Sheep-feeding

Bulletin No. 75/EC41.

Agricultural Economics Department

University of Manchester

COSTS OF FEEDING SHEEP ON ARABLE LAND

WINTER 1952-53

September 1953.

UNIVERSITY OF MANCHESTER

FACULTY OF ECONOMIC AND SOCIAL STUDIES

With the Compliments

of the

AGRICULTURAL ECONOMICS DEPARTMENT

Costs of Feeding Sheep on Arable Land

Winter 1952-53

Introduction

After a lapse of five years, the costs of fattening sheep on arable land in Shropshire were collected on 28 farms during the winter and spring, 1952-53.

Apart from two flocks in the Craven Arms district, and two in South Staffordshire, the costed flocks were all on farms situated in, or adjacent to, the arable district of Central Shropshire. This area extends roughly from Shifnal to Baschurch, and northwards to Market Drayton. Most of the farms are fairly large and the main sale products are corn, beet and potatoes. Where sheep are kept they normally utilize the sugar beet tops and often in addition a catch crop following early potatoes.

In this sample there were only four farms on which the sheep received no beet tops, and depended mainly on forage crops. On three farms, the sheep were folded solely on sugar beet tops and, on a further two, the acreage of fodder crops used was insignificant.

Eleven of the costed flocks consisted entirely of home bred lambs, seven were all purchased lambs, and the remaining ten were part home bred and part purchased. The purchased store sheep were obtained at various times between July and February, the great majority being bought at the autumn sales in September and October.

The breed of sheep most commonly fattened in this area is a Clun Forest cross, and only three of the twenty-eight flocks costed included no Clun blood. By far the most frequent cross was the Clun Forest ewe with an Oxford Down ram, though other important Down crosses were with Hampshire, Shropshir and Suffolk rams. Three flocks were pure Cluns, and there was also one part flock of Devon Longwools, which did not, however, prove very successful. Other crosses recorded were Kerry Hill X Oxford Down, Suffolk Down and Hampshire Down, and also Suffolks X Cheviot and Border Leicester.

The total number of sheep covered by the inquiry was 7240, in flocks ranging from 83 sheep to 770 sheep.

Table I

Distribution of Costed Flocks by Size Groups

	Under 100	100-150	150-250	250-500	500 +
Number of Flocks	2	9	6	6	5
Number of Sheep	177	1147	1200	1870	2846

Cost of growing forage crops

All the forage crops intended for sheep at the beginning of the winter were costed but, since for various reasons, many of the sheep were kept until a later date than had been originally expected, small additional acreages of fodder roots and kale were used. Altogether 200¼ acres of forage crops were eaton off by sheep of which 183½ acres were costed.

Table II

Cost per Acre of Forage Crops

		Catch Crop 140 Acres		Main Crop 43½ Acres	
		£ s. d.		£. s. d.	
Manual Labour		12 9		3 11 1	
Horse Labour				5 1	
Tractor Labour		8 11		1 9 11	
Total Labour		1 1 8		5 6 1	
Manures in 1952	1 2 5		7 5 0		
Add Manurial Residues b/f	3 3 4		1 2		
	4 5 9		7 6 2		
Less Manurial Residues c/f	1 16 11		2 15 6		
Net Manures		2 8 10		4 10 8	
Rent		14 10		1 7 2	
Seeds		14 4		15 8	
Overheads		8 10		1 15 11	
Cultural Residues b/f		2 1 3		- - -	
Total		7 9 9		13 15 6	
Less Cultural Residues c/f		5 7		16 4	
Net Cost		7 4 2		12 19 2	

The analysis of crops costed was as follows:

	Catch Crops	Main Crops
Rape	40 acres	10 acres
Rape and Turnips	56 "	14 "
Swedes	9 "	13 "
Kale	15 "	6½ "
Mustard	10 "	-
Rape and Mustard	10 "	-

The cost per acre of the main crops is low due to the small acreage of singled crops included in the total. The cost of rape and rape and turnips grown as full crops was only about £6 per acre, whilst the swedes costed averaged about £25 per acre. Beet tops were valued at £1 per ton used. It was assumed that three-fifths of the total yield of tops would be utilised and the total yield was taken to be 75 per cent. of the yield of washed beet.

Costs of Fattening Sheep - Feeding Costs

Table III

Cost of Forage Crops and Beet Tops per Acre and per Sheep Folded

	Beet Tops	Forage Crops
Total Acreage	734¼	200¼
Average Cost per Acre	£5-13-4d.	£10-12-0d.
Average No. of Sheep days per Acre	947	960
Cost per Sheep per week	10d.	1/6½d.

Table IV

Total Feeding Costs per Sheep Fed

Food	Wt.	Average £ s. d.	Your Farm £ s d.
Sugar Beet Tops		11 6	
Purchased Concentrates & Minerals	4 lbs.	1 3	
Home Grown Concentrates	36½ "	4 1	
Dried Sugar Beet Pulp	60 "	9 9	
Hay and Clover	½ cwt.	3 3	
Rape, Mustard and Kale		4 7	
Roots - Mangolds Swedes & Turnips		3 5	
Grazing - six weeks		4 6	
Total Foods		2 2 4	
Less Residues		4 9	
Net Food Cost		1 17 7	

The lowest net food cost was £1-3-6d. per sheep for a feeding period of 143 days and the highest £4-4-9d. per sheep for 203 days. The average number of feeding days was 164, ranging from 106 days per sheep costing £1-18-10d. to 239 days per sheep costing £2-7-10d.

Costs and Returns

In table V the full costs are shown item by item together with the receipts per sheep. The store lambs have been entered at cost on the farm or, if home bred, at market valuation. Of the 7240 sheep costed, 4134 were purchased at an average cost of £6-19-11d. per sheep and 3106 were home bred and valued at an average figure of £6-4-4d. per head. At the end of the costing period 280 sheep were still on the farms, 126 had died or been sold as casualties and the remainder, 94 per cent. of the total, had been graded. The graded sheep realised an average price of £9-15-10d. per head, whilst those retained were valued at £9-12-6d. per head. The average return from the casualties was £1-17-5d. per head.

Table V

Average Costs and Returns Per Sheep - 7240 Sheep

	Average Cost			Your Farm		
	£	s.	d.	£	s.	d.
Store Lamb (At Cost or Valuation)	6	13	4			
Foods (including grazing)	2	2	4			
Veterinary			6			
Haulage			5			
Labour		6	1			
Other Costs		1	0			
Overheads		4	0			
Gross Costs	9	7	8			
Less Residues		4	9			
Net Cost	9	2	11			
Receipts per Sheep	9	12	11			
Net Farm Profit		10	0			

Table VI

Distribution of Net Profits and Losses per Sheep 1952-53

	Losses			Profits	
	£1 - 10/-	10/- - 0d.	1d.-10/-	10/1 - £1	Over £1
No. of Flocks	5	4	6	9	4
No. of Sheep	780	1252	917	2506	1785

The largest loss recorded was £2-5-0d. per sheep fed, and the highest profit £1-12-10d. per sheep fed.

Profitable and Unprofitable Flocks

Several factors affecting profits are brought out by the comparison in Table VII.. The difference in the sale price per sheep between the two groups of flocks is slight, but in the most profitable group, net costs are £2-11-0d. per sheep lower. Half of this difference appears in the store price per sheep, but most

of the balance is the result of the difference in food costs per sheep.

Table VII

Profitable and Unprofitable Flock Comparisons

	Average of 5 Profitable Flocks	Average of 5 Unprofitable Flocks
	£ s. d.	£ s. d.
Store Price per Sheep	6 10 9	7 15 11
Net Food Cost per Sheep	1 11 10	2 14 6
Labour Cost per Sheep	5 10	6 8
Other Costs per Sheep	5 4	7 10
Costs per Sheep	8 13 9	11 4 11
Sale Price per Sheep	9 19 11	10 4 1
Margin per Sheep	+ 1 6 2	- 1 0 10

Analysis of Foods of the 10 Flocks

	£ s. d.	£ s. d.
Per Sheep		
Sugar Beet Tops	12 3	8 4
Sugar Beet Pulp	10 7	13 1
Other Roots	7 0	10 6
Hay	1 2	4 0
Purchased Concentrates	3	6 8
Home Grown Concentrates	1 7	9 4
Grazing	3 8	7 1
Total	1 11 10	2 14 6
Average Flock Size	460	156
Average Feeding Period	166 days	179 days

An anlysis of food costs indicates that the most profitable farms use more beet tops, but less roots, than do the unprofitable farms. As indicated in Table III the cost per sheep week on

forage crops is practically double the cost of a sheep week on beet tops, and it is not surprising to find that the sheep using most beet tops are showing the largest returns. The most profitable farms also use very much less concentrates, both purchased and home grown, than do the unprofitable farms, and this is not because they use more sugar beet pulp, the contrary actually being the case.

Controlled Prices and Time of Sale

The controlled price paid for first grade Fat Lambs varied during the 1952-53 winter from a low level of 2/5d. per lb. estimated dressed carcase weight for the week September 22nd - September 28th, to a high level of 3/0¼d. per lb. during the period March 30th to June 7th. Table VIII indicates the prices prevailing between December 8th, 1952 and June 28th, 1953, and the number of costed sheep sold during each price period.

Table VIII

Date	Weeks	Price per lb.	Number Sold	%
		d.		
December 8th - December 14th	1	29¾	10	¼
December 15th - December 21st	1	30	25	½
December 22nd - December 28th	1	30¼	-	-
December 29th - January 4th	1	31	28	½
January 5th - January 11th	1	31½	-	-
January 12th - January 18th	1	32	30	½
January 19th - January 25th	1	33	84	1
January 26th - February 1st	1	33¼	461	7
February 2nd - February 15th	2	33¾	751	11
February 16th - March 1st	2	34¼	1456	21
March 2nd - March 15th	2	34¾	873	13
March 16th - March 29th	2	35¼	1334	19¼
March 30th - June 7th	5	36¼	1752	25½
June 8th - June 14th	1	35¾	-	-
June 15th - June 21st	1	35¼	-	-
June 22nd - June 28th	1	34¾	30	½

Winter fattening of arable sheep was last costed in Shropshire during the winter of 1947-48, and Table IX indicates the changes in costs which have occured since then.

Table IX

Comparison of Average Prices, Margins and Feeding Period 1947-48 and 1952-53

	1947-48			1952-53			Difference		
	£	s.	d.	£	s.	d.	£	s.	d.
Sale Price	6	11	1	9	12	11	+ 3	1	10
Store Cost	4	11	4	6	13	4	+ 2	2	0
Gross Margin	1	19	9	2	19	7	+	19	10
Total Feeding Cost per Sheep	1	8	11	2	9	7	+ 1	0	8
Profit or Loss	+	10	10		10	0	-		10
Feeding Period (sheep days)		140			164		+	24	

The receipts per sheep have risen by more than £3-0-0d. over the period, but increases in the cost of store sheep, and in the costs of fattening the sheep have been even greater with the result that the profit has actually fallen by 10d. per head. Substantial increases have occured in both food and labour costs. Food costs have risen from 24/9d. per sheep to 42/4d. per sheep, and labour costs from 4/2d. to 6/1d. per head.

Table X

Average Costs and Returns per Sheep on each of Twenty-eight Farms

Store Cost				Disposal Price			Gross Feeding Margin			Net Food Costs			Labour			Sundry			Overheads			Total Feeding Costs			Profit or Loss			Feeding Days
£	s.	d.	X.	£	s	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	No.
6	4	0	M.	10	7	4	4	-3	4	1	16	11		6	2		3	5		4	0	2	10	6	+1	12	10	156
6	12	4	M.	9	19	10	3	7	6	1	4	2		6	2		1	2		4	0	1	15	7	+1	12	0	167
6	1	1	M.	10	7	2	4	6	1	2	1	8		9	7		1	0		4	0	2	16	3	+1	9	10	159
6	6	11	P.	9	4	5	2	17	6	1	7	6		4	1		1	8		4	0	1	17	3	+1	0	3	177
6	19	6	M.	10	9	2	3	9	8	2	1	4		5	8			3		4	0	2	11	3	+	18	5	160
6	11	10	P.	10	12	10	4	1	0	2	7	10		10	0		1	2		4	0	3	3	0	+	18	0	239
5	2	8	HB.	8	2	3	2	19	7	1	10	6		6	11		1	11		4	0	2	3	4	+	16	3	158
6	18	1	P.	9	6	8	2	8	7	1	3	6		5	1			4		4	0	1	12	11	+	15	8	143
6	10	0	HB.	9	12	8	3	2	8	1	18	10		4	6		1	5		4	0	2	8	9	+	13	11	106
5	0	0	HB.	9	6	6	4	6	6	3	0	4		5	10		2	8		4	0	3	12	10	+	13	8	184
7	0	10	P.	10	16	9	3	15	11	2	10	11		6	10		1	0		4	0	3	2	9	+	13	2	166
7	5	6	HB.	9	16	10	2	11	4	1	9	5		6	6			9		4	0	2	0	8	+	10	8	143
7	0	2	M.	10	8	1	3	7	11	2	6	5		6	8			9		4	0	2	17	10	+	10	1	196
6	0	4	HB.	8	6	0	2	5	8	1	3	9		6	6		2	8		4	0	1	16	11	+	8	9	133
5	15	1	M.	9	5	10	3	10	9	2	8	8		7	5		2	9		4	0	3	2	10	+	7	11	167
7	6	0	P.	10	5	0	2	19	0	1	16	9		8	10		1	8		4	0	2	11	3	+	7	9	168
5	10	0	HB.	8	4	4	2	14	4	1	16	10		3	9		2	5		4	0	2	7	0	+	7	4	135
5	10	0	HB.	8	11	8	3	1	8	1	13	5		8	11		8	5		4	0	2	14	9	+	6	11	114
7	9	5	M.	10	4	10	2	15	5	2	1	3		7	4		1	9		4	0	2	14	4	+	1	1	128
7	1	9	P.	9	4	5	2	2	8	1	14	3		4	0		1	2		4	0	2	3	5	-		9	175
6	6	8	M.	9	6	11	3	0	3	2	6	7		7	2		3	7		4	0	3	1	4	-	1	1	169
6	0	0	HB.	8	17	4	2	17	4	2	2	6		9	1		9	9		4	0	3	5	4	-	8	0	135
6	7	1	M.	8	4	1	1	17	0	1	14	3		4	10		2	10		4	0	2	5	11	-	8	11	181
9	10	0	P.	11	6	11	1	16	11	2	0	4		4	4		1	2		4	0	2	9	10	-	12	11	204
7	10	0	HB.	9	6	0	1	16	0	1	11	3		7	3		6	7		4	0	2	9	1	-	13	1	109
6	10	0	HB.	10	12	5	4	2	5	3	19	5		9	9		4	9		4	0	4	17	11	-	15	6	191
6	5	0	HB.	8	2	8	1	17	8	1	16	3		4	1		7	1		4	0	2	11	5	-	13	9	138
6	18	11	M.	9	15	5	2	16	6	4	4	9		8	10		3	11		4	0	5	1	6	-2	5	0	204
Average on 28 Farms:																												
6	13	4		9	12	11	2	19	7	1	17	7		6	1		1	11		4	0	2	9	7		10	0	164

X HB. = Home Bred Sheep. P = Purchased Sheep. M = Some Home Bred and some Purchased.

Summary of Results

Table X, which gives details of the main items of cost on each farm, in order of decreasing profitability, indicates the wide divergence in costs and returns arising between individual farms.

Examination of the results of each farm suggest the following points:-

1. Store cost on the most profitable farms was lower than on the least profitable.
2. Receipts per sheep were not always higher on the most profitable farms.
3. Total feeding costs, and Net Food costs were lowest on the most profitable farms. This is partially due to the fact that a greater proportion of net food costs on these farms consisted of beet tops.
4. Of the four farms feeding no beet pulp, three made heavy losses.
5. Of the four farms feeding no beet tops, three made heavy losses.
6. Farms using no hay, or very little hay, all showed large profits.
7. The larger flocks showed higher profits than the small flocks generally.

In conclusion may we thank all the farmers who have so willingly supplied the information necessary to produce this report.

APPENDIX

Notes on compilation of costs.

Forage Crop Costs

Labour:

Manual - Males over 21

Tractor Drivers and Waggoners.

Up to August 18th, 1952 - 2/7d. per hour.

After August 18th, 1952 - 2/8d. per hour.

Other categories and piece work at appropriate rates.

Tractors - Wheel type - 4/6d. per hour.

Crawlers - 6/-d. per hour.

Horses - - 1/3d. per hour.

These rates also apply to the sheep feeding costs.

Artificials: At net cost delivered on farm, less subsidy, if any.

Farmyard Manure: 15/- per ton, exclusive of carting and spreading cost.

Manurial Residues: Calculated according to the recommendation of the fourth report of the Scottish Standing Committee for Residual Values.

Cultural Residues:

Preceding Crop	Charge per Acre
Corn	Nil
Seeds Mown	25/-
Potatoes	45/-

One half of the cost of cultural operations up to seeding has been credited as a cultural residue to be carried forward in respect of cleaning.

Overheads etc: A flat charge of £1 per acre has been included to cover overhead labour charges (5/- per acre for catch crops). The cost of depreciation and repairs to implements (excluding tractors), car expenses, insurances, professional charges etc, are charged at 6/- for every £1 of manual labour spent on fodder crop production.

Sheep Folding Costs

Feeding Stuffs:

Home grown foods were charged as follows:-

Food	Cost per cwt.	
Mangolds	1/11d.	(a)
Swedes	2/9d.	(a)
Kale	1/3d.	(a)
Seeds Hay	6/6d.	
Oats	15/3d.	
Mixed Corn	14/9d.	

(a) Only used when crop was not costed. These values have been calculated from crop costs carried out in connection with the Milk Costs Investigation.

Grazing: Charged at 9d. per sheep per week.

Beet Tops: Weight of tops assumed to be 75% of yield of washed beet. 3/5ths. of this amount charged at £1 per ton.

Overheads: Charged at 4/- per sheep.

Residues: Manurial residues of forage crops folded credited at £2 per acre. Manurial residues of beet tops and other foods fed, credited according to the recommendation of the Scottish Standing Committee. 10/- per acre, estimated as the value of treading, was credited in respect of all crops folded. The total credits allowed per acre of forage crops folded, averaged 70/-, which is the same as the standard charge which is used in crop cost surveys (e.g. beet).