

Not for publication

H.F.R.O. 205

HILL FARMING RESEARCH ORGANISATION

FARM REPORTS AND SUMMARY OF FLOCK RECORDS

1974

C O N T E N T S

	<u>Page No.</u>
I. FARM REPORTS	
A. GLENSAUGH	1
B. LEPHINMORE	6
C. SOURHOPE	10
D. HOUSE O' MUIR	17
II. SUMMARY OF FLOCK RECORDS FOR 1973-1974	19

## I. FARM REPORTS - 1974

### A. GLENSAUGH

#### Weather

Glensaugh has now ceased to operate as a weather station and it is no longer possible to give a full detailed report.

Generally speaking after a mild but wet winter it was a reasonably good stock year, but broken wet weather made hay making a rather long drawn out operation and the traditional harvest months of August and September were very poor.

#### SHEEP

##### Greyface

The research programme on the upland sheep flock was properly under way in 1974. The flock was split into four sections:-

- a) Early lambing - heavy stocking;
- b) Early lambing - light stocking;
- c) Late lambing - heavy stocking, and
- d) Late lambing - light stocking.

Dorset Down Rams were used throughout and were put to the early lambing groups in October and with the late groups in November.

Full details of this work is the subject of a separate report and for the purposes of the general farm report, production and other figures are given for the flock as a whole.

Winter feeding of the Greyface flock consisted of hay and concentrate. The amounts fed were determined by blood sampling.

Feed costs were as follows:-

Early lambers: Concentrates (2.3 cwt per head) and hay (1.5 cwt per head) at a total cost of £10.85.

Late lambers: Concentrates (1.7 cwt per head) and hay (1.8 cwt per head) at a total cost of £9.

##### Blackface and Cheviot

The Blackface and Cheviot rams were put with the ewes on the 17th November on Finella and on the 20th November on Cairn and Birnie. Texel rams were again used on a proportion of Finella Blackfaces, and for the first time we had a small number of Blackface/Texel cross gimmers mated with the Dorset Down on West Finella. In addition a further group of Finella Blackface ewes were mated to the Border Leicester ram to provide a further genotype for future years.

The weather was fairly good for the first 12 days of mating but in December it became much wetter. Despite this mating went well and on Finella particularly a high proportion of ewes lambed in the first 17 days of the lambing period.

Winter and spring feeding was hay and concentrate on Cairn and Birnie (levels determined by blood analysis). Feeding commenced on 6th February and was based on sugar beet pulp nuts (17.5 lbs per head) and a protein concentrate (35 lbs per head) and hay (98 lbs per head) at a total cost of £3. For the second year silage formed the greater part of the roughage fed on Finella. Concentrates on Finella started at 8 oz per head and increased to 18 oz in the last week of pregnancy and early lactation.

The ewe hoggs from Finella were wintered in the usual way on kale, hay and bruised oats. The ewe hoggs from Cairn and Birnie were inwintered from 27th December to 26th April and fed on hay and an equal mixture of bruised oats and 16% concentrate at a total cost per head of £4.15.

### Finella Ewes

Because of expected high production all ewes on Finella were fed silage from 1st February 1974. There are no facilities for weighing silage but it was estimated that approximately 5 lb per head per day was fed for a period of 50 days and was then replaced with 1 lb hay per head for a further 35 days. Concentrate feeding was introduced (16% nut) on 13th March starting at  $\frac{1}{2}$  lb per head per day rising gradually into lactation. In all 48 lb concentrate per head was fed.

### Costs

#### Home grown roughage

250 lb silage at £3 per ton .....	£0.34
35 lb hay at £20 per ton .....	0.32

#### Concentrate

48 lb conc. at 3.2p per lb .....	1.53
----------------------------------	------

Total	£2.19
-------	-------

### Lamb Production

As will be seen from the attached tables the lambing figures for Finella and the Greyface flock were very satisfactory in spite of the incidence of Toxoplasmosis in the Cheviots.

The figures for Cairn and Birnie were disappointing but perhaps in line with ewe weights and body condition.

The cobalt problem was again with us and a detailed experiment has now been set up to examine this matter and results will be given separately.

The general treatment of the ewes was as in the past and carried out in accordance with veterinary advice.

Ewes and lambs from the Cairn and Birnie were summered on the high production areas as part of the year round grazing system and the lambs were much better than in the past at weaning time (Cairn and Birnie work will be the subject of a separate report).

In all 1330 lambs were marked and of these 1291 were weaned.

Disposal of lambs

Ewe lambs retained for stock	299
Lambs to HFRO research	35
Lambs sold store	714
Lambs sold fat	127
Lambs still on hand from cobalt expt.	28
Deaths since weaning	21
Other lambs still on hand at 31/12/74	67
	<hr/>
	1291
	<hr/> <hr/>

Prices

There was a very definite downward trend in store lamb prices in 1974 particularly in the smaller second draw lambs where prices in the region of 50% of 1973 figures were attained. Dorset crosses sold store to a top of £11.15 and averaged £10.58. Blackface lambs to a top of £8.45 averaged £6.74. Cheviot lambs to a top of £10.25 averaged £10.05. Cheviot ewe lambs £8.15. Blackface Texel crosses to a top of £11.15 averaged £9.51. Blackface Leicester crosses to a top of £10.65 averaged £9.10. Out of the third draw of lambs which had been on rape, 115 have been sold fat some at the end of October and the balance at the end of November. These were mostly small Blackfaces and Cheviots and have averaged £9.87, less headage charges of about 10p per head.

Wool

After deducting VAT and interest the value of the wool clip was up at £1809.54. This was partly due to an increase in sheep numbers and partly due to a better clip all over.

1974 .....	£1809
1973 .....	£1524
1972 .....	£1507
1971 .....	£1308

Sheep (General)

Some existing fencing on Cairn, Birnie and Finella has been renewed and less trouble has been experienced in keeping hirsels separate. The main problem on Birnie and Cairn is now the water gates on the dividing burn.

CATTLE

The cattle research programme was fully under way in 1974. All cows were taken into the shed 12 weeks before parturition and were fed controlled rations on varying planes of nutrition from a calculated 75% maintenance of non-pregnant animal up by eight stages to full maintenance of a pregnant animal at full term. This range of pre-parturition feeding had little effect on calf birth weights on subsequent milk yields.

A lactation study was carried out on selected cows from breed type and feed groups for a period of 22 weeks after calving.

Calf scour mainly of a nutritional type continued to be a problem and the ration for the current year has been altered and to date this seems to have been effective.

It was intended to wean the calves when the cows went out of the shed but this policy was changed in the hope the continued suckling would help to combat summer mastitis. This practice, together with teat plugging and regular udder spraying after the calves were weaned, seems to have been successful and no new cases of mastitis occurred.

In an attempt to shorten the calving period, two vasectomised bulls were used to detect oestrus and a certain amount of oestrus synchronisation was practised. Despite this, the calving period is again becoming prolonged and the number of unsettled cows is too high. Next year it is hoped to use a different technique of oestrus synchronisation and to use a live bull to follow up artificial insemination.

Calf prices throughout the year have been disappointing especially in any calves below the 5 cwt mark. The following tables give an indication of the price trend.

Balance of last year's calves

Laurencekirk Sale 16/2/74

Number	Type	Pre Sale Wt (lb)	Price
2	x Hereford (M)	588	£108.50
2	x Hereford (F)	588	£ 97.50
2	x Hereford (F)	560	£ 84.50

Laurencekirk Sale 30/3/74

Number	Type	Pre Sale Wt (lb)	Price
1	x Hereford (M)	550	£107.50
1	x Hereford (M)	550	£ 92.50
3	x Hereford (F)	578	£101.50

Current Season's Calves

Laurencekirk Sale 12/10/74

Number	Type	Pre Sale Wt (lb)	Price
5	x Hereford (M)	672	£103.50
1	x Hereford (M)	700	£117.00
1	x Friesian (M)	728	£ 81.50
3	x Hereford (F)	588	£ 77.00

Edzell Sale 19/10/74

Number	Type	Pre Sale Wt (lb)	Price
1	x Hereford (M)	728	£119
6	x Hereford (M)	672	£ 99
1	x Friesian (M)	756	£ 85.50
3	x Hereford (F)	616	£ 86.50
1	x Hereford (F)	616	£ 69.00

Edzell Sale 2/11/74

Number	Type	Pre Sale Wt (lb)	Price
3	x Hereford (M)	550	£72.50
2	x Hereford (M)	522	£58.50
3	x Hereford (F)	522	£53.00

Twenty-seven calves are still on hand and will be sold in January and February 1975 when they come up to the 600 lb mark as the return on calves of this weight appears to be much better than on the lighter weights.

Cropping 1974

Kale .....	6 acres	Hay .....	78.0 acres
Turnips ....	2 "	Silage ....	22.0 "
Rape .....	12 "	Grazing ...	214.0 "
	<hr/>		<hr/>
	20 "		314.0 "
	<hr/>		<hr/>

Once again the kale crop was drilled directly into the old sward and was very successful. Two acres of yellow turnips were also treated in the same way but from results obtained it appears too much seed was sown and the bulbs are on the small side.

For the first time rape was dealt with in the same way and a very good crop was obtained.

A second-hand double chop forage harvester was purchased this year and the resultant silage is a definite improvement on previous years.

The hay crop was heavy but wet weather made the hay harvest a long drawn out operation. Once again the Lister hay drier proved very useful.

Heather Burning

Some 40-50 acres of heather was burned at the back of the Loch Hills area and this should help to draw sheep out in future years. Only one break on the Cairn Hill was burned in 1974.

It is hoped in 1975 to use a heather cutter to assist in forming fire breaks and so enable us to cover more ground in the burning season.

Fencing

Some 2750 yards of new fencing were erected in 1974 and repairs carried out to a further 1500 yards. Some contract fencing was erected in connection with the cobalt experiment.

Shelter Belts

No planting was carried out in 1974.

Farm Buildings

Work has just commenced on the new implement/straw/feed building and it is hoped this will be completed in early 1975.

Some minor alterations have been carried out in the old standing by farm labour to facilitate stock handling.

Farm Hostel

Plans have now been prepared for the alterations to provide two flats and it is hoped this work will begin in 1975.

B. LEPHJNMOREWeather

January 1974 saw a continuation of the rain and wind experienced in December, 1973, and 13.3" of rain was recorded over the month. February brought little improvement until mid-month but thereafter some growth of grass was apparent in a mild last week. March turned cold with snow lying above 800 ft; the second half of the month was sunny and warm but cold on the hill with east winds. April was dry and sunny and lambing was got through under excellent conditions although grass was scarce due to the prolonged dry spell. May was mixed, but on the whole a good month for stock with 'growthy' weather in the last week. June was cold with heavy rain at times and remained unsettled until the last ten days which were warm and sunny with temperatures occasionally reaching the high 70's. July was mainly overcast with heavy rain at times and August saw no improvement. September, if anything, was worse than August, but the first three weeks of October brought the best spell of weather since the end of June. Almost continuous rain throughout November and December gave a prolonged relatively mild spell with only occasional days of either snow or hail.

Rainfall 1974

	<u>Inches</u>	<u>m.m.</u>
January	13.31	338.0
February	7.68	195.1
March	3.63	92.2
April	0.27	6.8
May	4.74	120.4
June	2.90	73.7
July	6.10	154.9
August	4.87	123.7
September	6.44	163.6
October	3.88	98.5
November	8.90	226.1
December	12.24	310.9
	<hr/>	<hr/>
Total	74.96	1903.9
1973	63.78	1620.0

Sheep

After the harsh conditions of December 1973 and January 1974, the out-wintered stock were lean and supplementary feed was offered to Midhill gimmers on 20th February and to the ewes on 26th February, i.e. 2 weeks earlier than normal. Barnacarry ewes were offered Rumevite blocks on 5th March and came to lambing in fairly strong condition. Midhill ewes as usual carried little flesh but the majority were in fit condition although some 8 - 10% gave cause for concern. Excellent and exceptional lambing weather undoubtedly reduced lamb losses considerably.

The wet summer and autumn resulted in a fairly high incidence (15 - 20%) of wool rot mainly in the Midhill stock and of these about 50% were struck by fly in mid-September.

Ewe condition this autumn is again not up to standard due to the adverse weather conditions prevailing since June, but lamb growth and condition was better than could have reasonably been expected.



Due to a high number of tup eild ewes on Low-End the overall weaning percentage was down to 87.

Figures for previous years were:-

1973	97%
1972	97
1971	96
1970	82
1969	87
1968	70
1967	80

Approximately half of Barnacarry ewes were tupped with rams of the Westphalian breed. The resultant x lambs and their dams were lambed and summered on the arable ground and the lambs consigned to Bush Estate after weaning. As in 1973 the Midhill and Low-End wether lambs and surplus ewe lambs were sent to Bush for fattening on rape and grass. Of those 90 were sold store in October at £2.50 per head and by December 189 lambs had graded out at around 33 lbs dead wt., averaging just over £10 per head before deduction of handling charges.

28 Barnacarry 'top' wether lambs were sold at Stirling on 2nd October at £6 per head. For the first time in many years the regular draft ewes were sold in the open market and 50 fetched £3.20 per head. Ninety draft and cast ewes were consigned to Glensaugh for research purposes.

#### Hogg Wintering

As in previous years, Barnacarry ewe hogs were grass wintered at Point Farm, Ardlemont, at a cost of £2.50 per head, exclusive of transport charges (30p. per head). Midhill hogs were home wintered at grass with a supplementary feed cost of £2.50 per head approximately. Low-End hogs were home wintered and housed from 27th November until 23rd March when they returned to the hill. During housing a ration of  $1\frac{1}{2}$  lbs. hay plus 2 oz. rising to 4 oz. concentrates was offered and 8 oz. concentrates on the hill until 6th April, at an overall cost of £4.11 per head.

Hay valued at £40 per ton, concentrates at £70 per ton.

#### Hill Cattle

Winter feeding of the 12 August/September calving cows began on 5th November and by 11th November a full ration of 15 lb. oat straw, 15 lb. draff and 4 lb. rolled barley was being fed. Feeding stopped on 16th April when the cows returned to Barnacarry hill after weaning. A total per cow of 6 cwt. hay,  $14\frac{1}{4}$  cwt. straw, 8 cwt. draff,  $2\frac{1}{2}$  cwt. rolled barley and  $2\frac{1}{4}$  cwt. Cow cobs was fed at a cost of £39 per head.

The 12 calves running at foot were creep fed from 10th November receiving  $4\frac{1}{4}$  cwt. hay plus 3 cwt. concentrates at a cost of £18 per head. Nine were sold to House o' Muir on 7th May at £65 per head.

Winter feeding of the 20 January calving cows began on 22nd November and continued until 21st May. A total of 18 cwt. hay, 7 cwt. straw, 18 cwt. draff,  $1\frac{3}{4}$  cwt. rolled barley and 1 cwt. hill cow cobs was fed at a cost of approximately £57 per head.

Of the 20 Luing x calves reared to weaning, 10 bullock calves were sold at Dalmally on 18th October to a top of £56 and averaged £52 per head. Three heifer calves realised £29 per head, a drop on 1973 prices of £26 and £41 per head for bullock and heifer calves respectively. Five heifer and two bullock calves are being overwintered as are two white heifers born in 1973 with poor vision. Two cows died during the winter, one by accident on the hill and the other with water dropwort poisoning. A third cow died in November 1974 on the hill.

Hay valued at £36 per ton; straw at £12.50 per ton; draff at £12 per ton; barley at £65 per ton; hill cow cobs at £69 per ton.

#### Calf Weaning Weights

	September 1973			September 1974		
	No.	Wt.(lb.)	Wt.(kg.)	No.	Wt.(lb.)	Wt.(kg.)
Heifers	12	394	179	9	438	199
Bullocks	9	455	207	9	495	225

  

	May 1973 A.A. x			May 1974 Luing x		
	No.	Wt.(lb.)	Wt.(kg.)	No.	Wt.(lb.)	Wt.(kg.)
Heifers	7	396	180	4	367	167
Bullocks	3	400	182	5	391	178

#### Hill Cows (Sh. x Sh. x High) - Jan. - Feb. calvers

	October 1973			October 1974		
	No.	Wt.(lb.)	Wt.(kg.)	No.	Wt.(lb.)	Wt.(kg.)
	19	961	437	19	988	449

#### Herd Reconciliation

<u>Born</u>	<u>Oct. 1973</u>	<u>Deaths</u>	<u>Sales</u>	<u>Oct. 1974</u>
1968	10	1	-	9
1969	10	-	-	10
1970	13	2	-	11
	33	3	-	30
1973	4	-	-	4

#### Arable Ground

Fields 5 N and 4 were cut for hay commencing on 24th June. Owing to a combination of heavy grazing, drought conditions in April and a cold spell in June, crops were light and approximately 18 tons of hay was made from 13½ acres and barn dried at a cost of £1.75 per ton (electricity only).

Fields 3, 4, 5N, 5S and 7 were given a dressing of 30 cwt. per acre ground limestone.

#### Heather Burning

No burning was carried out in Spring 1974, because of the extremely dry conditions and the prevalence of east winds.

### Fencing

Approximately 600 yd. of the Midhill and Low-End march fence with Glendaruel was replaced in the late summer using  $12\frac{1}{2}$  g. high tensile wire.

The eight acres resceded in PI in 1973 adjacent to the Garrine forest plantation was partitioned off using a four wire electrified fence but this has not proved satisfactory.

The double fence enclosing the old domestic water supply burn was replaced with a single rylock and stob fence allowing access to the burn from the tup park.

A further cattle wintering area has been secured at the south end of the farm by leasing a poor tree growth area on the forestry plantation from the Forestry Commission. In conjunction with a feeding site on the beach the area will provide much needed shelter over the winter. The triangular area bounded by the main road and the hill road has also been leased and will be used when required.

The Barnacarry/Feorline project has progressed to the extent that the march fence is now completed. It is hoped that the Forestry Commission will have the Barnacarry cross fence erected before the Spring.

### Steading

The yard, laboratory and hostel surrounds were tar sealed using  $\frac{3}{8}$ " chip to an overall depth of 2".

A garage was erected adjacent to the house occupied by the resident Scientific Officer.

C. SOURHOPEWeather 1973/4

Once again the weather during the winter months was open, with little snow, although January was very wet with almost 6" of rain. The weather at lambing time this year was much more favourable apart from one cold wet weekend which accounted for the loss of a number of lambs. Dry weather on the whole persisted throughout April, May and June, which resulted in the growth of grass getting a late and slow start. Rainfall during the autumn has been very high, with almost 6" during October and more than 4" during November. After the previous year being much drier than average this year's rainfall overall was nearly up to the average again with a total of 34.7".

Weather records 1973/74

All weather recording except rainfall was discontinued on February 28th 1974.

Rainfall 1973-74

<u>Month</u>	<u>Rainfall</u> (mm)
<u>1973</u>	
November	23.6
December	67.2
<u>1974</u>	
January	148.5
February	95.0
March	60.0
April	43.7
May	36.8
June	44.5
July	72.5
August	58.7
September	81.6
October	150.4
Total	882.5
	<u>34.6 inches</u>
<u>1974</u>	
November	107.3
December	77.2

SHEEP

The majority of the ewes, with the exception of those of the South Country Cheviot breed, entered the winter in leaner condition than in the previous year. Overall pre-tupping weights of North Country Cheviot, Blackface and South Country Cheviot ewes and gimmers were on average 5.7, 2.4 and 0.6 kg. lighter respectively. Feed requirements of outwintered sheep were hence higher though final inputs remained below the level reached in 1971/72. In the case of the sheep of Project I, 150 of the leaner gimmers and 1 crop ewes were fed separately from the main flock and at a higher rate. A total of 66.4 lbs dry matter (hay, beet pulp and concentrates combined) was fed on average to all outwintered ewes at a cost of £1.73, compared with 58.6 lbs at a cost of £0.96 in 1972/73. With the average feed cost

of the 1551 outwintered ewes at £1.73, the range for individual hefts was from £2.37 to £1.02. The average feed cost for outwintered ewe hoggs was £1.23 per head, compared with £0.80 the previous year.

The Rigg and Gairs ewe stock was again inwintered with no problems being encountered, the hoggs coming into the shed on the 21st January and the ewes on the 30th January. A total of 162.9 lbs dry matter on average was fed to the ewes at a cost of £3.18 per head, compared with 196.7 lbs at a cost of £2.31 in 1972/73. For the inwintered ewe hoggs the feed cost was £2.08 compared with £1.38 for 1972/73.

Some feed data for both inwintered and outwintered sheep is shown in the following table, the feed items being costed as follows: (1972/73 prices in parentheses) Hay £30 per ton (£17), Sugar beet pulp cubes £50 per ton (£30), Concentrates £70 per ton (£50), Grass cubes £59 per ton (£35), ewe and lamb food £80 per ton (£50).

Ewe Feed Data

	Period	Hay (lb)	Sugar beet pulp cubes (lb)	Concen- trates (lb)	Average cost per ewe
Outwintered ewes and gimmers	Storm feed (i.e. feed to 17/3 incl.)	3.2	24.0	-	£0.59
	Pre-lambing feed (i.e. feed from 18/3 to 17/4 incl.)	-	10.4	14.2	£0.68
	Post-lambing feed (i.e. feed from 18/4 incl. that fed to twins)	-	-	14.6	£0.46
	TOTAL	3.2	34.4	28.8	£1.73 (£0.96)*
Inwintered ewes and gimmers	Pre-lambing feed (i.e. feed to 17/4 incl.)	86.4	35.8	29.2	£2.82
	Post-lambing feed (i.e. feed after 18/4 incl. that fed to twins)	-	-	11.5	£0.36
	TOTAL	86.4	35.8	40.7	£3.18 (£2.31)*

In addition to the above feed inputs a total of 94½ gallons of Promax (@ 33p per gallon) was fed to the Park Law ewes and gimmers (total number 172) at a total cost of £31.19 (£0.18 per ewe). Fifty-eight gallons of this was fed during the "storm" period and 36½ gallons during the pre-lambing period (£0.11 and £0.07 per head respectively). This adds £0.02 to the total feed cost per head of all outwintered ewes and gimmers. By the use of marker blocks situated at the Promax feeding sites it was found that only 122 ewes out of 172 were taking up Promax after having had access to it for six weeks. It is hoped to get more detailed information on the feeding of Promax to sheep this coming winter.

HOGG Feed Data

	Hay (lb)	Ewe and lamb food (lb)	Grass cubes (lb)	Sugar beet pulp cubes (lb)	Concen- trates (lb)	Average cost per hogg
Outwintered hogs	4.0	2.2	20.2	25.5	-	£1.23(£0.80)*
Inwintered hogs	75.0	1.0	5.0	5.0	27.4	£2.08(£1.38)*

\* The figures in parenthesis are for 1972-73

Total expenditure on feed for all outwintered sheep, including ewes, ewe hogs, wethers and tups, expressed per outwintered ewe to the tup was £2.39 compared with £1.37 for the previous year.

While the ewes, with the exception of Rigg and Gairs, joined the tup in much poorer condition than in 1972 their weight loss over the tupping period was not as marked as it was the previous year. On the basis of faecal samples taken for fluke and worm egg counts at the beginning of January, the Fasset and Park Law ewes were only vaccinated against fluke. All outwintered sheep were dosed prior to lambing, and subsequently all twin-bearing ewes were dosed in mid-May while grazing on inbye fields. All lambs (single and twin) were dosed during late June, early July. Inwintered ewes were given their routine fluke and worm drench ten days after housing on 29th and 31st of January and were not dosed thereafter. The Near End Hairney Law and Auchope ewes were given a further drench in September.

As mentioned the weather throughout lambing time was much more favourable than in 1973 and all ewes came through the lambing period with much reduced bodyweight loss.

Lamb growth rates subsequently showed improvement over the previous year with weaning weights up by 1.1 kg, 2.7 kg and 2.0 kg for Hairney Law/Auchope, Rigg/Gairs and Park Law respectively. The exception to this increase in overall weaning weights was in Alderhope lambs which showed a drop of 0.9 kg, owing to the poor growth rate performance of the twin lambs. Suspected copper deficiency in these lambs, which were grazing all summer on the Alderhope reseeds, was confirmed from blood sample data, shown in the following table, which gives weaning weights for all Alderhope single and twin lambs and copper levels for a representative sample of each:

	Mean weighting weight (kg)	Blood copper levels		
		No. of lambs sampled	Mean level mg Copper/100 ml.	Difference between copper level means
Singles	29.0	12	69.0 ± 13.0	37.3***
Twins	24.0	14	31.7 ± 10.0	

\*\*\* Significant at  $p = 0.001$

Normal range for copper level is 60 - 160 mg/100 ml.

The weaning percentages for South Country Cheviot, North Country Cheviot and Blackface ewes were 88, 94 and 101 respectively, to give an overall weaning percentage of 93.5 compared with 99.0 last year. This reduction in the lamb crop was to be expected, attention already having been drawn to the poorer condition of the ewes at tupping. The weaning percentage for the inwintered Rigg and Gairs ewes must again be considered disappointing.

Fleece weights were on average 0.1 kg lighter and the total weight of wool graded was 3% lower than last year. The average price realised was 25p per lb. Again there was no distinction made between wool from the inwintered sheep and that from the outwintered sheep.

In last year's report attention was drawn to the fact that one of the most difficult problems relating to sheep health here at Sourhope is one of ensuring adequate cobalt levels in the grazing sheep. To try and overcome this problem on a longer term basis than is possible with a liquid Cobalt drench, during the course of this last year all ewes, gimmers and hoggs except those on trial were given a Cobalt bullet. As mentioned last year half out of a total of 267 ewe and wether hoggs were given a cobalt bullet and their performance is being compared with that of the untreated hoggs. As yet there has been no significant difference between the weight of the treated hoggs and that of the untreated hoggs. The numbers on trial have been further augmented this year with Hairney Law and Auchope hoggs. A similar trial has been initiated this year on the Park Law with half the sheep stock receiving Cobalt bullets.

Serum-blood vitamin B<sub>12</sub> levels in lambs dropped markedly this year from the end of June to mid-August. During the coming summer a liquid cobalt drench may be given to all lambs to try and avoid sub-clinical cobalt deficiency affecting the growth rate of lambs as they become less dependent on the ewe for their nutrition and more dependent on grazing.

An experiment was carried out last winter to assess the benefit of a Vitamin D<sub>3</sub> injection to housed ewes, gimmers and hoggs. Half of each age group of all 648 housed sheep were injected with vitamin D<sub>3</sub> soon after housing in late January. No significant differences have been found between treated and untreated groups with respect to bodyweight, fleece weight or weaning weight of lambs produced.

#### Disposal of lambs

The bulk of the lamb crop was sold through the store market with Cheviot lambs averaging £0.129 per lb liveweight (top price £0.172) and Blackface lambs averaging £0.098 per lb liveweight (top price £0.117). A total of 467 North Country Cheviot lambs (+ NCC x SCC) averaged £8.30 per head, 654 South Country Cheviot lambs averaged £6.70 per head and 424 Blackface lambs averaged £6.01 per head. The overall average for 1545 lambs sold was £7.00 per head (£9.69 in 1973), almost back to the 1972 price of £6.97.

Details of the disposal of the 1974 lamb crop are as follows:-

Ewe lambs retained as stock replacements .....	371
Wether lambs retained as wether stock replacements ....	30
Tup lambs retained for breeding .....	14
Lambs sold store .....	1545

Total 1960

Cheviot draft ewes sold to a top of £6.20 and an average price of £6.02.  
Blackface draft ewes sold to a top of £5.50 and an average price of £5.45.

Death rate

The overall death rate of the sheep stock in the twelve months since November 1973 was 3.4 per cent, with the percentage death rate of ewes, gimmers and hogs being 4.8, 1.3 and 1.3 respectively. The overall death rate for the previous twelve month period was 3.5 per cent.

Sheep stock autumn 1974

Despite the very wet and at times cold and windy autumn most of the ewe stock have joined the tup in better condition this year than in November 1973. The pre-tupping bodyweights of the ewes on recorded hefts other than Rigg and Gairs, as shown in Table 3 are, on average 2.3 kg heavier than pre-tupping 1973, which it will be remembered were down from 1972 weights by 4.4 kg. The Gairs ewes this year are slightly heavier than in November 1973 (up by 0.7 kg), while the Rigg ewes are 1.3 kg lighter. This improvement in autumn body condition should be reflected in increased weaning percentages in the coming year for all except the Rigg and Gairs hefts.

The build up in stock numbers required by the Development Programme, in particular for Projects 2 and 3, has continued and a total of 2951 sheep will be overwintered this year at Sourhope.

CATTLECattle stocks

Forty-seven Hereford x Shorthorn suckler cows and twenty-four Hereford x Friesian heifers were wintered at an estimated cost of £46.68 per head. This was the first winter Promax liquid feed was used, this being fed along with ad lib straw from early December to late April, with silage being introduced in mid-January. On average each of the 71 cows and heifers received 3.8 tons silage, 2.1 cwts hay, 9.5 cwts feeding straw, 18.5 gallons Promax and 2.9 cwts magnesium fortified hill cow cobs. The cost of all purchased feed, i.e. excluding silage, was £23.88 per head.

Calving started on 25th January and though reasonably straightforward, a total of 6 calves was lost, 4 of these being out of the Hereford x Friesian heifers.

The management of the nursing cows from April to the end of the year was again dictated by their use as "grazing tools" on the 3 Development Project areas. Creep feed was offered to the calves over the last 39 days to weaning.

The daily liveweight gains of the Hereford "x" calves, which were all out of the Hereford x Shorthorn cows, were similar to those of last year, and slightly superior to those of the Angus "x" calves, which were all born to the Hereford x Friesian heifers. Some calf performance data for 1974 are shown below:

Calf Breed	Sex	Nos.	Average birth weight (lbs)	Average Weaning weight (lbs)	Average live-weight gain - birth to weaning (lbs)	Average daily liveweight gain (lbs)
Hereford x	Bullock	17	79.2	584.5	505.3	2.08
Hereford x	Heifer	27	73.1	510.2	437.1	1.79
Angus x	Bullock	11	71.8	550.7	478.9	1.91
Angus x	Heifer	8	67.4	512.6	445.2	1.78
Shorthorn x	Bullock	2	80.5	576.0	495.5	2.19
Shorthorn x	Heifer	1	73.0	626.0	553.0	2.39
All calves		66	74.0	540.6	466.6	1.90



Two pure Friesian bullocks were weaned at an average weight of 569.5 lbs.

Of the 68 calves weaned 60 were sold at the October sales to average £62.87, a drop on last year's price of £39.58. The average price per cwt was £15.27 for Hereford bullocks, £12.04 for Hereford heifers, £14.04 for Angus bullocks and £11.02 for Angus heifers. The remaining 8 calves are being overwintered at Sourhope.

It had been hoped that the entire 1975 calf crop would have been sired by the Hereford bull, but a serious injury to the stifle joint of the senior Hereford bull soon after joining the cows meant that some of the cows have had to be served by the Angus bull.

#### Muirburn

No burning was carried out in the spring of 1974.

#### Cropping

41½ acres of grass were conserved as silage and 5 acres as hay.

The 8½ acres Schilgreen which had been sprayed for bracken in August 1973 was given 3 tons of Ground Magnesium Limestone per acre and 5 cwt of Ground Mineral Phosphate per acre in late May. The same dressings were applied to approximately 17 acres of hill ground between Fasset and Gairs hill at this time.

In addition 33 acres of inbye ground shown by analysis to require liming were top dressed with 1½ tons per acre of Ground Magnesium Limestone in late July.

All inbye fields other than the Park Law paddocks (a total of 96 acres) were routinely sprayed with 1½ lbs cobalt sulphate per acre in June. The three established Alderhope reseeds (A1, A2 and A3) together with the Gairs reseed (E2) were sprayed with 2 lbs cobalt sulphate per acre in early August.

The 8½ acres Schilgreen was oversown in late April with 12 lbs of seed cleanings per acre at a cost of £2.40 per acre.

Any further cropping work carried out in connection with the Development Projects is included in the section headed Development Work.

#### Bracken spraying

Some bracken spraying was carried out in connection with Project I and is reported under section headed Development Work.

#### Buildings

Progress towards completion of a new hogg inwintering shed has been appallingly slow and the building, which is designed to house 220 hoggs bedded on sawdust, is still not complete. Cattle grids have been installed at three further points along the circular farm road. All houses on the station are undergoing extensive alterations. The exterior repainting programme has been confined to the painting of the Yorkshire boarding sides of the inwintering sheds. The entire office block has been internally re-decorated throughout for the first time since it was opened 14 years ago.

### Development work

Good progress has been maintained in the Development Projects.

In Project I, those areas of paddocks P1 and P2 which could be reached by tractor-spreader (48.8 and 33.2 acres respectively) were given 2½ tons of Ground Magnesium Limestone and 5 cwt of Ground Mineral Phosphate per acre towards the end of May.

Within paddocks P2, excluding two small trial plot areas and ground too steep for safe working, 24 acres were sprayed for bracken at 8 pints Asulox per acre. Spraying was carried out during a period of somewhat broken weather.

In addition to the above inputs the two lambing fields (Hotts and Auchope Hay Field) have this year been fully integrated throughout the 12 months into the grazing management of the project.

No additional inputs have been allocated to Project II, the inwintering system of Rigg and Gairs with sheep of the latter heft having access to improved summer grazing. Despite the improved summer grazing management imposed on the Gairs, these ewes have failed each year to show any significant improvement in overall production over the Rigg ewes. Whilst lamb weaning weights have increased, the combined weaning percentage on both these hefts has in only one year been higher than 91%, with Rigg weaning the higher percentage of the two as often as the reverse. This inability on the part of the South Country Cheviot ewe stock on the Gairs to achieve a more satisfactory response in overall ewe performance to the better nutrition available is largely due to a disappointing weaning percentage, which is a reflection of not only the lack of twin births but also the high incidence of difficult births at lambing time. This latter factor is common to all South Country Cheviot ewes at Sourhope. For these reasons the decision has been taken to initiate a breed change on both Rigg and Gairs, and in the autumn of 1974 purchased Blackface ewe hoggs have replaced the South Country Cheviot stock ewe lambs normally kept.

In connection with Project III a further 8 acre area (to be known as A4), which had been lined and slagged in 1971, was fenced and reseeded in the early summer. Of this total, 3½ acres of badly drained ground were sprayed with 10 lbs. Dalapon per acre and, after a period of seven weeks, surface seeded, the seeds being disced into the wet lying ground. The remaining 4½ acres were sprayed with four pints Paraquat per acre and the ground rotavated twice before sowing the grass seed and subsequently rolling. All grass seed used in A4 was sown along with 3 cwt per acre of a high phosphate (12:18:12) compound fertiliser. A total of 39½ acres of reseed is now available for full integration with Alderhope hill.

### Field Nomenclature

There has in the past been a certain amount of confusion over field names in the area bounded by Auchope, Alderhope and Banks hills. This is the area which combines Auchope Big Park (37 acres) and the 8½ acre enclosure at the foot of Banks known as Schilgreen. This latter will continue to be designated Schilgreen.

Reseed A1 was created in 1970 by enclosing 8.6 acres at the top of the original Auchope Big Park. This reseed termed A1 is now permanently integrated within Project III.

The remaining 28.4 acres of Auchope Big Park was split in 1971 to give two hill paddocks now to be named as follows: Auchope Park is the larger area of approximately 16 acres above Auchope sheep yards, and Schil Park is the smaller area of 12.4 acres lying between Auchope Park and Schilgreen. These three areas are allocated to the Banks heft as lambing fields and for the grazing of twin-nursing ewes.

D. HOUSE O' MUIRWeather

The year started with yet another mild open winter with November and December showing the highest sunshine figures recorded for at least twenty years. Although there was above average rainfall for December the only winter snowfalls of note fell during the last week of November and the first week of December. The rest of the winter also passed easily and with a very dry and sunny spring a good lambing time was experienced. This sunny dry weather continued till June with near drought conditions. A change in the weather pattern then gave a comparatively wet summer and autumn with above average rainfall during September. As in the two previous years the average rainfall has been approximately three-quarters of the mean for the last ten years.

SHEEP

A slightly reduced number of ewes were mated, in reasonable condition, and with a fairly open winter they came to lambing in good condition. This is reflected in the amounts of feed consumed during the prelambing period, where only 6 lbs of hay and 15 lbs of sugar beet pulp were fed per head. This, coupled with the good weather conditions, meant a lamb marking of 120%. There were 7% of the ewes that either aborted or were barren, and an annual ewe loss of 1½% which occurred over this period. The very dry weather that followed allowed sufficient grass to grow the lambs well and 118% lambs were weaned. For the first time in three years, we now have the ewe stock back in reasonably regular age groups with no average ewes needed, and an increased number now end the year in good condition.

Owing to last year's pneumonia infection through the stock only 95 ewe hoggs were offwintered and with 17 lbs of hay and 6 lbs of rolled barley/oats mix per head, and some proprietary nuts added towards the end of the feed period, they were returned to the hill in good condition at the beginning of April.

To maintain the wether stock, and to meet an ever increasing demand, 80 wether hoggs from Sourhope were overwintered. They each consumed 100 lbs of hay and 5 lbs of barley/oats and in the spring were added to the wether flock in reasonable condition.

The larger number of wethers and other stock now kept for experimental purposes has meant that this year "out of season" grazing has had to be rented and it is envisaged that this will now be an annual requirement.

Disposal of stockLambs

From a good selection of lambs 102 stock ewe lambs and 80 wether lambs have been kept from a total of 482 lambs weaned. Thirty-five lambs were early weaned for the use of the Ministry of Agriculture at Lasswade. The remainder being sold through the normal store market to a top price of £9.20 and £8.00 respectively for wether and ewe lambs. The average price for all lambs sold being £8.35 (£8.85 in 1973).

Ewes

There were nearly half the normal number of draft ewes to be disposed of and the majority of these were used, within the Organisation, for experimental purposes. Only two small lots were sold in the market for £7.00 and £4.70. The average price for all draft and cast ewes was £6.65 (£9.65 in 1973).

CATTLE

In readiness for an experimental programme a start has now been made to establish a beef suckler herd. So far 26 Hereford x Friesian fully accredited bulling heifers have been purchased. These animals will be outwintered this year on a hay and cob diet but in future will be inwintered.

Buildings

To meet the requirements of the cattle enterprise two building programmes have been started. The first involves the construction of a Dale's shed of steel and asbestos sheeting with space board walls, to an area of 5,000 sq. ft. The site preparations and foundation for this have been completed. The second is for the conversion of some of the existing buildings on the north side of the steading to create a cattle metabolism unit. This is at the advanced planning stage.

Fencing/Dyking

Further dyke repairs have been made this year and with the addition of breast wires the western boundary of the hill is now reasonably stockproof.

Muirburn

No burning was attempted this year.

II. SUMMARY OF FLOCK RECORDS FOR 1973-1974

A. GLENSAUGH  
TABLE 1

Reconciliation of Ewe Numbers 1973-1974

Heft	Ewes and Gimmers Nov 1973	Draft and Casts	Transfers		Deaths	Gimmers in	Purchases	Ewes & Gimmers Nov 1974
			Out	In				
<u>Finella</u>								
(a) East Finella	151	41	-	-	4	43	-	149
(b) Mid Finella	135	26	-	-	2	43	-	150
(c) West Finella	160	31	-	-	3	24	-	150
<u>Big Hill</u>								
(a) Cairn	187	42	-	-	10	55	-	190
(b) Birnie	202	50	-	-	6	58	-	204
<u>Greyface Flock</u>	229	58	2	-	6	-	70	233
TOTALS	1064	248	2	-	31	223	70	1076

TABLE 2

Weaning Percentages and Lamb Weights

Heft	Ewes to Ran Nov 1973	Lambs weaned			Weaning Weights	
		No.	% 1973	% 1974	kg	lb
<u>Finella</u>						
(a) East Finella	151	168	134.2	111.3	28.4	62.4
(b) Mid Finella	135	179	118.3	132.6	31.4	69.1
(c) West Finella	160	218	100.8	136.3	26.7	58.7
<u>Big Hill</u>						
(a) Cairn	187	180	92.2	96.3	28.0	61.6
(b) Birnie	202	182	94.7	90.1	26.9	59.2
<u>Greyface flock</u> (overall)	229	364	147.9	158.9	30.8	67.8

TABLE 3

Weights of Ewes and Gimmers (kg)

Hft	Ewes		Gimmers	
	Nov. 1973	Nov. 1974	Nov. 1973	Nov. 1974
<u>Finella</u>				
(a) East Finella	70.7	73.5	65.5	63.9
(b) Mid Finella				
Blackface	63.5	66.6	57.9	60.2
Cross Texel	-	-	-	63.2
(c) West Finella				
Blackface	65.0	61.6	59.1	53.9
Cross Texel	-	62.6	60.9	-
<u>Big Hill</u>				
(a) Cairn	53.1	58.1	48.0	50.0
(b) Birnie	51.4	57.4	46.1	49.4
<u>Greyface Flock</u> (overall)	74.5	74.6	64.4	57.5

B. LEPHINMORE

TABLE 1

Reconciliation of Ewe Numbers 1973/1974

<u>Hirsel</u>	<u>Ewes &amp; Gimmers</u> <u>Nov 1973</u>	<u>Draft and</u> <u>Cast Ewes</u>	<u>Deaths*</u>	<u>Gimmers</u> <u>Brought in</u>	<u>Ewes &amp; Gimmers</u> <u>Nov. 1974</u>
Barnacarry	199	13	5 (3)	46	227**
Midhill	433	77	22 (8)	100	434
Low-End C	176	65	8 (2)	71	174
T	174	59	8 (3)	67	174

\* Includes Black loss (in brackets)

\*\* Includes 25 five crop ewes

TABLE 2

Weaning Percentage 1973/1974

<u>Hirsel</u>	<u>Ewes to</u> <u>tup</u>	<u>Lambs Weaned</u>		<u>Weaning Weights</u>		
		<u>Total</u>	<u>Percentage</u>		<u>Singles</u> <u>kg</u>	<u>Twins</u> <u>kg</u>
			<u>1974</u>	<u>1973</u>		
Barnacarry	199	164	82.4	84.9	29.5*	26.5**
Midhill	433	425	98.2	103.3	26.5	23.7
Low-End C	176	138	78.4	92.8	25.1	22.3
T	174	131	75.3	102.5	25.4	20.7

\* Includes 38 Westphalian x lambs

\*\* Includes 22 Westphalian x lambs

TABLE 3

Weights of Ewes, Gimmers, Hogs (kg) 1973/1974

<u>Hirsel</u>	<u>Ewes</u>		<u>Gimmers</u>		<u>Hogs</u>	
	<u>Nov. 73</u>	<u>Nov. 74</u>	<u>Nov. 73</u>	<u>Nov. 74</u>	<u>Nov. 73</u>	<u>Nov. 74</u>
Barnacarry	46.7	48.9	43.4	41.5	25.1(Oct)	27.1*
Midhill	50.1	50.3	43.2	39.7	23.7	25.1
Low End C	45.1	47.0	36.9	41.5	27.5	24.8
T	47.9	50.9	39.1	43.2	25.5	25.2

\* Includes 30 brought in

C. SOURHOPETABLE 1Reconciliation of Ewe Numbers 1973-1974

Heft	Ewes & Gimmers Nov. 73	Draft & Cast Ewes	Deaths	Gimmers brought in	Purchases Ewe Hoggs	Hoggs Nov. 74	Ewes & Gimmers Nov. 74
<u>SCC</u>							
Fasset	215	37	12	49	-	50	215
Rigg	279	40	7	66	70 BF	69	298
Gairs	279	40	12	70	75 BF	74	297
Total SCC	773	117	31	185	-	193	810
<u>SCC x NCC</u>							
Auchope	305	63	10	77	-	71	309
<u>NCC</u>							
Hairney Law	295	59	14	70	-	69	292
Park Law	172	33	7	34	-	31	171
Total NCC	467	92	21	104	-	100	463
<u>Blackface</u>							
Alderhope	222	30	11	61	-	69	242
Banks	342	73	9	85	-	81	345
Total BF	564	103	20	146	145	150	587
Flock Total	2109	375	82	512	145	514	2169

TABLE 2Weaning % and Lamb Weights 1974

Heft	Ewes to Tup	Lambs weaned			Weaning weights	
		Total No.	Percentage		Singles (kg)	Twins (kg)
			1974	1973		
Rigg SCC	279	254	91.0	87.8	24.5	23.4
Gairs SCC	279	243	87.0	91.2	26.5	25.9
Total	558	497	89.1	89.4	25.4	24.9
Fasset SCC	215	180	83.7	93.4		
Auchope SCC x NCC	305	285	93.4	107.0	26.3	24.1
Hairney Law NCC	295	264	89.5	92.7	26.9	24.9
Total	600	549	91.5	99.5	26.5	24.6
Park Law NCC	172	175	101.7	93.0	25.7	26.7
Alderhope BF	222	242	109.0	113.4	29.0	24.0
Banks BF	342	328	95.9	108.8		
Total	564	570	101.1	110.6		
SCC TOTAL	773	677	87.6	90.6		
NCC TOTAL (+NCC x SCC)	772	724	93.8	98.1		
BF TOTAL	564	570	101.1	110.6		
FARM TOTAL	2109	1971	93.5	98.7		



TABLE 3

Weights of Ewes, Ginners and Hogs (kg)

Heft	Ewes		Ginners		Hogs	
	Nov. 73	Nov. 74	Nov. 73	Nov. 74	Nov. 73	Apr. 74
Rigg SCC	53.0	51.7	43.9	43.3	27.8	26.4
Gairs SCC	55.5	56.2	45.0	47.2	28.8	27.6
Auchope SCC x NCC	55.2	56.8	46.8	49.0	34.1	30.1
Hairney Law NCC	57.9	59.7	46.5	47.2	32.8	28.8
Park Law NCC	56.9	58.8	45.2	50.4	30.1	32.1
Alderhope BF	53.3	57.1	47.8	51.4	33.7	32.4

TABLE 4

Wether Stock at November 1974

Year of Birth	1969	1970	1971	1972	1973	1974
SCC		28	33	34	31	30
SCC x NCC	20					

D. HOUSE O' MUIR

TABLE 1

Reconciliation of Ewe Numbers 1973-1974

Ewes and Gimmers Nov. 1973	Cast Ewes	Deaths	Gimmers brought in	Hoggs Nov. 1974	Ewes and Gimmers Nov. 74
410	61	6	94	102	437

TABLE 2

Weaning Percentage

Ewes to tup	Lambs weaned		
	Number	Percentage 1974	Percentage 1973
410	482	118	104

TABLE 3

BF Wether Stock November 1974

Adults	Hoggs
96	80