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HILL FARMING RESEARCH ORGANISATION

FARM RECORDS AND SUMMARY OF FLOCK RECORDS

1980

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I. FARM REPORTS - 1980

A. GLENSAUGH

WEATHER

The winter was fairly open with only relatively short periods of snow cover. Spring was dry but fairly cold so that there was a very late start to growth. There was a short spell of fine, hot weather in mid May before the weather settled into a cool, wet pattern which lasted throughout the summer. The autumn period was drier but winter seemed to start earlier than in previous years with considerable snow cover in the last week of November.

SHEEPSTOCKS

All the hefts came to mating in good condition and wintered well. Weather during lambing was remarkably good so that even low-birthweight lambs had a fairly good chance of survival. The extra flock of cast Blackface ewes were lambed indoors and presented no major problems. Unfortunately an unacceptably high number proved to be eild, thus depressing the lambing percentage.

Wet weather delayed clipping a little but it was completed by the 11th of July.

Lamb growth showed little change overall from previous years.

The major problem regarding the health of the sheep was an outbreak of a pustular dermatitis type infection in the Cairn and Birnie lambs starting at the end of July. Approximately 90% of the lambs were affected but they responded reasonably quickly to treatment by penicillin injections.

Ewe losses were due to the usual problems of dystokia, pneumonia and a few cases of Jaagsiekte.

Winter and spring feeding costs are shown in Table A.

TABLE A

Winter Feeding

FLOCK	HAY		CONCENTRATES		TOTAL COST PER HEAD
	DATES FED	TOTAL/HD	DATES FED	TOTAL/HD	
<u>Ewes</u>					
Cairn	31 Dec - 27 April	38.09 kg	9 Jan - 26 May	40.59 kg	£ 8.04
Birnie	4 Jan - 11 April (storm feeding only)	10.8 kg	4 Jan - 26 May	26.81 kg	£ 5.00*X
W. Finella	31 Dec - 20 April	34.57 kg	10 Mar - 26 May	39.81 kg	£ 8.59*
M. Finella	26 Jan - 27 April	31.19 kg	10 Mar - 26 May	35.84 kg	£ 8.15*
E. Finella	8 Jan - 27 April	50.17 kg	3 Dec - 17 Dec +10 Mar - 26 May	29.87 kg	£ 8.85*
Greyfaces	7 Jan - 27 April	62.36 kg	11 Dec - 26 May	96.44 kg	£17.42
<u>HOGGS</u>					
Cairn	7 Jan - 3 April	51.88 kg	17 Dec - 4 April	16.25 kg	£ 5.32
Birnie	24 Dec - 3 April	54.37 kg	17 Dec - 4 April	16.25 kg	£ 5.47
W. Finella	17 Dec - 6 April	48.35 kg	17 Dec - 4 April	35.00 kg	£ 7.67
M. Finella	17 Dec - 6 April	40.36 kg	17 Dec - 4 April	35.00 kg	£ 7.19
E. Finella	17 Dec - 6 April	40.56 kg	17 Dec - 4 April	35.00 kg	£ 7.20

Costed at:- Concentrate - Rolls £141.90/tonne Cube £136.20/tonne  
 Hay - £60/tonne  
 Rumevite - £3.73/pack (22.5 kg)

\*Ewe feeding costs include cost of feed blocks as follows:--

W. Finella	19 Dec - 5 Mar	33 Rumevite
M. Finella	19 Dec - 5 Mar	48 Rumevite
E. Finella	19 Dec - 10 Mar	76 Rumevite
Birnie	4 Jan - 6 Mar	29 Blocks

X Assumes cost of special pellets and blocks equal to cost of Ewemax and Rumevite.

Lamb Mortality was generally lower than the previous year due to the better weather conditions at lambing.

TABLE B Lamb Mortality

FLOCK	BORN ALIVE	BIRTH TO MARKING	DEAD		
			MARKING TO WEANING	TOTAL NUMBER	% MORTALITY
Cairn	241	34	19	53	21.99%
Birnie	244	17	2	19	7.79%
W. Finella	192	4	10	14	7.29%
M. Finella	238	12	3	15	6.30%
E. Finella	220	11	6	17	7.73%
Greyfaces	342	8	0	8	2.34%
100 Blackfaces	117	13	7	20	17.09%
TOTAL	1594	99	47	146	9.16%

LAMB DISPOSAL

Less than one third of the lambs were sold at Laurencekirk. The remainder were transferred to Hartwood for finishing.

TABLE C Lamb Disposal

BREED	SOLD AT LAURENCEKIRK	SENT TO HARTWOOD	TO BUSH FOR VASECTOMY	DEATHS FROM WEANING-DISPOSAL
Blackface	16	226		2
Greyface + Texel Crosses	6	197		
Dorset Crosses	275	233		2
NCC	20	82		
EF x NCC	5	16	10	
TOTALS	322	754	10	4

TABLE D Disposal of Cast and Culled Ewes and Gimmers

BREED	CAST SEPT 1980		SOLD	PERT TRIAL (TO BE KILLED)	TRANSFER TO BIRNIE	RETAINED FOR BREEDING
	EWES	GIMMERS				
BF	200	1	67	-	9	125
GF + TEX	41	0	9	-	-	32
NCC	40	1	10	31	-	-
EF x NCC	0	1	1	-	-	-
TOTAL	281	2	87	31	9	157

CATTLE

The autumn-born calves were weaned in May as the cows were turned out to grass and the weaning weights are shown in TABLE E.

The calves were grazed on the arable fields throughout the summer and were housed in the court in October and fed a ration of silage urea/straw and oats. The cattle will be sold in February and March in a forward store condition as in previous years.

TABLE E Weaning Weights of Calves (kg)  
(Numbers in brackets)

BREEDING	HEIFERS	BULLOCKS
Charolais x Blue Grey	166.7(14)	177.7 ( 6)
Charolais x Hereford-Friesian	187.2( 9)	186.9 (11)
Friesian	-	199.7 ( 3)

BEEF COWS

Only the autumn calving cows, some 84 in number remain at Glensaugh. All the spring calving cows are now at Hartwood.

CROPS

Some 350 tonnes of silage were made and will be fed to the weaned beef calves over the winter period.

PORTAKABIN OFFICE

This unit was moved to Hartwood in May 1980 to provide office accommodation for the farm management staff.

MUIRBURN

Apart from a small area burned on the Cairn hirsel, very wet weather in the autumn and spring prevented further muirburn.

STRAW

As usual, 100 acres of straw in the bout were purchased, baled and stored in the new shed.

HAY

120 tonnes were purchased locally for the cattle research unit with a further 100 tonnes for the sheepstocks and the red deer.

RED DEER UPLAND PROJECT

The Forestry Park and Hogg Park fields have been allocated to a 3 year study of a breeding herd on upland grassland conditions. The project got underway in May when some 68 pregnant hinds were transferred from the Deer Farm. The area allocated also includes the areas of rough grazings in the Lochhills, formerly the wintering area for the Greyface Systems ewes.

STAFF CHANGES

Mr R. Smith (Grieve) resigned in April and took up a similar post in Aberdeenshire.

Mrs Cargill (Clerical Assistant/Typist) resigned her post on 30th April 1980 as her family were moving to Shetland.

Mr Duncan Harrison was transferred to Hartwood on 24th June 1980.

Mr John Senior returned from Hartwood to Glensaugh on 1st April 1980 to manage and record sheepstocks.

Mr W. Souter transferred to Hartwood in November 1980.

B. LEPHINMOREWEATHER

January and February were on the whole good months with odd days of snow and heavy rain. March began mild with good growth but by mid-month winter conditions had prevailed with heavy snow and night frost; conditions remained poor until the end of the month but April got off to a mild start with ideal weather for spring dipping. No appreciable amount of rain fell throughout lambing and although colder than normal with little growth, 1980 on balance provided the best lambing weather on record. The long drought was broken in the first week of June and a wet cool summer followed.

Autumn was similar and distinguished only by a dry week in mid-October. November and December continued wet with only a period of snow in mid-December to give relief from almost incessant rainfall.

Precipitation 1980

<u>Month</u>	<u>mm</u>
January	124.4
February	193.0
March	147.3
April	4.8
May	21.8
June	136.1
July	154.2
August	148.6
September	295.4
October	201.6
November	158.7
December	340.4
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SHEEP

The relatively poorer condition of the ewe stock in autumn 1979 resulted in a high number of both tup cild and lean condition ewes at lambing time which was reflected in the weaning percentage, particularly on the Midhill and Low-End hirsels.

On Midhill by the beginning of February, 54 lean ewes had been removed from the hill and were offered 0.75 kg hay and 0.11 kg concentrates in Field 8 east. Concentrates were increased to 0.23 kg on 17th March and to 0.45 kg on 3rd April.

Standard Rumevite blocks were offered to the hill ewes from 18th January. Concentrate feeding began on 11th March with gimmers receiving 100 g and ewes 180 g of a proprietary cob. Gimmer feeding was increased to 200 g on 15th March. By the first week in April concentrates were being fed to both ewes and gimmers at 450 g/head/day.

Late lambers were again contained in the "Hunt's Bog" area for ten days with hay and concentrates on offer, as were the gimmers from 20th March. Concentrate feeding again continued after lambing in the low fields to twin rearing ewes and gimmers.

Hoggs were housed from 7th December 1979 returning to the hill on 5th April 1980. Winter rations were  $1\frac{1}{2}$  lb hay (0.68 kg) plus  $\frac{1}{4}$  lb concentrates (0.113 kg) at a cost of £6.30 per head.

#### Midhill Winter Feed Consumption

	<u>Hill Ewes and Gimmers</u> (Tonnes)
Hay	4.15
Concentrates	6.77
Rumevite	2.81
	<u>Lean Ewes</u>
Hay	2.59
Concentrates	0.92

Average feed cost/head = £4.03

#### Low-End Mid-Pregnancy Nutrition Trial (concluded)

Feeding of a proprietary cob commenced on 10th January, the "high plane" nutrition group being fed 500 g/head and the "medium" and "low" groups receiving 100 g/head. Apart from an offer of hay after snow fell these feed levels were maintained until 4th April when all ewes received 500 g/head until lambing. Snow feeding at 500 g hay/head occurred on 4th and 5th February and 21st-23rd March inclusive to all groups. A total of 1.5 tonnes hay was fed during lambing.

Total feed consumption - Hay	2.25 tonnes
Concentrates	12.18 tonnes
Feed costs/ewe	High plane £7.72
	Medium, low plane £3.26

Hoggs were housed on 4th December, 1979 and were wintered on a ration of  $1\frac{1}{2}$  lb hay (0.68 kg) plus  $\frac{3}{4}$  lb concentrates (0.113 kg) returning to the South hill on 4th April, 1980.

#### Barnacarry

All ewes wintered on the hill and standard Rumevite blocks were on offer from the first week of February. A total of 145 blocks were fed at a cost of £1.97 per ewe.

The hoggs were removed from the hill on 20th November to the Garbhalt hill park and fed  $\frac{1}{4}$  lb concentrates from 29th November until housed on 27th December when hay was offered at  $1\frac{1}{2}$  lb/head. From 16th January wintering took place in the Barnacarry/Feorline forest area with daily hand feeding of 1 lb hay plus  $\frac{1}{4}$  lb concentrates until 24th April at a feed cost of £5.16 per hogg.

While lamb numbers were again down, the overall quality was much improved as compared with 1979 and this must, at least partly, be attributed to the favourable weather condition during their first six weeks. The ewe stock made a slow recovery throughout the summer and autumn in the face of adverse weather conditions but came to the tup in fair order. The overall weaning percentage was 78. Figures for previous years were:-

	£
1979	84
1978	86
1977	80
1976	88
1975	85
1974	87
1973	97
1972	97

### Lamb Sales

248 Midhill and Low-End lambs were consigned to Bush for fattening on grass and 192 sent to Hartwood. 33 Low-End ewe and wether lambs which had been subject to T.O.H. infusion were sent to Bush for slaughter. Of the 248 lambs sent to Bush to date 227 have been sold to a top of £20.80 averaging £18.48 per head.

25 wedder lambs were retained for the experimental wedder pool. 38 small ewe and wedder lambs have been retained for overwintering.

19 ewe and wedder lambs were sold at Paisley on 13th October averaging £10.30 per head as were 74 cast ewes which averaged £5.37 per head. 80 cast ewes were initially retained for experiment of which 25 were subsequently sold privately on 16th December at £15 per head.

### HILL CATTLE

Winter feeding of the "in-bye" herd began on 19th November, 1979 and continued until 3rd May when silage feeding stopped. Concentrate feeding was continued until 16th May.

Winter feeding of the "hill" herd began on 24th December when the cows were brought down to the farm. Silage feeding stopped on 3rd May and cows and calves returned to the hill on 16th May with 3 kg concentrates on offer until 30th May.

Over the winter the 15 in-bye cows consumed a total of 1.32 tonnes of concentrates and 56.5 tonnes of silage, while the 15 hill cows consumed 2.6 tonnes of concentrates and 44.5 tonnes of silage, giving a wintering cost per cow of £64 for each group. An additional charge of £12 per cow is estimated for provision of straw.

Silage valued at £14 per tonne  
 Concentrates valued at £130 per tonne  
 Straw valued at £38 per tonne

Calving commenced in mid-February.

### Calving Record

Herd	No. of Cows	Eild	Died at Birth to 1 week old	Abortions	Bought in	Calves Reared
In-bye	15	1	-	-		14
Hill	15	1	2	1	2	13

In the "in-bye" herd 1 heifer was eild and 14 calves were reared to weaning. In the "hill" herd 1 cow aborted, another was eild and 1 calf died at birth. One calf born with a brain defect was slaughtered at 1 week old after veterinary examination. Two Hereford x Friesian calves were bought in giving a total of 13 calves reared to weaning.

Eight bullock calves were sold at Dalnally on 17th October averaging £153 per head to a top of £218. Sixteen heifer calves averaged £98 per head. One bullock calf ran wild on the hill throughout the summer and autumn and is being overwintered with 2 heifer calves for stock replacement.

Three 2 year old heifers were sold at Dalnally on 8th November at £245 per head; 1 "in-bye" cow died suddenly in September; subsequent veterinary investigation produced no conclusive diagnosis.

#### Calf Weaning Weights

<u>Herd</u>	No.	<u>1979</u>		<u>1980</u>	
		22 October kg	No.	21 October kg	
Hill heifers	5	192.0	8	207.0	
" bullocks	5	202.0	2	208.0	
In-bye heifers	-	-	9	209.0	
" bullocks	-	-	5	232.0	

Cattle Numbers at December 1980:-

	<u>In-bye</u>	<u>Barnacarry hill</u>
Cows	10	13
Calved heifers	4	2
In-calf heifers	1	-
Surplus heifers (in calf)	2	
" " (free of bull)	2	

#### ARABLE GROUND

Commencing on 9th June a first cut of silage was taken from Fields 3 North, 4 and 5 North and a cut in August from Fields 2 and 3 North. Only one cut was taken from Field 2 as it was required throughout May for cattle grazing being the only available field with a water supply at that time. Approximately 145 tonnes of silage was made.

The sheep and cattle litter from the wintering shed was spread on Field 1 in May, and after treatment with Granoxone in mid-June the field was ploughed and sown out with a permanent grass mixture under rape. 150 kg/acre compound fertiliser (20-10-10) was applied at seeding. The 9 acre field was utilised in the autumn by 80 cast ewes under experiment.

#### Hill Ground and In-bye

The 17 acre reseed on the Low-End was given 100 kg/acre compound fertiliser (20-10-10) on 2nd June and again on 7th August. The 20 acre reseed received 75 kg/acre on 7th August.

The 17 acre paddock reseeded in the summer of 1979 suffered to some extent from the drought conditions of April and May but made a good recovery by the autumn. However, water blinks (*Montis fontana*) continues to flourish over much of the area in conditions which are almost ideal for its growth.

A second hill lambing paddock was formed on the Low-End by erecting approximately 600 yards of ryelock fencing within the main paddock and including the top end of the Low-End downfall. The area, apart from a short length of burn necessary for water provision, is free of all natural hazards and provides a safe lambing area in contrast to the existing paddock which has a history of lamb loss through drowning.

On 3 November 12 acres of hill land adjacent to the forest plantation march fence with Low End was dressed by helicopter with 12 tonnes burnt lime and 3 tonnes Scotphos. This area will be re-seeded and electric fenced in 1981.

#### Heather Burning

Apart from a small area (10 acres) intended for experimental plots, no heather burning was carried out due to adverse weather conditions.

#### Fencing

The six plain wires on the Kilbridenore/Midhill march erected in 1980 are presently being replaced with 10 gauge high tensile wire using the existing iron strainers and oak stobs. The Kilbridenore/Midhill march will receive similar treatment in 1981 if finance is available.

#### Buildings and Roads

Access and drainage improvements were carried out to the Low End hill fank and additional yarding space provided to facilitate stock handling.

A covered area was provided at the Barnacarry fank for stock handling and weighing.

A concrete apron was provided at the entrance to the cattle wintering shed adjacent to the silage pit.

The twin isolation pens built in the laboratory field some thirty years ago were adapted to provide cover and limited exercise area for the two stock bulls with safety handling equipment.

A sixty yard stretch of the north entrance to the farm standing which had deteriorated badly was re-tarred.

C. SOURHOPEWEATHER

Snow fell at the end of the first week in November, lying on the tops until the close of the month, when the weather turned very mild with south-west winds. December and the beginning of January were fairly open with average rainfall. However, snow returned at the end of the first week and persisted into early February, with strong winds and drifting of the snow over the last few days. March was wetter than usual, with a little snow mid month, and this weather was then followed throughout April and the first three weeks of May by a dry and sunny period which provided marvellous conditions for lambing.

Thereafter conditions rapidly worsened with the June rainfall more than double the previous five year average, and the summer continued cold and wet throughout with only September providing some relatively dry spells. The first snowfall of the winter, in mid-October, was short-lived with south-west winds bringing mild and very wet weather giving rise to very humid conditions, and this weather continued until the end of November, when wintry conditions returned.

Rainfall

	<u>Month</u>	<u>Rainfall</u> (mm)
<u>1979</u>	November	122.5
	December	106.7
<u>1980</u>	January	87.2
	February	63.0
	March	199.7
	April	13.4
	May	37.6
	June	136.5
	July	71.9
	August	112.9
	September	41.4
	October	134.6
		<hr/> 1127.4 <hr/>

SHEEP

All breeding sheep came to the tup in good body condition with the exception of the N.E.H.L. ewes which suffered a slight check in October. These latter, however, having access to reseeded ground during tugging, recovered satisfactorily. During the tugging period the weather was comparatively open with south-west winds predominating, and rainfall average after a very wet November. Hay was introduced to the ewe stock with the first snowfall in mid-January, and thereafter fed as required during subsequent periods of snow cover. Hay was also on offer in the lambing areas during April. Feed blocks were introduced towards the end of January and sugar beet pulp cubes at the beginning of February, with a change to higher protein cobs (13.5% C.P.) in the second half of March. Concentrate feeding continued through lambing, ewes nursing twins being fed concentrate pencils and dried grass nuts until the end of May. Outwintered hogs were introduced to feed at the beginning of December and fed until their return to their respective hills at the beginning of April.

A total of 52.6 kg dry matter (hay, sugar beet pulp, concentrates, feed-blocks, and grass nuts combined) was fed on average to all outwintered ewes at a cost of £5.91 per head. This compares with 77.1 kg dry matter at a cost of £7.00 per head during the severe winter of 1978-79, and 54.1 kg dry matter at a cost of £4.34 per head during the more open winter of 1977-78.

With the average feed costs for 1573 outwintered ewes and gimmers at £5.91, the range for individual hefts was from £7.00 to £4.57.

The average feed cost for all outwintered ewe hoggs was £4.06 per head compared to £5.23 the previous year.

Rigg and Gairs stock was again inwintered, all ewe hoggs being housed on 17th January, Rigg ewes and gimmers on 24th January, and Gairs ewes and gimmers on 28th January.

A total of 106.2 kg dry matter on average was fed to inwintered ewes and gimmers at a cost of £8.91 per head compared with 123.6 kg dry matter at a cost of £8.51 per head in 1978-79.

For the inwintered ewe hoggs, feed costs were £5.41 per head compared with £5.08 for 1978-79.

Some feed data for both inwintered and outwintered sheep are shown in the following tables, the feed items being costed as follows (1978-79 prices in parenthesis): Hay £66/tonne (£43/tonne); Sugar beet pulp cubes £97.48/tonne (£85.76/tonne); Ewebol cobs\* £131.58/tonne (£115.91/tonne); Ewebol pencils\* £127.40/tonne (£112.35/tonne); Grass nuts £92/tonne (£94.75/tonne); Ewe and lamb food £149.50/tonne (£131.74/tonne); Barley £119.44/tonne (£103/tonne); Stockade feed blocks £150/tonne (£142.53/tonne); Colborn feed blocks £192.86/tonne (£163.67/tonne); Lamb supplement pencils £129.65/tonne (£113.81/tonne); Green Keil\*\* £116.80/tonne; Lamb fattening mix £128.22/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 £8.37 compared to £9.80 for the previous year.

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

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

#### Hogg Feed Data

	Hay (kg)	Green Keil (kg)	Ewe Cobs or Pencils (kg)	Ewe and Lamb Food (kg)	Average Cost per Hogg
Outwintered Hoggs	15.0	25.4	0.5	0.4	£4.06 (£5.23)*
Inwintered Hoggs	38.6	23.7	0.4	0.6	£5.41 (£5.08)*

Total Weight DM Fed: Outwintered 41.3 kg  
Inwintered 63.3 kg

\* 1978-79 costs

Ewe Feed Data

	Period	Hay (kg)	Feed Blocks (kg)	Sugar Beet Pulp Cubes (kg)	Concen- trates (kg)	Grass Huts (kg)	Average Cost per Ewe
Outwintered Ewes and Gimmers	Storm Feed (i.e. to 17/3 incl.)	4.4	2.7	10.0	-	-	£1.72 (£3.79)*
	Pre-Lambing Feed (i.e. 18/3 to 17/4 incl.)	3.9	3.4	4.8	10.5	3.6	£3.04 (£1.65)*
	Post-Lambing Feed (i.e. from 18/4, incl. that fed to twins)	0.9	0.4	-	7.2	1.0	£1.15 (£1.56)*
	Total	9.2	6.5	14.8	17.7	4.6	£5.91 (£7.00)*
Inwintered Ewes and Gimmers	Pre-lambing Feed (i.e. to 17/4 incl.)	59.0	-	19.4	12.1	-	£7.33 (£5.94)*
	Post-Lambing Feed (i.e. from 18/4 incl. that fed to twins)	6.1	0.2	2.2	7.2	-	£1.58 (£2.57)*
	Total	65.1	0.2	21.6	19.3	-	£8.91 (£8.51)*

Total weight DM fed: Outwintered 52.6 kg  
Inwintered 106.2 kg

\* 1978/79 costs

The ewe stock experienced some loss of body condition, reflected in loss of body weight through the tupping period and until feed was introduced in January. All outwintered ewes and gimmers responded well to the pre-lambing feeding, however, and were again in good condition entering the lambing fields. The early lambing ewes of the inwintered hefts of Rigg and Gairs were again lambed in the inwintering sheds. Ewes nursing twins were fed until the end of May. Body-weight recovery of all nursing ewes was satisfactory, and all ewe stock came to the tup in good body condition in November 1980.

Marking weights of lambs on average showed a considerable improvement over 1979, a not unexpected result in view of the very severe winter and almost non-existent spring of that year. Average weaning weights were up on all hefts without exception, showing increases within the hefts ranging from 0.7% to 8.1% on 1979 weights, this despite a very wet summer.

Weaning percentages for South Country Cheviot, North Country Cheviot (including NCC x SCC) and Blackface ewes were 90.3, 116.3 and 123.7 respectively, to give an overall weaning percentage of 118.1. This compares with the 1979 weaning percentage of 114.6 which was at that time the highest recorded at Sourhope since the station has been part of the Hill Farming Research Organisation.

Both ewe and hogg fleece weights were heavier than the previous year resulting in a total weight of wool graded from Sourhope showing a rise of 11.7% to 5901 kg, the average price realised being 97p per kg (£1.05 in 1979).

All ewes were worm drenched in the autumn, outwintered ewes being re-dosed in March prior to lambing. All twin lambs were worm drenched at marking and again in mid-June, and mid-July. Single lambs were worm drenched in mid-July. Inwintered ewes were given a worm drench at housing.

No routine dosing against liver fluke was carried out, although Project I ewes and gimmers were dosed in spring and autumn in response to advice from the Veterinary Section of HFR0, who monitor the incidence of internal parasites through faeces-sampling.

As in 1979 no spring dipping was carried out due to inclement weather conditions. All Cheviot lambs and all Blackface twin lambs were summer dipped in July, and all Blackface lambs treated regularly for headfly. All breeding stock and experimental wethers were dipped with a scab-approved winter dip during the first two weeks of October.

All ewe and wether hogs received a cobalt bullet in October, along with all 3 shear ewes. Previous to this, in July, all twin lambs received a cobalt chloride drench, except in the case of Alderhope twins, where again it was considered that this may affect the results of the copper deficiency trial.

All stock ewe lambs and wether lambs retained for experimental purposes received an initial 5 cc anti-clostridial vaccine at weaning, and a 2 cc booster 6 weeks later. All other lambs received a 2 cc initial vaccination at weaning and a 2 cc booster 6 weeks later unless sold before this time. All ewes, gimmers, and hogs continue to receive a 2 cc booster during the second half of March.

All housed sheep were vaccinated against pasteurella pneumonia.

Intensive investigation into the induced copper deficiency which affects Blackface lambs grazing the Alderhope reseeds continued through 1980, the results of this investigation being reported in the Annual Report.

#### Disposal of Lambs

1187 lambs were sold through the store market (359 Blackface, 693 NCC x SCC, 71 South Country Cheviot, 64 Blackface x Cheviot), with Cheviot lambs averaging £0.74 per kg live weight (top price £0.79), and Blackface lambs averaging £0.63 per kg live weight (top price £0.67).

A total of 693 North Country Cheviot lambs (and NCC x SCC) averaged £21.65 per head (£0.74 per kg live weight) compared with £20.49 per head (£0.73 per kg live weight) the previous year, 71 South Country Cheviot lambs averaged £20.59 per head (£0.76 per kg live weight) compared with £18.66 per head (£0.67 per kg live weight) the previous year, and 359 Blackface lambs averaged £19.87 per head (£0.63 per kg live weight) compared with £17.08 per head (£0.53 per kg live weight) in 1979. In addition 64 Cheviot x Blackface lambs averaged £21.42 per head (£0.75 per kg live weight) compared with £17.17 per head (£0.63 per kg live weight) last year.

The above averages exclude 104 Blackface lambs and 19 Cheviot lambs which were sold either to the ADRA at Moredun, the Rowett Research Institute, or HFR0 Veterinary Section for experimental purposes.

In 1979 a number of Blackface lambs were fattened both on rape and using the inwintering facilities. This year it was again decided to fatten a number of the smaller Blackface lambs. Concentrate feed was introduced during

September and a total of 431 lambs were housed during October and November and fed on proprietary brands of fattening pencils and hay, with the opportunity being taken to study certain aspects of the indoor fattening of lambs, particularly of the Blackface breed. To date 369 lambs have been sold fat at an average price of £21.43 (£1.56 per kg dressed carcase weight). 223 lambs remain on fattening rations at time of writing - indoor fattening rations consisting of 1 kg lamb fattening pencils and 115 gms hay.

The overall average for 1556 lambs sold to date is £21.13 which compares with an overall sale average of £19.57 in 1979.

Details of the disposal of the 1980 lamb crop are as follows:

Ewe lambs (home-bred) retained as stock replacements	550
Wether lambs retained as wether stock replacements	33
Tup lambs for breeding	13
Lambs sold for experimental purposes	123
Lambs sold store	1187
Lambs sold fat	369
Lambs as yet unsold	223
	<hr/>
Total	2498*
	<hr/>

\* N.B. This figure exceeds total number of lambs weaned on the farm due to the fact that 32 lambs were weaned from O.A.D. Gairs Cheviots and are included in the above figures.

#### Draft Ewes

The majority of Blackface draft ewes were retained at Sourhope to meet the requirements of a fertility experiment carried out by HPRO staff.

Thirty-four warranted Blackface draft ewes were sold through the store market at an average price of £16.20 per head. Twenty-five Blackface draft ewes were also sold fat at an average price of £14.28 per head.

Of the Cheviot draft ewes, 62 warranted ewes averaged £19.16, and 56 feeding ewes averaged £13.71.

Seventy-seven Cheviot ewes were sold fat at an average price of £15.24 per head.

Twenty-three Blackface and 33 Cheviot draft ewes remain to be sold.

#### Death Rate

The overall death rate of the sheep stock in the twelve months since November 1979 was 3.0%, with the death rate of ewes, gimmers, and hoggs being 3.5%, 1.8% and 2.3% respectively.

The overall death rate in 1979 was 4.1%.

#### Sheep Stock Autumn 1980

The autumn, like 1979, has been very wet. Despite this, all breeding sheep have come to the tup in good condition. Weather at the start of tugging was wet, and there was a light covering of snow in early December. The weather has continued to be very unsettled, with further snowfall towards the end of the month.

CATTLE

The suckler herd comprised 48 cows in November 1979. Cow cobs were introduced in late November and 0.9 kg/head/day was fed throughout December and early January. Twenty-one cows were then transferred to the Moredun Institute for the remainder of the winter, these cows being involved in experimental work directed towards developing a vaccine for 'calf scour'. These cows were returned to Sourhope on May 1st, feed costs being borne by the Moredun Institute.

With only a minimum of grass available after the severe winter and spring of 1978/79 for conservation at Sourhope, and an abundance of grass conserved as silage and with a shortage of stock to utilise it at Hartwood, it had been decided that the balance of cows left, apart from those involved with the Moredun experimental work, would be wintered at Hartwood. Thus 27 cows left Sourhope on 7th January and were returned from Hartwood with calves at foot on April 30th. Feed costs of the cows, whilst at Hartwood, were paid for by a transfer of account between the two farms.

After returning to Sourhope the cows were fed a total of 3.56 tonnes of hay, 4.75 tonnes of grass nuts, and 0.63 tonnes of calf pencils. This, together with 4.00 tonnes of cow cobs used in November and December, cost a total of £1316.67 (£27.43 per cow).

Of the 48 cows, three were eild and one died. Two calves were still-born, and two died in March, two calves were successfully set on, this making a total of 42 calves reared from 48 cows put to the bull.

The suckler herd was managed in the usual manner, grazing where required on the Development Project and other areas.

Some calf performance data for 1980 is shown in the following table.

Sex	Nos.	Average Birth Weight (kg)	Average Weaning Weight (kg)	Average Live-weight Birth - Weaning (kg)	Average Daily Live-weight Gain (kg)
Bullock	22	41.4	275.5	238.1	1.05
Heifer	23	38.1	270.3	235.5	1.00
All calves	45	39.7	272.8	236.7	1.02

Thirty-six calves were sold at the October sales to average £212.33, a drop of £4.52 on 1979. Price and weight data are shown in the following table.

	Number sold		Weight* (kg)		Price/head		Price p/kg	
	1980	1979	1980	1979	1980	1979	1980	1979
Hereford "x" bullocks	17	20	274	276	£236.24	£237.90	86.2	86.2
Hereford "x" heifers	19	20	267	264	190.95	195.80	71.4	74.2
Overall	36	40	271	270	212.33	216.85	78.5	80.3

\* Weights given are those at sale ring entrance.

Three bullocks and three heifer calves are being overwintered.

MUIRBURN

No burning was carried out in the spring of 1980.

CROPPING

The Big Haugh field (2.2 ha) was directly reseeded in the spring of 1980 following autumn ploughing, and a very good 'take' of seeds obtained. The Banks field (2.0 ha) was sown out at the same time with an arable silage mixture comprising oats, barley, peas and tares, following rape last year, and the crop then undersown with grass seed. The resulting silage crop, harvested in August with the peas well formed and the grain in the "milk" stage, should provide some very good winter feed. However, the 'take' of undersown grass seed has been a little disappointing, and the seeds will need careful nursing in their maiden year.

The 1.4 ha of hill ground on the wether paddock, which was sown to rape last year, was directly reseeded in the spring of 1980, and notwithstanding the very dry conditions which persisted throughout April and May, a good 'take' of seeds has been obtained. This is the first time that peaty ground has been reseeded following an initial green crop, and it proved more difficult to get a firm seed bed than on previous occasions where grass seed was sown directly onto the newly broken peat ground. In noting this point, however, it must be borne in mind that the difficulties experienced may prove to have been only a characteristic of that particular site.

Further reseeded of the hill ground within Project I was also carried out in 1980, and details are given in the section dealing with Development Work.

In mid-June Fasset field (4.9 ha) was top dressed with 5.8 tonnes/ha of Ground Magnesium Limestone. At the same time both the Schilgreen (2.4 ha) and the Rigg field (2.0 ha) were given 940 kg of Phossac (20%  $P_2O_5$ )/ha. Details of Lime and Phossac application to ground within Project I are given under Development Work.

A total of 130 tonnes of grass silage, 40 tonnes of arable silage and 27 tonnes of hay were conserved in the summer period.

FENCING

Extensive maintenance work to existing fences has again been carried out, and details are given under the section headed Development Work, of a new extension to the high-tension fencing within Paddock 2 of Project I.

BRACKEN SPRAYING

No bracken spraying was carried out in 1980.

BUILDINGS

Only essential maintenance work to existing farm buildings has been carried out. The exterior of all houses on the station, together with the 5-bay garage block has been painted, and the cedar wood cladding of the office block treated with the appropriate liquid dressing.

As a first stage in rectifying problems which have occurred with the heating system in the hostel, much of the newly installed plumbing system has had to be checked for leaking joints, and this has now hopefully been completed. Specialist advice has been sought as to how best to curtail fuel costs, and it is intended that recommendations which have been made will be implemented in the near future.

Two new feed storage sheds for the hill have been purchased as replacements, and sited at the Banks and at the Near-end Hainey Law feeding sites. Existing sheep access bridges over the Park Law burn have been renewed, and new ones installed both at the Near-end, and the Far-end of Hainey Law burn.

Simple alterations have been made to the approach to the existing sheep dipping bath at Sourhope, and have resulted, to date, in a very great improvement in the ease with which sheep are handled at dipping time.

#### FARM ROAD

Only routine maintenance work on the road has been carried out.

#### DEVELOPMENT WORK

Progress has been maintained in the Development Projects.

#### Project I

A 316 metre extension to the high tension spring fencing enclosing Paddock 2 was erected in early spring, thus dividing this paddock into two parts. The 3.4 ha of ground which had been resprayed for bracken in late summer 1979, and which lies within the northernmost of the two parts of Paddock 2, was reseeded in early May, using the paraquat-rotavation technique, and a very good 'take' of seeds has been obtained.

In early April (3rd-4th), 9.3 ha of ground within the lambing enclosures of Project I, received 156 kg/ha of a nitrogen fertiliser (33.5% N<sub>2</sub>), and in mid-May (19th-20th) all reseeded ground within Paddock I (7.1 ha) was given a top-dressing of 247 kg/ha of compound fertiliser (20:10:10).

The 1.6 ha of hill ground within Paddock I which was reseeded last year was successfully sprayed with MCPB/MCPA in June, to control boar thistles. In the same month, Auchope hay field and surrounds (3.6 ha) received a total of 11 tonnes of Ground Magnesium Limestone, and 1.75 tonnes of Phossac (20% P<sub>2</sub>O<sub>5</sub>).

With a weaning percentage of 113 for 631 ewes mated, being the highest ever weaning percentage obtained for Project I since its inception in 1968 when 387 ewes went to the tup, and with an overall average weaning weight per lamb of 26.1 kg, it is not surprising that the total weight of lamb weaned from the Project area at 19471 kg sets a new high, representing a further increase of 8.3% over the record figure of last year. Whilst the mean overall weaning weight of all lambs at 26.1 kg has been equalled or exceeded on four previous occasions, when the very disappointing weather of summer is considered, together with the very large number of lambs involved (746 lambs), lamb performance in 1980 must still be regarded as highly satisfactory.

#### Project II

This Project is continuing. Early lambing ewes from both the inwintered Rigg and Gairs hefts were successfully lambed indoors, as in 1979.

No lime, phosphate or fertiliser applications were made to any of the improved areas of the Gairs hill in 1980.

#### Project III

Further copper studies associated with the hill reseeds of the Alderhope heft have continued and are reported elsewhere.

D. HOUSE O' MUIRWEATHER

The early part of the winter (December 1979) was very wet as will be seen from the rainfall figures. After fairly heavy snow at the beginning of the new year the weather improved at the start of lambing and continued fine although cold in April and early May. From then on the weather deteriorated and it turned out to be an exceptionally poor summer making all forms of harvesting very difficult.

In the following table the 1979 rainfall figures are shown in brackets to give a comparison with the current year.

RAINFALL 1979/80

	<u>Rainfall (mm)</u>	<u>Rainfall, 1978/79 (mm)</u>
December 1979	143.0	( 97.7)
January 1980	64.8	( 67.5)
February	33.5	( 19.0)
March	86.1	(147.0)
April	9.9	( 70.9)
May	19.5	( 57.3)
June	95.6	( 12.4)
July	66.5	( 23.1)
August	105.7	( 76.5)
September	53.3	( 44.4)
October	100.5	(110.3)
November	134.0	(133.9)
	<u>912.4 mm (35.92 ins)</u>	
The ten year average is	815.7 mm	

SHEEP

Five hundred ewes were put to the ram in November 1979. The ewes were not quite as good in condition as in 1978 and this, coupled with extremely wet weather during mating, was reflected in a drop in lambing percentages in 1980 (see Table 2).

Six hundred and five lambs were marked against 654 in 1979. Part of this drop was due to there being 10 tup eild ewes out of the 40 Blackface ewes in the lactation experiment. The feeding period for the ewes was slightly shorter than in 1978/79 but, due to increased feed prices, the cost per head was only a little less than in the previous year.

Concentrate:	33 kg/head at £132.50/tonne	£4.37)	£6.85
Hay:	40 kg/head at £62/tonne	£2.48)	

As in the past the ewe hoggs were wintered away until January and then brought home to Glencorse to be trained to eat concentrate. The cost of hay and concentrate was just over £3.00 per head.

The wool clip was up by approximately 15%. This was due in part to a greater number of fleeces together with fewer broken fleeces.

Disposal of lamb and cast ewes

A total of 605 lambs were marked and of these 599 were weaned. "Swayback" again showed in the lambs from the ewes on the "Long Term Copper Study".

Lambs sold to date (8/12/80) are as follows:-

Sold store	165
Sold in connection with research programme	44
Sold fat	223
Retained for stock replacements	127
On hand 8/12/80	32
Deaths since weaning	8
	<hr/>
	599
	<hr/>

Cast ewes were required by the research programme. Sixty were transferred for this purpose and seventeen were sold as feeding ewes. Ten over-age Blackface/East Friesland ewes were also returned to the Animal Production and Nutrition Department.

Prices obtained for store lambs

BF wedder lambs	top	£22.20
	bottom	£20.30
	average	£21.25
BF ewe lambs		£19.00

Price for fat lambs

Fully half of the lambs to be fattened were still on hand after the E.E.C. Agreement on sheep meat came into existence in October and this helped the fat lamb price by just over £2 per head.

Prices to date:-

BF lambs	£23.61
Suffolk cross lambs	£25.43

Prices for cast ewes:-

Fully warranted ewes	£17.00
Feeding ewes	£12.00

CATTLE

The calves born in 1979 were weaned at the end of October. Because of the transfer of 15 breeding cows to Glensaugh, calf numbers were considerably down and 13 calves were purchased during the winter to make use of accommodation and labour.

Returns on the purchased calves were good at the spring sales where they left an average of £67.50 per head over the buying price for approximately eight weeks keep.

Home bred calves were all overwintered and realised the following prices at the spring sales. The price per kilo is based on farm weights taken before transport to sale.

Date of Sale	Breed	Number	Sex	Average Price/Kilo	Average Price/Head
5/4/80	x Charolais	3	M	89p	£352.00
19/4/80	x Charolais	3	F	90.2p	£334.00
10/5/80	x Charolais	2	F	85p	£306.00
10/5/80	x A.A.	2	F	80p	£279.00
24/5/80	x Charolais	1	F	81.3p	£260.00
24/5/80	x A.A.	3	F	77.6p	£245.00
24/5/80	x A.A.	1	M	76.0p	£238.00

Generally speaking, the herd did well during 1980 and numbers have been made up again after the transfers to Glensaugh. At the date of writing the herd consists of 21 spring calving cows and 15 autumn calvers.

The Charolais bull was found dead in March 1980 and the post mortem did not determine any specific cause of death. This was in all probability due to autolytic changes masking the cause of death. The animal died Friday night/Saturday morning and no facilities for post mortem were available until Monday morning.

A replacement bull was purchased at the October bull sales. The mating of the spring calving herd in summer 1980 was made possible by hiring a Charolais bull from the East of Scotland College of Agriculture. A pregnancy diagnosis was carried out on this group and all but one was found to be in calf. The non-pregnant animal was a late calver in spring 1980 and has now been transferred to the autumn calving group which has just been joined by the bull.

#### BUILDINGS

No major building work was carried out in 1980 but several doors have been repaired or renewed. The roofs of the two large Dutch barns have been re-painted and the small Dutch barn has been stripped and re-sheeted.

#### ROADS

The hill access road between the new sheep pens and the old sheep pens at Turnhouse has been hard-cored over the worst section.

#### FENCING

Nine hundred yards of new fencing between hill and old pasture have been erected. Three hundred yards of hill dyke have been restored. Some 300 yards of fencing on the arable land has been renewed. Most of this work was done by farm staff.

On the accommodation land at Bush, the woodland/arable fencing is being renewed by E.C.R.E.

#### MUIRBURN

No muirburn was carried out in 1980.

#### SHELTER BELTS

Some adjoining shelter belts were planted up by E.C.R.E. this year.

#### LAND IMPROVEMENT

A further 18 acres of old pasture, previously open to the hill, has been enclosed, sprayed for thistles and will be limed and phosphated this winter. This provides a further controlled area for sheep grazing and gives an additional area for cattle grazing which could not be used previously.

#### REGIONAL WATER SUPPLY

A new mains water pipe has been laid through the farm and this has caused major problems with stock. Fences were taken down to give access and despite the erection of temporary fences and carriers, there were many breakouts during the year. The work has now been almost completed but replacement of fencing and gates is not yet satisfactory.

CROPPING

The six acre Garage Field was ploughed and sown with rape and a very good crop was grown. Some 150 lambs have been fattened on the area.

Hay was cut on 25 acres and some 65-70 tonnes of hay harvested by contract labour. Due to the weather the quality of the hay made was very varied. Roughly speaking, it could be split into three categories and quantities - 1/3 poor, 1/3 medium and 1/3 excellent.

It is estimated that between £2500 and £3000 was saved over comparable hay purchased after allowing for contract charges.

ADDITIONAL LAND

No additional land was allocated in 1980 but by internal agreement among HFRO/ESCA/ECRE, an exchange of land was arranged. HFRO gave up 6 acres of land in the High Field to ESCA and in return got possession of the small 4 acre field adjoining House o' Muir steading. This is a very satisfactory arrangement as we now have a field where we can run stock out and in if necessary.

E. RED DEER FARMWEATHER

The autumn of 1979 was generally mild apart from a cold spell in November. December proved to be a frosty month but there were no snowfalls until mid January. February and March brought intermittent snowfalls of up to  $1\frac{1}{2}$  ft, but with complete snow cover at the deer farm only for a few days at a time. A warm dry spell in May was followed by a cold wet summer and autumn with heavy rainfall during October.

1979 RUTMain Farm

Rut groups were established on 5th October with the stags in good condition and rutting early. Turn out was a haphazard affair as very thick mist and heavy rain prevented the hinds from being gathered.

Upper Farm

Groups were established on 8th October.

Reseeds

All five reseeds were used for the fertility trials of young stags. The five groups were mixed at the beginning of November and released to the hill on 5th November.

WINTERING

Eighteen yearling hinds were held in Greenshiels from November and fed 0.3 kg concentrate/head/day. Hay feeding commenced for this group on 5th December. Three of the poorest hinds were housed for November, at the end of which two were released back to Greenshiels and the third housed for the winter.

Hay feeding for the rest of the outwintered stock started on January 11th and continued until April 9th. After this a group of 45 hinds in poor condition and the yearling hinds were fed concentrates at 0.5 kg/head/day and hay until April 30th. Over the winter a total of 24.25 tonnes of hay was fed to outwintered stock; an average of 1.0 kg/head/day. This was two-thirds the amount of hay fed the previous winter (1.5 kg/head/day); however the conditions were very much more severe in the previous winter, with prolonged periods of snow cover. Despite being fed less hay, the hind live-weights for April 1980 were slightly higher than the corresponding weights for the previous year, reflecting the mild winter conditions. Concentrate feeding for hinds at 0.5 kg/head/day started on 5th May and finished on 6th June, by which time all but 7 of the deer farm hinds were on the reseeds. The removal of 68 hinds to the Lochhills permitted all the deer farm hinds to be calved on the reseeds.

CALVING

Calving started very early this year, the first calf being born on 22nd May and with 26 calves born before 1st June. Eighty-four hinds were calved on the reseeds and were released to the Upper Farm in early July.

Of the 189 hinds to the stag, 12 were yeld and 7 of these were 2 year olds, having been put to the stag for their first time. The calves were strong and healthy and no undersized calves with associated deaths were

recorded this year. As in the previous year, this can be attributed to the improved winter nutrition of the hinds.

#### CALF GROWTH

Deer farm birth weights were up on last year; males averaging  $8.1 \pm 1.2$  kg, an increase of 0.8 kg, and females averaging  $7.4 \pm 1.0$  kg, an increase of 0.3 kg. This is not a true comparison between years, however, due to the removal of the majority of the H and J cohorts to the Lochhills.

Weaning weights also showed an increase on last year - see Table 4. This could possibly be attributed to the good condition of the hill over the summer after the removal of 68 hinds to the Lochhills, as well as the higher birth weights recorded.

#### CALF MORTALITY

The pre-wean mortality rate of the deer farm calves was 16%, an increase from last year's value of 9%. However 7% of these deaths occurred in artificially-reared calves (see calf-rearing). The pre-wean deaths include 3 calves born dead. The incidence of calving dystokia at the deer farm and Lochhills was higher than in previous years, 6 hinds were assisted in calving with the subsequent loss of 2 hinds.

Calves were housed at weaning on 25th September and none of the fighting and associated deaths reported in previous years was recorded. Two calves died from self-inflicted injuries received in the pens at weaning.

#### DISPOSAL OF CALVES

16 females to Rowett Research Institute  
 3 stag calves to HFR0 headquarters  
 2 A/R stag calves for stock  
 57 Lochhills calves  
 25 N/R females on farm  
 28 N/R stags for inwintering experiment  
 5 calves returned from experiment at HFR0 HQ  
 13 calves on hill, to be weaned

#### 1978 - BORN HIND CALVES

On the 18 hind calves retained for stock replacement, one (No. K9) was housed over winter after becoming very thin. Her condition deteriorated slowly and she was euthanised in March. The post mortem was inconclusive. Three of the larger hinds were included in the Lochhills experiment in May, and the remaining 14 were summered on part of Hogg Park where they benefited from the good grazing. Of the surviving 17 hinds put to the stag, 10 produced calves, a larger number than had been expected. One hind (No. K13) died giving birth to a large calf. Two more hinds have since been added to the Lochhills experiment as replacements. The remaining 11 have rejoined the main group of hinds at the deer farm.

#### 1979 - BORN HIND CALVES

The 19 hind calves which were retained were summered on the reseeds with the stag calves. They were put to the stag on the reseeds this autumn as part of an experiment investigating the facilitation of oestrus. They are a very varied group; three poor calves having been deliberately retained to take part in the experiment. Their September weights range from 45 kg to 73.5 kg.

INWINTERING EXPERIMENT

Forty-eight calves were penned initially in 4 groups on different concentrate levels (250, 500, 750, 1000 g/head/day) with ad lib hay, similar to the previous year's experiment. During the course of the winter, each group was divided into two and the concentrate levels changed:

	<u>November 8</u>	<u>December 14</u>	<u>February 28</u>	<u>Turn out</u>
1	250 g/h/d	250 g	250 g	
		1000 g	250 g	
2	500 g/h/d	500 g	500 g	
			1000 g	
3	750 g/h/d	750 g	750 g	
			1000 g	
4	1000 g/h/d	1000 g	1000 g	
		500 g	1000 g	

On turn out at April, there was a 10.7 kg spread between the highest and lowest group. Before release they were blood-sampled as part of an RRI experiment to monitor copper and cobalt levels. They were summered on the reseeds, being gathered in early June for further blood sampling. Handling proved to be very difficult in the pens at the Upper Farm and only two-thirds of the calves were sampled. Some calves were given cobalt bullets and/or copper needles. The calves were also wormed in an attempt to prevent the growth check which had occurred the previous year at this time. In early September the calves were moved to East Greenshields. The blood samples taken at this time revealed very low copper and vitamin B12 levels, even in calves which had received cobalt bullets and copper needles.

The majority of these calves were slaughtered in late September. Sixteen have been retained for a study of second year growth rates. Fourteen of the 16 two year old stags retained from the previous year's experiment were also slaughtered at this time, the remaining 2 resisted repeated attempts to gather them and are still on the deer farm.

VENISON SALES

Price offered for a carcass in skin was 165p per kg. A total of 16 two year old stags and 25 yearling stags were slaughtered.

Detailed Muscular Dissection of Deer Carcasses

Detailed muscular dissections of deer carcasses were carried out at the Rowett Research Institute, using 2 yearling stags and 2 two year old stags from Glensaugh.

It was found that it was possible to dissect a greater number of carcasses in detail than was first planned within the limits of the available grant and consequently the programme has now been extended. The new target is: 3 two year old stags, 3 yearling stags, 2 six month stag calves, and one culled breeding stag.

MILK SAMPLES

Dr. McDougall again took milk samples from 4 weaned hinds for use in his study of milk.

STAGS

One adult stag (S8) was sent to the Rowett Research Institute to serve their yearling hinds.

CALF REARING

Calves were artificially reared at Glensaugh for the Highlands and Islands Development Board at Rahoy and for RRI, in all some 80 calves. In the second week of June a few calves developed diarrhoea and by the end of the month a series of deaths had occurred. Post mortem reports suggested gastro-intestinal inflammation resulting from infection. Deaths continued to occur despite different veterinary treatments and a meeting was held at Glensaugh on July 3rd to discuss the situation. Fifty-six of the 80 calves had scoured, bloated or been inappetant: 19 of these died. Faecal samples from sick and healthy calves sent to the Moredun had revealed the presence of Cryptosporidia in 15/23 cases. These organisms break down the brush border in the intestine, inhibiting absorption. Cryptosporidia had been identified in bovine calves at Glensaugh in 1979, when scouring and deaths had occurred.

LACTATION EXPERIMENT

Five hinds and calves and 3 artificially reared stag calves were sent to HFRO headquarters shortly after calving in June. They were used in a lactation experiment conducted by Dr. J.A. Milne (HFRO) and Dr. A. Loudon (Dept. of Natural Resources, Edinburgh University) and returned to Glensaugh in October. The 3 A/R stag calves were sent to the Moredun Institute.

FENCES

The state of the fencing is deteriorating with the result that only the Gaerlie and perimeter fence can be considered stock proof. It is no longer possible to hold separate groups of hinds on the Main and Upper Farm. The reseeded fences have suffered from fence walking by the hinds, particularly at calving time. This together with heavy rains, has caused considerable erosion along the fence lines. Serious erosion has occurred along the Panhandle/Stag Park fence line. Repairs have been made to the fence over the burn in Greenshiels which gets washed away during periods of heavy rainfall.

HIND DEATHS

One yearling hind (No. K9) was euthanised in March (see section '1978 - Born Hind Calves'). Two hinds (H45 and K13) died at calving; one (K13) was a two year old which died after an assisted birth, the calf was large and was presented with head and a foreleg back. The second hind, a six-year-old on the Lochhills experiment, suffered a breach birth and died the following day. The calf appeared to have been dead for some time prior to birth. One of the oldest hinds (A4) died in August from an acute form of enteritis.

VISITORS

A number of people visited the deer farm throughout the year; they included prospective deer farmers, students, professionals and Young Farmers' groups.

THE LOCHHILLS UPLAND SYSTEMS EXPERIMENT

Over the winter, plans were developed for a systems experiment at the Lochhills, formerly the Greyface wintering ground (8 ha), including Forestry Park (5.3 ha) and Hogg Park (4.3 ha). The systems experiment is concerned with the value to be obtained from the use of a hill resource of land in relation to upland pasture. Fences were erected during March and hinds selected from the H, J and K cohorts were brought down to the area from the deer farm on 5th May.

Two groups of hinds, group A and group B, were stocked at the rate of 10 hinds/ha, each group occupying equal areas of Forestry Park and Hogg Park. 2.5 ha of Hogg Park were reserved for the summering of this year's calves in 1981. Both groups received identical treatment through the summer. Group A was released to the hill area for the rut, while group B was held on the grass. Group B will be wintered on a small area of hill ground, without access to the main hill, being fed their entire nutritional requirements through the winter. By contrast, group A will spend the winter on the hill ground, being fed hay only when required in storm conditions.

Conservation

The Hogg Park areas of each group (Hogg Parks 1 and 2) were conserved on 10th June and the hinds transferred to Forestry Park. The yield was poor from the Hogg Parks and on 5th August the grass was cut for silage and not hay as had been originally intended.

Lochhills Conservation Data (kg DM/ha)

Date	Hogg Park 1	Hogg Park 2
Before Cut 5/8/80	2895	2975
After Cut 7/8/80	2310	1800
Amount Removed	585	1175

Measurements of herbage mass (kg DM/ha) were made throughout the summer, the results are shown as follows:-

Herbage Availability Estimates (kg/DM/ha)

DATE	HOGG 1	HOGG 2	HOGG 3	FORESTRY 1	FORESTRY 2
1/ 5/80	390	421		435	509
15/ 5/80	591	744	1090	685	940
29/ 5/80	1635	1695		2200	2175
13/ 6/80	Conserved	Conserved		1680	1320
26/ 6/80				1755	1895
9/ 7/80	3225	2515			
23/ 7/80				1265	1380
5/ 8/80	2895	2975	1050	1035	955
7/ 8/80	2310 (cut)	1800 (cut)			
20/ 8/80				1605	1810
2/10/80	1860	1620		715	690
17/10/80			3060		
10/11/80	260	1900	2150	500	1500

Pens

The Greyface fank was extended to provide a race with inspection hatches and holding pens similar to the handling systems at the deer farm. An electronic weighing machine has been included in the system. The pens proved to be very satisfactory at the wean and there were no injuries at all to the calves. In general the calves were noticeably less excitable and easier to handle than their contemporaries at the deer farm. This may be due to the increased contact with humans during the daily checks at the Lochhills.

Calving

In general the calves were strong and healthy; 2 assisted births and one abortion were recorded. One calf was rejected at birth and a few cases of misothering were noted; four hinds adopted a second calf. The high incidence of misothering may be a result of the shift from the heather grazings on the hill farm to a strange environment on the upland grazings so late in pregnancy. Calf hides had been built prior to calving. However these were promptly wrecked by the hinds and a sturdier model will have to be designed before next year. Weaning weights were higher than those recorded at the deer farm, with the heaviest calf (stag) being weaned at 58 kg. Birth weights and wean weights are given in the following table:-

Lochhills Birth and Wean Weights (Nos. in brackets)

Sex	Birth Weight (kg)		Wean Weight (kg)	
	Group A	Group B	Group A	Group B
Stag Calves	7.7 (12)	8.5 (17)	42.5 (9)	46.8 (13)
Hind Calves	7.5 (21)	7.7 (17)	39.9 (20)	39.8 (15)

Weaning % = 85

Sudden deaths occurred in apparently healthy calves at the Lochhills and the evidence suggests that they may have been associated with the cryptosporidia outbreak in the artificially-reared calves.

The Lochhills calves were housed at wean, with one group being released after two weeks to part of Hogg Park for late autumn grazing. All calves will eventually be on an inwintering experiment.

F. HARTWOODWEATHER

The weather at Hartwood remained fairly cold and wet over the winter with snow lying for limited periods, and this pattern continued into the spring, some hard, snowy weather developing at the beginning of the spring calving period. This was followed by a period of exceptionally dry, warm weather which facilitated the sowing of barley and oats. Thereafter the weather throughout the summer and autumn was extremely wet and various farm operations including harvesting were rendered difficult as a result. During late autumn and winter mixed periods of hard frost and milder but very wet weather occurred until mid-December.

CATTLE STOCKS

All experimental and non-experimental cattle were outwintered at Hartwood during the winter 1979-80. An additional 27 Hereford cross cows from Sourhope were wintered at Hartwood from 7th January till 30th April, where they were fed a ration of silage and high magnesium cake. Calving took place between 3rd February and 12th April 1980 and the mean birth-weight of calves was 40 kg. Daily silage and concentrate rations were 46 kg/hd and 1 kg/hd respectively.

The 23 Blue-Greys and 38 Hereford x Friesian cows, comprising the spring calving experimental herd, outwintered and calved on old pasture near Hartwood reservoir. The birth-weights of the Charolais cross calves, born between 27th January and 4th May, averaged 40 kg. Winter feeding consisted of silage and barley plus protein balancer, bought-in hay replacing silage during the last month of the winter. Daily silage and barley intakes were approximately 50 kilos and 2 kilos respectively for all adult stock. Five purchased calves replaced fatalities and calves born dead among this group. All calves were weaned on 8th October and their weaning weights are shown in the following table:

Spring Calves, 1980 : Weaning Weights on 8th October 1980 (kg)  
(numbers in brackets)

<u>Breed</u>	<u>Heifers</u>	<u>Bullocks</u>
Charolais x Hereford Friesian (38)	220 (17)	237 (17)
Charolais x Blue Grey (23)	214 (13)	218 (9)
Purchased calves	205 (1)	218 (4)

The herd was divided into two groups and each was run on fresh grass with a Charolais bull from 12th May till 26th June.

Cows and calves from this herd were on experimental grazings until 14th August when sward conditions necessitated their removal. Thereafter all stock was removed to better grazing including silage aftermath to improve body condition before the onset of winter.

Forty autumn calving experimental cows were kept at Hartwood over the winter, 1979-80, and were run with a Charolais bull between 19th February and 23rd March when he was removed due to lameness. A hired Charolais bull was then used from 31st March till 22nd April. Calf weaning took place on 8th May.

In order to increase the range of body condition of the cows for experimental purposes they were split into two groups, one on restricted grazing, the other on good grazing from 30th June till their departure for Glenshagh on 27th August and 3rd September.

A total of 75 spring born calves, mainly Charolais crosses, were also sent to Glensaugh for inwintering between 10 and 20th November, while 53 heifers and bullocks born in the autumn of 1979 were retained at Hartwood. These will be sold in forward store condition in February and March 1981.

Another group of 32 cows consists mainly of ex-Health Board dairy stock and other animals which do not serve as experimental stock. These cows include Friesian, Ayrshire and Hereford crosses. Two-thirds calved during spring and summer, the remainder being due to calve during the winter.

On 23rd October, the Hereford bull was introduced to 34 Friesian bulling heifers most of which had been on grazing trials at Glensaugh during the summer. These will be sold as in-calf dairy heifers during the coming year.

#### CATTLE OUTWINTERING

Extensive modifications to the Atcost loose housing unit have eliminated the possibility of keeping any cattle indoors at Hartwood during the winter of 1980-81. Consequently cattle have been allocated wherever possible to the old permanent pasture areas of the farm, these being considered more suitable to withstand the effects of outwintered cattle on heavy land. Cattle numbers at 30th November are given in the following table:-

#### Cattle Stocks at 30th November 1980

Cattle	Number
Experimental Spring Calvers	58
Ex-Health Board Cows	32
Friesian Heifers	33
Autumn (1979) born Stirks	53
Bulls	3

#### WINTER FEEDING

By the end of the first week in November grass was in short supply and the feeding of barley straw was started. Supplementary barley rations for the dairy heifers had by this time also been raised to 1.0 kg/head daily to improve condition, and a little barley was also being fed to other cattle where grass was severely limited. Feeding of silage began on 19th November. At the end of November all cattle were on full winter rations.

#### VETERINARY TREATMENT OF CATTLE

Some foot trouble was experienced among various classes of cattle stock throughout the season and much of this may be attributable to physical damage to clits from nails, broken glass etc. to be found in parts of roadside fields.

Summer mastitis has in the past been a considerable problem at Hartwood possibly connected with the high acreage of surrounding woodland and vets were called to deal with this problem on three occasions during the summer. Preventative measures including dry cow therapy and udder spraying may have helped to reduce the incidence and severity of this disease.

After prolonged and unsuccessful treatment for chronic lameness, the Aberdeen Angus bull was sold on veterinary advice for slaughter at Shotts on 27th May.

One experimental cow had to be slaughtered in April, having shown no response to an extreme mastitis infection, while another two cows associated with the grazing trial died suddenly during the summer. One cow had suffered acute peritonitis following a rupture of the spleen, intestine and abdominal muscle. While the P.M. report on the second was inconclusive, grass staggers could not be ruled out. As a preventative measure all cattle have been offered high magnesium minerals throughout the season and the experimental spring calvers received magnesium acetate by drip into the drinking water during the high risk period. Two calves, nine months old and six months old, died of acute pneumonia during the summer.

During the Brucellosis blood sampling test on 8th July, a group of 13 cows and 16 calves on experimental grazing were tested for blood copper levels. These were found to be within the normal range.

All calves were twice dosed for worms over the season while adult stock were dosed once. Dry cow therapy was applied at calf weaning and the entire stock over three months old was given warble fly treatment in early November.

#### SHEEP STOCKS

There were no sheep at Hartwood when the farm was taken over. Sixty-four cast and broken-mouth Greyface (GF) ewes were transferred from Glensaugh 18/10/79 and put to a Suffolk ram 3/11/79. One hundred regular age GF ewes were also transferred 5/11/79 and put to Dorset Down rams on that date. Twenty-five BF Wether Hogs were overwintered from 18/10/79.

Wintering of the ewes was over large areas of the farm due to lack of fences. Winter feeding was a hay and concentrate ration (the concentrate barley with balancer and latterly grass cubes).

Lambing commenced in the Nurses Home field 27/3/80 in very dry conditions throughout. Lamb sales commenced late July, most Hartwood lambs being sold fat from grass by the end of September. Thirty-eight Greyface Hogs were transferred from Glensaugh in September. Ewe stocks were increased by 71 regular age GF ewes from Glensaugh (18/9/80) and 169 GF gimmers purchases at Aberdeen (3/9/80) at an average £44.80.

716 and 192 lambs were received in August and September from Glensaugh and Lophinnore respectively to be sold fat from grass and subsequently rape; 200 are likely to be retained for sale in late winter.

The Greyface ewe stock is expected to number 495 for the winter of 1980/81 including 109 ewes transferred from Glensaugh in December 1980.

#### WINTER FEED

Silage: Generally wet weather predominated over the summer and it was decided to concentrate on silage making and buy in hay as required. The first cuts were started on 1st June and a total of 66.8 ha was ensiled over the month. 58 hectares of the area was recut in late July and during the first week in August, and it was estimated that altogether about 1400 tonnes were ensiled. Two dressings of high nitrogen fertiliser were applied at a rate of 188 kg/ha at each dressing supplying a total of 256 kg/ha.

CROPS

Crops grown during the year were:

Barley	63.0 ha
Oats	3.6 ha
Rape	4.5 ha
Potatoes	0.5 ha
Direct grass reseeds	14.4 ha
Undersown grass	47.16 ha

Barley/Oats: Sowing rates were 188 kg/ha for barley and 220 kg/ha for oats. Lime was applied at 5 tonnes/ha except to Playing field, Thorntree, Hayshed and Mossband fields which received no treatment. All fields other than West Blaeberry and the Minefield were undersown at 32.5 kg/ha with a mixture of S23 ryegrass and Huia clover in the ratio 10:1.

Harvesting was extremely difficult and prolonged due to excessively high rainfall and yields were reduced as a result. Estimated grain production was approximately 2.5 tonnes/ha. Harvesting was completed on 2nd November.

OPEN CAST MINING SITES

Springbank field (13.2 ha) was reseeded in the spring of the year by Scottish Agricultural Industries and was extremely successful.

Pollwood field (17.15 ha) has been subsoiled and will be reseeded in the spring of 1981.

IMPROVEMENTS AND DEVELOPMENT OF FACILITIES

Fencing: Some 20 km of new fences were erected during the year.

Ditches: A total of 2250 m of existing farm ditches were re-opened and made functional.

Cattle Accommodation

During October 1980, work was begun on alterations to the Atcost cubicle house to provide individual stances for 64 cow and calf pairs. Alterations included the removal of internal walls surrounding the silage area and the installation of five rows of stalls with an additional area for loose boxes. This shed will be used for winter nutrition studies in the autumn calving herd.

Extensive modifications to the bull pens were started in November. From the existing five pens, three will continue to accommodate bulls and the other two will be used for storage. Extensions to the pens and other features are being incorporated to ensure that handling of bulls will be as safe as possible.

Site preparation is being undertaken for a loose-housing shed which will hold the spring calving experimental group used for grazing studies. This new shed will be immediately to the east of the present shed and it is envisaged that the whole cattle unit will eventually include new silage pits, dry food storage and preparation equipment, slurry handling and storage facilities which will be built alongside the two sheds thus concentrating the entire cattle inwintering operation on the east side of the steading.

Housing: Two Norwood houses are currently being built, one at Roseshall for a shepherd and one at Ladylands for the farm Grieve, and an improvement programme covering electrical work, heating and bathroom fittings was carried out on four of the houses transferred from the Health Board.

Offices and Laboratories: An extensive programme of rehabilitation and improvement has been carried out to the buildings in the area adjacent to the old farm Manager's offices. The buildings on the left hand side and the top of the square, i.e. looking into the square, have been overhauled. These facilities, in addition to the Portacabin that has been transferred from Glensaugh should meet our immediate requirements for office/laboratory space.

Roadworks: New roads have been made to give better access to some areas of the farm without having to travel through the hospital grounds and other roads have been upgraded. Some 300 metres of new road has been laid and 920 metres of roadway overhauled.

Sheep Handling Facilities and Hard Stances: Small hard stances have been laid down on several sites and these will be used in connection with portable sheep handling equipment and/or winter feeding of sheep.

Electrical Supply: Originally the farm electrical supply came from the Hospital Board by private line. This has now been replaced with a supply direct from the South of Scotland Electricity Board.

Trees: Scottish Woodlands Owners Association carried out a survey of the shelter belts and roadside wooded areas that have been included in the transfer. All the dangerous trees have been removed and urgent tree surgery has been carried out.

#### STAFF

Mr. C.D. Kerr returned from the Falkland Islands to take the post of Sheep Manager at Hartwood in January.

Mr. R.A. Hetherington, formerly at Sourhope, took up the post of Cattle Manager on 1st April.

Mrs. Sandra Denham was appointed Clerical Assistant/Typist and started on 2nd June.

II. SUMMARY OF FLOCK RECORDS 1979/80A. GLENSAUGHTABLE 1Reconciliation of ewe numbers 1979/80

FLOCK	BREED	EWES + GIMMERS NOV 1979	CAST + CULL	DEAD		GIMMERS BROUGHT IN 1980	EWES + GIMMERS NOV 1980	HOGGS BORN 1980
				NO	%			
Cairn Birnie	BF	178	34	11	6.2%	68	201	75
	BF	198	50	9	4.5%	60(+9)	208	60
	<u>TOTAL</u>	376	84	20	5.3%	128(+9)	409	135
E. Finella	NCC	179	40	14	8.4%	34	159	40
	EF x NCC	-	-	-	-	33	33	30
	<u>TOTAL</u>	179	40	14	8.4%	67	192	70
M. Finella	BF	82	17	5	6.1%	26	86	30
	TEX x BF	32	7	1	3.0%	10	34	11
	BL x BF	39	9	2	5.3%	7	35	11
	<u>TOTAL</u>	153	33	8	5.2%	43	155	52
W. Finella	BF	71	18	4	5.6%	25	74	28
	TEX x BF	35	9	2	5.7%	11	35	12
	BL x BF	35	7	2	5.7%	8	34	10
	<u>TOTAL</u>	141	34	8	5.7%	44	143	50
Greyfaces "100" Cast BF	BL x BF	305	9	16	7.8%	-	109*	-
	BF	100	9' +72	19	19.0%	-	-	-
GRAND TOTAL		1254	9' + 272	85	6.8%	282 (+9)	1008	309

171 Greyface ewes transferred to Hartwood in September 1980

\*109 Greyface ewes were transferred to Hartwood on 10/12/80

'To Birnie

(+9) refers to Cast Ewes.

TABLE 2

## WEANING PERCENTAGE AND LAMB LIVEWEIGHTS

FLOCK	EWE BREED	EWES TO TUP	LAMBS WEANED			WEANING WTC	
			1980		1979	SINGLES	TWINS
			NO	%			
Cairn	BF	178	188	105.6%	101.6%	28.86	23.59
Birnie	BF	198	225	113.6%	118.2%	30.28	26.47
East Finella	NCC	179	203	113.4%	109.9%	27.82	23.89
Mid Finella	BF	82	105	128.0%	110.0%	35.10	28.59
	TEX x BF	32	48	150.0%	134.4%	35.62	32.60
	BL x BF	39	70	179.5%	156.2%	40.75	30.47
	TOTAL	153	223	145.7%	125.7%	35.72	30.05
West Finella	BF	71	82	115.5%	109.8%	30.46	26.00
	TEX x BF	35	45	128.6%	131.4%	32.12	27.71
	BL x BF	35	51	145.7%	183.8%	33.50	26.85
	TOTAL	141	178	126.2%	131.1%	31.68	26.65
Greyfaces	BL x BF	200	334	167.0%	138.56%	35.64	26.30
"100" Blackfaces	BF	100	97	97.0%	-	32.10	28.21

TABLE 3

## LIVEWEIGHT (kg) OF SHEEP -- NOVEMBER 1979 and 1980

FLOCK	BREED	EWES		GIMMERS		HOGGS	
		1979	1980	1979	1980	1979	1980
Cairn	BF	58.45	59.71	52.95	52.66	34.38	31.64
Birnie	BF	58.22	58.58	55.33	50.33	35.60	33.73
E. Finella	NCC	65.09	65.67	58.17	56.71	36.01	32.32
	EF x NCC	-	-	-	57.20	35.18	32.38
M. Finella	BF	71.66	64.40	61.62	56.59	31.92	32.13
	TEX x BF	70.31	62.90	62.36	56.85	35.35	36.36
	BL x BF	73.57	66.59	66.54	59.86	36.81	31.80
W. Finella	BF	63.07	59.66	54.35	48.31	28.81	29.61
	TEX x BF	66.40	61.42	54.80	53.27	33.09	31.20
	BL x BF	69.85	63.35	54.69	54.75	32.83	33.04
Greyfaces	BL x BF	65.13	72.85	77.86	-	-	-

B. LEPHINMORETable 1. Reconciliation of Ewe Numbers 1979-80

Hirsel	Ewes + Gimmers Nov. 1979	Cast	Deaths*	Gimmers brought in	Hoggs 1980	Ewes + Gimmers Nov. 1980
Barnacarry/ Feorline	273	43	13 (9)	56	76	273
Mid Hill	447	89	35(21)	122	122	445
Low End	360	67	36(18)	79	92	336

\* incl. Black Loss.

Table 2. Weaning Percentages

Hirsel	Ewes + Gimmers to Tup	Lambs Weaned %			Weaning Weights (kg)	
		Total	1980	1979	Singles	Twins
Barnacarry/ Feorline	273	215	78.8	71.0	27.9	29.0
Mid Hill	447	365	81.7	91.7	25.8	24.6
Low End	360	262	72.8	84.5	27.6	23.9

Table 3. Weights of Ewes, Gimmers, Hoggs (kg) 1979-80

Hirsel	Weight of Ewes		Gimmers		Hoggs	
	Nov. 1979	Nov. 1980	Nov. 1979	Nov. 1980	Nov. 1979	Nov. 1980
Barnacarry/ Feorline	50.1	47.0	45.1	40.5	27.8	28.6
Mid Hill	49.5	49.1	43.4	43.0	24.3	23.9
Low End	49.0	52.9	43.1	45.0	26.3	-

C. SOURHOPETable 1. Reconciliation of Ewe Numbers 1979-80.

Heft	Ewes and Gimmers Nov.1979	Draft and Cast Ewes	Deaths	Gimmers brought in	Hoggs Nov. 1980	Ewes and Gimmers Nov.1980
<u>S.C.C.</u> Fasset	185	49	9	54	51	181
<u>S.C.C. x N.C.C.</u> N.E.H.L./Auchope	631	138	17	173	157	649
<u>N.C.C.</u> Park Law	148	18	4	38	34	164
<u>BLACKFACE</u>						
Rigg	264	54	5	61	74	266
Gairs	271	54	9	64	70	272
Alderhope	269	57	8	62	74	266
Banks	340	70	14	82	90	338
Total B.F.	1144	235	36	269	308	1142
FLOCK TOTAL	2108	440	66	534	550	2136

Table 2. Wether Stock November 1980.

Year of birth	1975	1976	1977	1978	1979	1980
S.C.C.	20	26	23	30	31	33

Table 3. Weights of Ewes Gimmers + Hoggs

Heft	EWES		GIMMERS		HOGGS	
	November 1979	November 1980	November 1979	November 1980	November 1979	April 1980
Rigg B.F.	58.0	56.1	53.0	51.2	33.8	36.3
Gairs B.F.	59.4	58.1	53.2	54.2	36.3	36.5
Alderhope B.F.	57.6	61.2	54.1	55.2	34.3	35.4
N.E.H.L./Auchope NCC x SCC	59.8	62.9	52.9	51.6	37.5	35.7
Park Law N.C.C.	59.6	62.8	54.7	56.5	35.7	37.5

Table 4. Weaning Percentages and Lamb Liveweights

1979/80

Hft	Ewes to Tup	Lanbs Weaned		Weaning Weights		
		Total No.	Percentage		Singles (kg)	Twins (kg)
			1979	1980		
N.E.H.L./Auchope SCC x NCC	631	746	113.3	118.2	26.6	25.5
Park Law NCC	148	161	115.1	108.1	27.7	24.5
Total NCC (+ SCC x NCC)	779	907	113.7	116.3	26.8	25.4
Fasset SCC	185	167	96.9	90.3	-	-
Rigg B.F.	264	321	120.8	121.6	28.5	27.7
Gairs B.F.	271	352	130.4	129.9	32.9	25.8
Alderhope B.F.	269	346	115.0	128.6	29.7	25.6
Banks B.F.	340	398	110.9	117.0	-	-
Total B.F.	1144	1417	118.2	123.7	30.2	26.3
FARM TOTAL	2108	2491	114.6	118.1		

D. HOUSE O' MUIRTABLE 1Reconciliation of Ewe Numbers 1979/80

Ewes & Gimmers Nov. 1979	Cast Ewes culled	Deaths	Gimmers brought in	Ewes & Gimmers Nov. 1980
500	87	18	131	526

TABLE 2Weaning Percentages

Group	Ewes to Ram Nov. 1979	Lambs Weaned			
		1980		1979	
		Number	Percentage	Number	Percentage
Normal hill stock	398	455	114.3	483	128.5
Lactation study group	80	119	148.7	133	166.3
Long term Copper study	22	25	113.6	28	112.0
All groups	500	599	119.8	644	133.9

E. RED DEERTable 1. Reconciliation of Stock Numbers 1979-80

STOCK	No. at 1/11/79	Additions			Reductions			No. at 1/11/80
		Age Transfer	Calves Born	Purchases	Deaths	Sales	Age Transfer	
Mature Stags	12	9	-	-	-	-	-	21
Pricketts	9	18	-	-	-	16	9	2
Young Stags	18	49	-	-	-	25	18	24
Stag Calves	61	-	81	0	22	11	49	60**
Haviers	0	-	-	-	-	-	-	0
Mature Hinds	177	-	-	-	3*	-	-	174
Jinnocks	1	16	-	-	-	1	-	16
Young Hinds	18	19	-	-	2	-	16	19
Hind Calves	68	-	96	-	13	64	19	68**
TOTALS	364	111	177	-	40	117	111	384

\* Includes one escape.

\*\* Includes 13 estimated 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	Deaths Birth/Wean N/R Calves	No. of Weaned Calves	% Weaned
MAIN FARM (Hinds born 1970, 71, 72, 73)	87	85	2	11	7	4	72 <sup>+</sup>	83
UPPER FARM (Hinds born 1974, 75)	77*	76	3	8	0	6	67 <sup>+</sup>	88
Hinds born 1978	18	10	1	0	0	2	7	70
Spare Hinds	8	6	0	2	0	1	5 <sup>+</sup>	83

<sup>+</sup> Includes 13 estimated on hill 1/11/80

\* Excludes 3 hinds not recovered.

RED DEERTable 3. Liveweights of Breeding Hinds (Nos. in brackets)

	Hinds Born	Weight Sept. 1979	Weight Feb. 1980	Weight Sept. 1980
MAIN FARM	A 1970	84 ( 5)	83.9 ( 5)	84 ( 4)
	B 1971	83.1 (42)	81.9 (41)	84.4 (38)
	C 1972	82.8 (22)	81.0 (21)	86.5 (20)
	F 1973	75.4 (16)	73.2 (17)	77.8 (14)
UPPER FARM	H 1974 (1)	76.3 (16)	74.0 (19)	81.2 (17)
	H 1974 (2)	79.8 (25)	78.6 (24)	90.3 (24)
	J 1975 (1)	76.5 (18)	75.9 (17)	88.7 (16)
	J 1975 (2)	76.4 (15)	74.6 (16)	87.1 (16)
	K 1978		65.1 (17)	72.7 (16)

(1) Homebred stock naturally reared.

(2) Bought in stock artificially reared.

Table 4. Weaning Weights of Calves (Nos. in brackets)\*

SEX	SEPT. 1979	SEPT. 1980
Stag Calves	36.4 (53)	41.6 (27)
Hind Calves	35.1 (62)	37.0 (28)

\* Excludes 23 calves on hill and artificially reared calves.

## F. HARTWOOD

Table 1. Reconciliation of Ewe Numbers 1979/80

GREYFACES	Ewes November 1979	Cast and Cull	Deaths	Gimmers bought in 1980	Ewes transferred ex. Glensaugh	Ewes and Gimmers Nov. 1980
	164	7	11	169	71	336

Table 2. Weaning Percentages  
1980

	Ewes Mated	Lambs Weaned %
Greyfaces (BM)	64	106
Greyface	100	138

Table 3. Wether Stock  
1980

Year of Birth	1979
Blackface	19

Table 4. Live-weight (kg) of Ewes and Gimmers

	Nov. 1979	Oct. 1980
GREYFACES		
75 age	78.2	67.7
76	69.5	64.3
77	64.1	64.3
78		62.3
79(Gimmers)		66.5

Table 5. Disposal of Fat Lambs

	On Station	Additions	Sales	On Station
July	204	0	20	184
August	184	302	40	446
September	446	605	208	843
October	843	0	98	745
November	745	0	274	471
Miscellaneous disposals and losses				-25
				446

- (1) Some 754 store lambs including 38 Glensaugh bred Greyface ewe lambs were transferred to Hartwood in September 1980.
- (2) A total of 191 small BF store ewe and wether lambs were transferred from Lephimore to Hartwood in September 1980.