both in the parks and on the hill. This resulted in an increased feed cost on both the ewes and ewe hogs.

Concentrate consumed by the ewes rose by 5 kg/head and hay by approximately 9 kg/head. Taking concentrate at £110/tonne and hay at £54/tonne the feeding cost per ewe was as follows:-

Concentrate:	33 kg/head @ £110/tonne	£3.52)
Hay:	39 kg/head @ £54/tonne	£2.11)
			£5.74

Ewe hogs were wintered away until the end of January and then brought home to be trained to eat concentrate. Cost on concentrate and hay was approximately £2.50 per head. The wool clip was on a par with previous years.

Disposal of Lambs and Cast Ewes

A total of 561 lambs were weaned out of a marking figure of 586. (This figure includes 10 lambs born to ewe hogs as a result of a ram break-out).

The higher than normal death between marking and weaning was largely due to 16 lamb deaths out of 31 born in the sheep involved in the long term copper study and the cause of this was confirmed as "Sway-back".

The lambs were sold as follows:-

Sold store	162	
Sold fat	142	
Sold HFRO wether pool	20	
Retained as stock replacements	112	
On hand 6/12/78	122	(on rape)
Deaths since weaning	3	
	<hr/>	
	561	
	<hr/>	

Cast Ewes

Forty-three cast ewes were sold and all were taken up by HFRO Animal Production & Nutrition Department. The number was down this year because of a higher death rate and the need to retain some of the older ewes for a further year. In addition 14-2 crop ewes were sold to HFRO Animal Production & Nutrition Department. These were required for work in connection with the Breeding Programme and Fistulation.

Prices obtained for Store Lambs

BF wether lambs (top)	£23.00
BF wether lambs (bottom)	£16.00
BF wether lambs (average)	£20.20
	<hr/>
BF ewe lambs	£22.50
	<hr/>
Down Cross lambs	£24.80
	<hr/>

Price for Lambs sold fat ex shed and off grass £19.18

(This figure includes 60 sent for carcass evaluation and on which a poor return was obtained).

Price for Lambs sold fat off rape £25.70

Prices attained for Ewes sold

2 crop ewes	£27.00
Cast ewes	£22.00 and £20.00
	<hr/>

CATTLE

The calves born in 1977 were weaned at the end of October. Five calves were sold in November 1977 and the balance were over-wintered.

Prices attained were as follows:-

Date of Sale	Number	Sex	Average Price per Head
30/11/77	5	M	£ 163
11/ 4/78	7	M	210
11/ 4/78	2	F	210
28/ 4/78	1	M	220
28/ 4/78	5	F	220
12/ 6/78	5	F	218

Two small stirks were summered and are still on hand. One early-born heifer calf was retained as it proved in calf and has now calved satisfactorily. This animal must have been bulled when running with dam at the age of 6-7 months.

Thirty-two cows and heifers were put to the bull in 1977. One cow died in January 1978 and post-mortem revealed nothing. Two cows proved eild and a set of twins were born and reared.

In August a cow was drowned on the hill reseed. It had slipped into a wet peaty hole and was found dead the following morning.

In September a cow went down with "staggers" and was brought to the farm and treated by a veterinary surgeon for four days. It failed to respond and was put down by the veterinary surgeon on the fifth day.

BUILDINGS

All of the cattle/sheep shed has now been concreted and tombstone feed barriers have been installed. This area can now feed 36 cattle, it is divided into two, and 18 electronic Callan feed gates have been fitted in one half. The balance of the concrete work outside the top end of the shed has been completed. At the other end a sliding door and dungstead with scraping apron has been provided.

The "umbrella" roof over the cattle handling area has been completed and two small cattle courts have been constructed complete with concrete floor, feeding trough and hay racks. At the end of this a small loading bank has been formed.

The inner yard has been resurfaced partly in concrete and the balance with asphalt.

The access down the side of the old building from the road to the two new sheds has also been bottomed and asphalted.

The range of hay barns has been painted and repairs carried out to some valley gutters.

At Bush policies a hard core road has been formed to provide all-weather access to the sheep pens.

FENCING

Some 500 yards of new fencing have been erected and repairs carried out to a further 1,000 yards.

MUIRBURN

No muirburn was carried out in 1978.

SHELTER BELTS

The ECRE have continued their programme of replanting old blown areas of shelter belt woodland and this should provide useful shelter in the future.

LAND IMPROVEMENT AND RECLAMATION

No further work was carried out in this context but the two areas reseeded in 1977 are now fully established and are providing a very useful 40 acre addition to our "green" land.

ADDITIONAL LAND

No additional land was allocated to HFRO by the Estate in 1978.

E. RED DEER FARMWEATHER

The weather followed the pattern reported in the Glensaugh report. The main differences being in the longer periods of snow cover and particularly the wet misty autumn and spring weather. The summer was good until July and then deteriorated into a very wet August and September. October was dry and mild and November continued dry until the end of the month providing excellent rutting weather, the best for several years.

WINTERING

The winter (1977-78) weather alternated between spells of severe snowstorms and mild wet weather which was very hard on the stock. Some eight tons of hay was fed to the outwintered stock. The hinds were in poor condition at the end of March and hay feeding was continued into May. Concentrate feeding at 0.5 kg/hd/day started as usual on the 1 May and ended on the 30 June.

CALVING

Calving was again late, most of the calves being born in the last two weeks of June. Nearly all the hinds calved on the Upper Farm re-seeds and from mid-June they also had access to the adjacent heather paddock. This paddock was opened to give the hinds water; almost complete lack of rain in May and early June leading to water supplies on the re-seeds drying up.

Many calves were small and, of 12 calves stillborn or dying within the first few days of birth, the majority were undersized. Of the 91 Main Farm hinds put to the stags, 77 produced calves. Of the 84 younger and lighter Upper Farm hinds put to the stags only 55 produced calves. Compared with the Main Farm herd a higher percentage of these calves were undersized with consequent stillbirths and deaths. Calving on the re-seeds greatly eased the task of finding calves and more calves dead at or near birth were recorded than in previous years when they could not be found, but suspected.

Four hinds were assisted at birth and one of these died later. One of the four, F2, had injured her pelvis in the previous autumn. After birth, the calf was artificially reared, and the hind was slaughtered and sold in November.

Calf Growth

Calf birth weights were lower than last year, males averaged 6.7 kg and females 6.4 kg and growth rates over the summer were reflected in the lower weaning weights shown in Table 4.

Calf Mortality

As mentioned earlier, calf mortality was high and overall was 15.5%. Post-mortem examinations did not reveal a common cause but most were undersized at birth.

Immediately after weaning the calves were housed in the hay barn

at the deer farm and fed hay and concentrates. Some artificially reared calves were placed with the newly weaned calves to train them to eat the new diet. After the first few hours had passed without incident, the calves began to fight and within three days a total of six male calves died from injuries. One female died from a similar head injury while being transported in a horse-box. Four calves died from E. Coli infections while grazing the reseeded in October.

Disposal of Calves

2 male calves to R.R.I.
 50 " " retained for inwintering experiment.
 21 female calves to Rahoy - H.I.D.B.
 4 " " retained at farm.

Replacement Stock

Thirty calves were lifted at birth on the farm and artificially reared, three calves died before weaning and four died after weaning. Of the 23 calves left, 21 are female calves and they will be used as replacements for the breeding herd. These calves were put out onto the reseeded on the Upper Farm in mid-September where they stayed until being housed in the hay barn in November. They are being fed dried grass nuts and hay.

1977 Calves retained on Farm

Ten stag calves had been artificially reared as potential stock stags. These were wintered on the reseeded and hand fed and remained on the upper farm for the summer. One broke his jaw and had to be shot. All the others have grown reasonably well averaging 79.5 kg by September.

Twenty-one stag calves weaned off hinds were housed in two groups on the deer farm for the winter. These are being used to investigate the effects of nutrition during the first winter on subsequent growth and performance. All the calves were turned out to the hill on May, 12 were killed in September, and the remaining 9 are being retained on the farm for a further year's study.

Venison Sales

In October this year the price offered ex-farm for a carcass in the skin was 65 pence per pound, a 20p drop from October last year. Thirteen young stags, one mature stag and one hind have been slaughtered on the farm and sold.

H.I.D.B. - Calf Rearing

Sixteen calves collected from estates in the Grampians together with 19 from Jura were artificially reared at Glensauigh. Calves below 14 lb were not accepted. All 35 calves were successfully reared and sent to Rahoy on 23/8/78.

Immunoglobulin Study

More blood samples were obtained from the newly born calves and samples continued to be taken when calves were available until weaning in September. Several hinds were milked out after their calves had been removed for artificial rearing. The milk samples and blood plasmas were sent to Dr. Halliday at Animal Breeding Research Organisation.

Milk Samples

Milk samples were also taken from weaned hinds for Dr. MacDougall of the Rowett Research Institute.

Institute of Terrestrial Ecology

Faecal samples have been gathered throughout the summer for use in rate of decay trials elsewhere. The Slochd and West Greenshiels paddocks were set stocked over the summer months and some animals were collared to facilitate identification while under observation. Rates of faecal deposition were measured in fixed quadrats in both areas.

Systems Development

The area rented in Glendye was fenced with Ursus net. The area was measured and found to be 59.5 hectares. The area was later surveyed and a vegetation map produced. The vegetation maps of the other areas assigned to the study were completed during the year.

Aerial Photography

Professor St. Joseph flew over the farm and the rest of the station during September and took both black and white and colour photographs. These will be used to improve the accuracy of the ground surveys.

Reseeds

A further area of 2.5 hectares of the Mid Shank paddock was reseeded. The area had been swiped in the summer of 1977. In July 7.5 tons lime and 1.25 tons basic slag/ha were applied and the seed was sown ten days later, mixed with the fertiliser (315 kg/ha of 20:10:10) and spread with a rotary fertiliser spreader. The seeds mixture was the same as that used in previous years and sown at 31.5 kg/ha. A very good take was achieved.

Slaughter Facility

The unit is now complete and ready for use. Some minor modifications will be required to be made in the circular crush before the unit is tested in the autumn of 1979.

Filming

Anglia T.V. made a short film of the calving of a hind on the deer farm in June. A copy of the film which was made for the 'Survival Series' has been received.

Game Fair

A photographic display was mounted and shown at Annan on the 28 and 29 July at the Scottish Game Fair. Considerable interest was shown in the exhibit and at one time some 600 people/hour passed through the tent.

Stockmans Course

The course continued on the 13 and 14 June. Nine people, most of whom attended the first part of the Course in October, attended the June sessions.

Fence Maintenance

Fences erected on high ground with 12½ guage H.T.S.S. wire are now requiring continual maintenance. Wires are rusting and breaking, especially those wires which are more than 0.5 metres from ground level. Fences which were erected later and with 12 guage wire are still sound. The quality of galvanisation of the 12½ guage wire appears to be inferior to the later 12 guage wire.

Fence Crawling

Some hinds are now becoming adept at crawling underneath the bottom wires of fences recently eroded with surface water. The complete separation of stock classes is becoming difficult.

Student Labour

Two agricultural students from West Germany spent a period of two weeks on the farm in September.

The following students were employed mainly on calf rearing or survey work:-

Cathy Souter
Susan Oswald
Lorne Armstrong
Jane Boulton
Lennie Bateman

Staff

Miss Leslie A. Stokes, B.A., was appointed recorder for the Red Deer Project and took up her appointment on 1 May 1978.

Mr. Callum Thomson attended a one week Course on Chainsaw Operation and Maintenance at the Inverness Technical College.

Visitors

Three hundred visitors were received at the farm, this being fewer than in previous years.

II. SUMMARY OF FLOCK RECORDS 1977/78A. GLENSAUGH

TABLE 1

Reconciliation of Ewe Numbers

Flock	Breed	Ewes and Gimmers Nov.1977	Cast and Cull	Deaths		Gimmers brought in 1978	Ewes and Gimmers Nov.1978	Hoggs born 1978
				No.	%			
Cairn Birnie	BF	176	31	8	4.5	50	187	58
	BF	216	53	9	4.2	55	209	59
	Total	392	84	17	4.3	105	396	117
East Finella	NCC	171	45	11	6.4	46	161	55
Mid Finella	BF	70	10	4	5.7	24	80	28*
	Texel x BF	33	13	0	0	12	32	12
	BL x BF	34	12	1	2.9	11	32	12
	Total	137	35	5	3.6	47	144	52
West Finella	BF	71	17	4	5.6	21	71	24*
	Texel x BF	38	8	3	7.9	8	35	10
	BL x BF	39	10	6	15.4	9	32	8
	Total	148	35	13	8.7	38	138	42
Greyfaces	BL x BF	243	42	37	15.2	60	224	-
Experimental	BL x BF	95	87	8	8.4	-	-	-
GRAND TOTAL	-	1186	328	91	7.6	296	1063	266

* Includes 10 purchased in September 1978

TABLE 2

Weaning Percentages and Lamb Liveweights

Flock	Breed	Ewes to Tup	Lambs weaned			Weaning Wts. (kg)	
			1978		1977 %	Singles	Twins
			No.	%			
Cairn	BF	177	153	86.4	67.3	28.4	25.3
Birnie	BF	213	189	88.7	81.7	28.5	25.5
East Finella	NCC	171	188	109.9	104.0	31.6	25.9
Mid Finella	BF	70	91	130.0	119.5	29.3	25.0
	Texel x BF	33	49	148.5	134.2	33.7	29.6
	BL x BF	34	48	141.2	152.7	31.8	28.5
	Totals	137	188	137.2	131.0	30.8	27.4
West Finella	BF	72	92	127.8	118.7	28.5	22.0
	Texel x BF	37	52	140.5	147.0	29.7	24.6
	BL x BF	38	50	131.5	147.0	31.4	24.9
	Totals	147	194	132.0	131.7	29.5	23.5
Greyfaces	BL x BF	243	383	157.6	141.2	34.7	28.9

TABLE 3

Liveweight (kg) of Sheep - November 1977 and 1978

Flock	Breed	Ewes		Gimmers		Hoggs	
		1977	1978	1977	1978	1977	1978
Cairn	BF	52.9	55.5	47.3	49.9	28.9	32.2
Birnie	BF	54.6	58.8	47.2	52.7	31.8	35.4
East Finella	NCC	69.7	70.5	62.9	61.3	40.2	36.8
Mid Finella	BF	65.8	66.6	63.4	57.5	36.5	35.0
	Texel x BF	66.3	67.3	61.9	56.3	36.8	33.9
	BL x BF	65.9	70.2	63.8	63.0	37.9	35.5
West Finella	BF	59.2	59.0	52.7	53.1	37.2	32.5
	Texel x BF	62.6	64.2	59.1	52.2	36.7	31.7
	BL x BF	62.9	65.4	64.6	58.0	38.4	30.7
Greyfaces	BL x BF	75.2	68.5	68.4	66.3	-	-

TABLE 4

Cattle Stocks at 1 December 1978

Description	Hereford x Friesian		Blue-Grey	
	Spring Calvers	Autumn Calvers	Spring Calvers	Autumn Calvers
(1) Cows in-calf to Charolais bull	15	-	18	-
(2) Dry cows to run with Charolais bull	-	24	-	24
Dry cows to be cast (Composition expt.)	8	-	4	-
(3) Heifers in-calf to A.A. bull	10	-	8	-
Heifers calved to Hereford bull	-	-	1	-
(4) Heifers in calf to A.A. bull	-	6	-	7
TOTALS	33	30	31	31

NOTES:

- (1) Bulls with cows from 22 May 1978 to 3rd July 1978.
(2) Bulls to run with cows from 29 January 1979.
(3) Bull with heifers from 1 May 1978 to 3 July 1978.
(4) Bull with heifers from 1 November 1978 to 10 January 1979.

Other cattle stocks

Two Charolais bulls
One Aberdeen Angus bull
54 bullock stirks
33 heifer stirks

B. LEPHINMORETABLE 1Reconciliation of Ewe Numbers 1977-78

Hirsel	Ewes and Gimmers Nov. 1977	Cast	Deaths*	Transfer out	Gimmers brought in	Hoggs born 1978	Ewes and Gimmers Nov. 1978
Barnacarry/ Feorline	256	54	17 (6)	-	74	82	259
Mid-Hill	454	85	44 (10)	-	119	130	444
Low-End	372 ^x	62	26 (7)	14 ^x	92	102	362

* Includes Black Loss (in brackets)

x 372 includes 14 (ewes and gimmers) slaughtered 26.5.78

x 14 (ewes and gimmers) slaughtered 26.5.78

TABLE 2Weaning Percentage 1978

Hirsel	Ewes and Gimmers to Tup	Lambs Weaned %			Weaning Weights	
		Total	1978	1977	Singles kg	Twins kg
Barnacarry/Feorline	256	212	82.8	74.9	25.58	24.34
Mid-Hill	454	418	92.1	92.9	25.79	23.22
Low-End	358 ^x	287	80.2	68.7	28.02	23.11

x 358 Does not include 14 slaughter ewesTABLE 3Weights of Ewes, Gimmers, Hoggs (kg) 1977-78

Hirsel	Ewes		Gimmers		Hoggs	
	Nov. 1977	Nov. 1978	Nov. 1977	Nov. 1978	Nov. 1977	Nov. 1978
Barnacarry/Feorline	47.0	47.6	40.6	42.3	26.8	23.5
Mid-Hill	51.3	51.5	44.6	45.8	25.1	26.5
Low-End	51.7	51.3	42.4	44.1	27.9	26.9

C. SOURHOPETABLE 1Reconciliation of Ewe Numbers 1977/78

Heft	Ewes and Gimmers Nov. 1977	Draft & Cast Ewes	Deaths	Gimmers brought in	Purchases Ewe Hoggs	Hoggs Nov. 1978	Ewes and Gimmers Nov. 1978
<u>S.C.C.</u>							
Passet	205	39	13	41	-	50	194
Rigg	93	49	4	-	-	-	40
Gairs	111	62	4	-	-	-	45
Total S.C.C.	409	150	21	41	-	50	279
<u>S.C.C. x H.C.C.</u>							
Hairney Law/Auchope	623	115	32	143	-	162	619
<u>H.C.C.</u>							
Park Law	151	31	7	39	-	31	152
<u>Blackface</u>							
Rigg	191	11	5	56	10	62	231
Gairs	199	24	4	59	11	62	250
Alderhope	259	45	8	60	-	61	266
Banks	337	62	13	75	-	81	337
Total B.F.	986	142	30	250	21	266	1064
FLOCK TOTAL	2169	438	90	473	21	509	2114

TABLE 2Weaning Percentages and Lamb Liveweights 1977/78

Heft	Ewes to Tup	Lambs Weaned			Weaning Weights	
		Total No.	Percentage		Singles (kg)	Twins (kg)
			1977	1978		
Rigg S.C.C.	93	99	100.6	106.5	23.2	22.5
Gairs S.C.C.	111	128	109.7	115.3	26.2	23.5
Total	204	227	105.3	111.3	24.8	23.1
Passet S.C.C.	205	197	95.2	95.1	-	-
Hairney Law/Auchope - S.C.C. x H.C.C.	623	655	105.9	105.1	25.1	25.1
Park Law H.C.C.	151	161	92.2	106.6	25.3	24.7
Alderhope B.F.	259	252	111.8	97.3	28.5	26.8
Banks B.F.	337	354	105.2	105.0	-	-
Rigg B.F.	191	201	110.1	105.2	28.3	27.4
Gairs B.F.	199	219	109.1	110.1	29.5	27.5
Total	986	1026	108.5	104.1	28.7	27.2
S.C.C. Total	409	424	101.3	103.7		
H.C.C. (+ HCC x SCC) Total	774	816	105.8	105.4		
B.F. Total	986	1026	108.5	104.1		
Farm Total	2169	2266	105.2	104.5		

TABLE 3

Weights of Ewes, Gimmers and Hoggs (kg)

HEFT		EWES		GIMMERS		HOGGS	
		November 1977	November 1978	November 1977	November 1978	November 1977	April 1978
Rigg S.C.C.	4 crop	56.0	55.6	-	-	-	-
Rigg B.F.	3 crop	-	58.0	-	-	-	-
Rigg B.F.	1,2 crop	54.3	55.4	51.3	51.1	33.8	36.6
Gairs S.C.C.	4 crop	57.1	59.0	-	-	-	-
Gairs B.F.	3 crop	-	58.8	-	-	-	-
Gairs B.F.	1,2 crop	54.2	55.7	51.0	50.5	32.4	35.9
Hairney Law/Auchope S.C.C. x H.C.C.	All ewes	57.7	58.9	50.4	52.8	36.3	35.3
Park Law H.C.C.	All ewes	56.4	58.5	48.9	53.3	32.1	33.5
Aldershope B.F.	All ewes	56.9	58.3	54.5	55.1	35.8	36.1

TABLE 4

Wether Stock at November 1978

Year of Birth	1973	1974	1975	1976	1977	1978
S.C.C.	26	28	26	31	29	32

D. HOUSE 0' MUIRTABLE 1Reconciliation of Ewe Numbers 1977-78

Ewes & Gimmers November 1977	Cast Ewes Sold	Deaths	Gimmers brought in	Ewes & Gimmers November 1978
474	57	27*	91	481

* Of the 27 deaths, 21 died in the groups which had been housed at Bush as part of the research programme.

In the 21 deaths from the research work, there were 11 deaths from pneumonia in a group of ewes that had been housed at Bush in connection with work by A.J.F. Russel. The problem arose when the ewes were put out in April. They failed to respond to treatment. The 10 other deaths were in a group of ewes housed at Headquarters for late lambing and lactation work, 2 died at Bush and 8 more developed pneumonia, and died on return to the hill.

TABLE 2Weaning Percentages

Group	Ewes to Ram Nov. 1977	Lambs Weaned			Remarks
		Number	Percentage 1978	Percentage 1977	
Normal hill stock	244	352	144.3	105.5	Includes ewes used in pre-parturition study
(BF & BF) x EF Group	74	106	143.2	65.4	In addition to 74 ewes mated, 5 BF & 5 BF x EF were kept free of ram as controls
Late lambing group	120	78	65.0	-	Not mated until January 1978. 53 ewes proved eild.
Long term Copper Study	26	15	57.7	-	16 lambs died between marking & weaning. Confirmed "Sway-back".

E. RED DEER FARMSUMMARY OF HERD RECORDS

TABLE 1

Reconciliation of Stock Numbers : 1977-78

STOCK	No. at 1.10.77	ADDITIONS				REDUCTIONS			No. at 6.10.78
		Age Transfer		Calves Born	Purchases	Deaths	Sales	Age Transfer	
		Stags	Hinds						
Mature Stags	14	1	-	-	-	-	2	-	13
Mature Hinds	140	-	43	-	-	1	1	-	181
Prickets	2	1	-	-	-	-	2	1	0
Jinnocks	43	-	3	-	-	-	3	43	0
Young Stags	4	31	-	-	-	-	16	1	18
Young Hinds	3	-	3	-	-	-	-	3	3
Stag Calves	31	-	-	79	-	23	2	31	54*
Hind Calves	3	-	-	56	-	9	21	3	26*
Haviers	0	-	-	-	6	-	-	-	6
	240	33	49	135	6	33	47	82	301

* Calf Numbers at 22.12.78 includes 2 male and 1 female still on hill.

TABLE 2

Reproductive Performance of Herd

Herd	Hinds to stag	No. of calves born	No. of calves born dead	A/R	A/R died	Calves with hinds died Birth to weaning	No. of calves weaned †	% weaned
MAIN FARM	89*	77	5	17	2	4	66	74
UPPER FARM	82*	55	7	13	1	2	45**	55

* Both groups exclude 2 hinds not recorded.

** Includes 3 calves on hill unweaned 22.12.78.

† Does not include 3 calves born to spore times.

TABLE 3

Liveweights of Breeding Hinds (Nos. in brackets)

	Hinds Born	Weight Sept. 1977	Weight March 1978	Weight Sept. 1978
<u>MAIN FARM</u>	1970	83.0 (6)	76.1 (4)	79.8 (5)
	1971	77.8 (41)	72.5 (42)	77.0 (41)
	1972	77.7 (22)	72.5 (22)	77.2 (19)
	1973	70.5 (21)	64.9 (18)	71.8 (16)
<u>UPPER FARM</u>	1974 (1)*	65.6 (21)	62.0 (21)	68.3 (16)
	1974 (2)	74.2 (26)	67.3 (26)	72.3 (26)
	1975 (1)*	71.7 (19)	61.5 (18)	72.3 (16)
	1975 (2)	67.8 (16)	61.0 (16)	68.9 (15)

- * (1) Home-bred stock naturally reared.
 (2) Bought-in stock and artificially reared.

TABLE 4

Weaning Weights of Calves (Nos. in brackets)

Sex	Sept. 1977	Sept. 1978
Stag Calves	32.6 (29)	29.8 (49)*
Hind Calves	29.8 (36)	27.3 (24)**

- * excludes 3 artificially reared calves and 9 late weaned calves.
 ** excludes 24 artificially reared calves and 2 late weaned calves.
 Number shown excludes 3 calves still unweaned on the hill.