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Feeding stuffs - Cost of production

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SOME COSTS OF FODDER CROP PRODUCTION AND PASTURE ON YORKSHIRE DAIRY FARMS DURING 1948.

UNIVERSITY OF LEEDS

Economics Section: Department of Agriculture.

The information on which this Report is based was collected by MR.J. D. SYKES during 1949 in the course of his Milk Costings work.

ThisReport is written by Mr. Sykes.

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SOME COSTS OF FODDER CROP PRODUCTION AND PASTURE ON YORKSHIRE DAIRY FARMS DURING 1948.

Since 1947 particulars of Fodder Crop Production have been collected from those Dairy Farms in Yorkshire who are co-operating in the Milk Cost Investigation (in order to provide individual and average costs of home-grown foods). Crop Costs were obtained from 61 farms during 1947 and from 62 farms during 1948.

TABLE I

NUMBER OF CROPS COSTED.

	1947	1948
Oats	31	35
Mixed Corn	18	22
Establishment of Leys	55	64
Swedes and Turnips	29	24
Kale	25	31
Mangolds	21	28
Silage	5	13
Meadow Hay	31	32
Seeds Hay	39	54
Pasture	61	62

This study deals with the figures obtained during 1948.

Some miscellaneous crops, such as beans, linseed and rape, were also costed in both years, but the numbers were insufficient for grouping. Pasture costs were obtained from all farms and an attempt was made to cost all the fodder crops grown primarily for dairy cows.

GENERAL INFORMATION.

The farms co-operating in the Milk Cost Investigation are drawn at random, on a herd size basis, from most parts of the county where milk is produced. As a consequence of this type of selection, farm size may not be very typical of Yorkshire farms in general. Nevertheless, small herds were found on large Wolds Farms, as well as on smallholdings, and, conversely, (though possibly not to the same extent), some small farms had relatively large herds if there were few or no young stock. These latter conditions were found in the West Riding in particular. Farm size varied from seven to six hundred and fifty acres, but almost two-thirds of the farms were less than one hundred and fifty acres.

As a result of widespread distribution over the County the systems of farm cropping recorded were very varied. Indeed in the Western part of the county hay and silage were often the only crops, while in the Eastern half fodder crops produced directly for milk production were sometimes a small part of the arable acreage. The farms were located on several different geo-physical systems, some of which have fairly typical cropping features. In Craven, on the mountain limestone and millstone grit, most of the land is now in grass and, although milk is sold, much emphasis is placed on the provision of dairy replacements for sale. To the South and East, on the Millstone grit and Coal Measures, the farms tend to be smaller in size, particularly in the neighbourhood of towns. There is also a more general type of farming with varying amounts of arable cropping and dairying. Moving further Eastwards, over the Magnesium Limestone and the Vale of York to the Wolds and Holderness, farm size tends to increase and arable farming preponderates.

Climate is a major factor in determining the system of husbandry and the Western half of the county usually has very different weather, especially rainfall, from that experienced by the rest.

During 1948 the weather was, on the whole, more favourable for crop production than the extremes experienced during 1947. The winter was fairly open and there was little snow. Up to June the weather was inclined to be warm and dry, but from then onwards, through July, August and into September, heavy rainfall and cold slowed up haymaking, and thunderstorms caused some corn to lodge. The yields of mangolds were undoubtedly affected by the lack of sunshine during this period.

METHOD OF COSTING.

The information was collected by the survey method. The farms were usually visited three or four times during the course of the year and the farmer gave particulars of cultivations, manuring and other expenses, and the yields of the various fodder crops.

Average rates per hour, intended to cover the cost of man, horse and tractor labour respectively, were applied to each of the labour items. The rates for manual labour included allowance for holidays with pay, insurance, incentive money and overtime. Horse labour was charged at a shilling per hour and the following rates per hour were charged for tractors:

Light Tractors	2/6d.	Heavy Tractors	3/0d.
Medium "	2/9d.	Crawler "	4/6d.

Cash expenses for fertilisers, seeds, contract work, etc., were entered at cost. Costs were taken up to the stage where the crops were ready for feeding in the stack-yard. Rent has been treated differently than in previous investigations by this Department. It should be noted that a net land rent only has been charged to the crops costed. This was to maintain consistency with the Milk Cost practice of charging a rental to the cows for the use of buildings.

Manurial residues have been dealt with in accordance with the recommendations of the Scott Watson Committee. Farmyard Manure applied to the crops was charged at 10/- per ton, and half the value was carried forward in the first year as a manurial residue. The total cost of applying the farmyard manure was charged to the first crop.

Implement depreciation was calculated on a fixed acreage charge per implement per operation. Overhead charges have been made against all crops and were calculated arbitrarily as 25% of the direct manual labour cost.

CEREAL CROPS.

	Oats	Mixed Corn.
No. of Records	35	22 *
No. of Farms	31	19
Acreage Costed	437	195
Average Acreage per Cost	12.5	8.9

TABLE II

PREVIOUS CROPPING

	Corn %	Roots %	Grass %	Fallow %
Oats	45	16	36	3
Mixed Corn	47	26	26	1

* 2 crops were semi-failures.

TABLE III

AVERAGE COST OF PRODUCTION PER ACRE OF 35 OAT CROPS.

1948 CROPPING YEAR.

	Hours	Cost £	s	d	Percentage of Nett Cost %
Labour - Manual	37.0	3	19	0	27.6
Horse	2.9		2	10	1.0
Tractor	8.7	1	4	5	8.5
Contract		1	8	9	10.1
Total Labour		6	15	0	47.2
Seeds		2	10	8	17.7
Purchased Manures		1	9	0	10.1
Farm Yard Manure			4	0	1.4
Rent		1	0	10	7.3
Miscellaneous			9	5	3.3
Depreciation			8	5	2.9
Overheads			19	7	6.9
Gross Cost		13	16	11	96.8
Add Manurial Residues		+	9	1	+ 3.2
Total Nett Cost		14	6	0	100.0

	Average	Your Farm
Cost per acre	£14. 6. 0.	
Grain yield per acre	21.0 cwts.	cwts.
Straw yield per acre	21.7 cwts.	cwts.
Cost of Grain per cwt.	11/10d	
Cost of Straw per cwt.	2/8d	

TABLE IV

AVERAGE COST OF PRODUCTION PER ACRE OF 22 MIXED CORN CROPS

1948 CROPPING YEAR

	Hours	Cost			Percentage of Nett Cost
		£	s	d	%
Labour - Manual	38.0	4	1	5	27.3
Horse	3.7		4	0	1.3
Tractor	9.3	1	4	7	8.3
Contract		1	7	5	9.2
Total Labour		6	17	5	46.1
Seeds		3	6	3	22.2
Purchased Manures		1	2	10	7.6
Farm Yard Manure			2	0	0.7
Rent		1	1	10	7.3
Miscellaneous			8	8	2.9
Depreciation			7	10	2.6
Overheads		1	0	2	6.8
Gross Cost		14	7	0	96.2
Add Manurial Residues		+	11	3	+ 3.8
Total Nett Cost		14	18	3	100.0

	Average	Your Farm
Cost per Acre	£14. 18. 3	
Grain yield per Acre	20.6 cwts.	cwts
Straw yield per Acre	20.7 cwts.	cwts.
Cost of Grain per cwt.	12/10d	
Cost of Straw per cwt.	2/8d	

Nearly half the acreage of both crops was in corn for the second year in succession.

Tables III and IV show the average costs of production per acre of the Oats and Mixed Corn crops, respectively.

In both crops the Total Labour requirements were the largest item of cost. This item represented just over 47% of the Net Cost of Oats at £6. 15. 0d. per acre, and 46% of the Net Cost, and £6. 17. 5d. for mixed corn.

Manual labour cost £3. 19. 0. per acre for Oats, and £4. 1. 5d. for mixed corn, and was equal to more than 27% of the Net Cost in both cases. On average 37.0 man hours and 38.0 man hours per acre were required to grow, harvest and thresh the Oat and Mixed Crop, respectively.

TABLE V

MAN HOURS PER ACRE.

	Less than 30 Hours. %	30-35 Hours %	35-40 Hours %	40-45 Hours %	More than 45 Hours %
Oats	14	28	28	12	18
Mixed Corn	18	23	18	14	27

Man hours ranged from 11.7 to 64.5 per acre for the Oat Crop, and from 20 to 62.5 for mixed corn.

Horse labour was a fairly small item on both the Oat and Mixed Corn crops and cost 2/10d. and 4/- per acre, respectively. Horses were used on 30 Oat crops and worked nearly 3 hours per acre. On 3 crops horses were the only form of motive power. Horse labour was used on 18 mixed corn crops and averaged 3.7 hours per acre.

Tractor Labour was the sole motive power on 5 Oat Crops and was recorded on 32 crops. There was an average of 8.7 tractor hours and a cost of £1. 4. 5. per acre. Tractors were used on 19 mixed corn crops and the cost per acre averaged £1. 4. 7d. for 9.3 hours. Tractor Labour was equivalent to more than 8% of the Net Cost of both crops.

Contract work and labour was used on all the cereal crops. This was mainly related to threshing but, in the West Riding in particular, some cultivations were done by contract. On one mixed corn crop all the work, except for some manual labour, was done by contract. Contract work cost £1. 8. 9d. per acre for Oats, and £1. 7. 5d. for mixed corn. This cost was equivalent to about 10% of the Net Costs. The Straw of 9 Oat Crops and 6 Mixed Corn Crops was baled.

Seed Corn was an item of considerable cost on both crops. The cost of seed oats was nearly equivalent to 18% of the Net Cost; seed cost just over 22% of the Net Cost of mixed corn. Seed Oats cost on average £2. 10. 8d. per acre, and mixed corn seed £3. 6. 3d.

TABLE VI

SEEDING RATES PER ACRE.

	Less than 11 st. %	11-13 st. %	13-15 st. %	15-17 st. %	More than 17 st. %
Oats	8	57	14	18	3
Mixed Corn	-	27	40	18	15

COST OF SEED CORN PER CWT.

	Less than 24/- %	24/- to 34/- %	34/- to 44/- %	44/- to 54/- %	More than 54/- %
Oats	18	39	31	9	3
Mixed Corn	14	26	32	14	14

Seventy-nine per cent of the Seeds Oats and sixty-seven per cent of the Mixed Corn seed was sown at rates less than 15 stones per acre. On average 12.6 stones of Oats and 13.9 stones of Mixed Corn were sown per acre. Victory and Star Oats were the most popular varieties sown (as shown by previous surveys by this Department), and each accounted for 21% of the total quantity sown. Eleven per cent of the seed sown was Eagle, 9% was S147, 7% Marvellous. Onward, Ayr, Bounty, Spitfire, Sun and Golden Rain each accounted for 4%. Varieties were unknown for 9% of the seed oats sown. The remaining 2% was Early Miller. Moxed Corn Seed was usually a mixture of Oats, Peas and Beans although in a few cases the mixture was Oats and Beans.

Mixed corn seed tended to cost more per cwt. than did seed oats and this is shown by Table VI.(Home produced seed corn was entered at cost). Seventy per cent of the seed oats sown cost between 24/- and 44/- per cwt. compared with 58% of the mixed corn seed. The average cost of mixed corn seed was 38/- per cwt. and 34/- per cwt. for seed oats.

Purchased Manures cost on average £1. 9. 0. per acre for Oats, and £1. 2. 10d. for Mixed Corn. This was equivalent to more than 10% and 7% of the net cost of the Oats and mixed corn, respectively. Purchased Manures were applied to 17 mixed corn crops and to 25 oat crops. Compound fertilisers were applied to 8 mixed corn crops, at an average rate of 2 cwt. per acre, and to 11 Oat Crops, at a rate of 3 cwts. per acre. Superphosphates were applied to 6 mixed corn crops and averaged 2 cwts. per acre, and to 9 oat crops at 3 cwts.per acre; one mixed corn crop and two oat crops (were slagged). An average of 1½ cwt. per acre of nitro chalk was applied to 3 mixed corn crops and 1 cwt. per acre to 5 Oat Crops. 5 mixed crops received 1 cwt. per acre of sulphate of ammonia and 5 oat crops had ¾ cwt. per acre. Ammonium phosphate was applied to 5 Oat Crops. 9 Oat crops, and 3 mixed corn crops had dressings of lime and much of this was spread by contract. Apart from Nitro-Chalk and Sulphate of Ammonia the average rates of application of fertiliser were slightly higher for oats than for mixed corn. Only one crop of mixed corn had a dressing of farm-yard manure compared with 3 oat crops.

Six Oat Crops and 4 mixed corn crops received no manures. Agroxone weed killer was applied to 5 Oat Crops and the full cost was charged to the crop receiving the dressing.

The average rent charged to the Oats was £1. 0.10d. per acre, and £1. 1.10d. for mixed corn, and was equivalent to just over 7% of the Net Cost in both cases.

Miscellaneous expenses, which include costs of twine, stack nets and thatch etc., cost 9/5d per acre for Oats, and 8/8d for mixed corn. Implement depreciation cost 8/5d, and 7/10d per acre, respectively, for Oats and Mixed Corn.

After allowing for the value of manurial residues brought forward and carried forward * there was a charge to add to each crop which amounted to 9/1d. per acre of oats, and 11/3d per acre of mixed corn.

The net cost of oats averaged £14. 6. 0. per acre, but costs ranged from £10.10. 5d. to £21.12. 0d. The average cost of mixed corn was £14. 18. 3d. and costs ranged from £11.13. 7d. to £22.19. 3d. per acre.

TABLE VII

NET COSTS PER ACRE - OATS AND MIXED CORN.

	Less than £12	£12-£15	£15-£18.	£18-£21.	More than £21.	Total
	%	%	%	%	%	%
Oats	12	56	12	18	2	100
Mixed Corn	4	51	27	14	4	100

Sixty-eight per cent of the net costs per acre of Oats were less than £15 compared with 55% of the mixed corn costs. Thirty-two per cent of the Oat Costs were more than £15, compared with 45% of the mixed corn costs.

* However, nothing was charged against the corn crops for cleaning residues from preceding root crops (see p. 18)

TABLE VIII

GRAIN YIELDS PER ACRE.

	Less than 15 cwts.	15-20 cwts.	20-25 cwts.	25-30 cwts.	Total
	%	%	%	%	%
Oats	20	29	37	14	100
Mixed Corn	14	27	41	18	100

Yields of grain ranged from 10 to 28.7 cwts. per acre for Oats and averaged 21.0 cwts. The average yield of mixed corn was 20.6 cwts. but yields ranged from 5 to 30 cwts.

Straw yields averaged 21.7 cwts. per acre for Oats, and 20.7 cwts. for mixed corn. Yields ranged from 8 to 30 cwts. for Oat Straw, and from 18.3 to 32.2 cwts. for mixed corn straw.

The cost per cwt. of grain and straw was calculated after allowing for the utilisation value of the straw. Where all the straw was for use as bedding the total cost of growing the crop, less the manurial residual value of the straw, was charged to the grain. Where all the straw was for feeding, one sixth of the total cost of growing the crop was charged to the straw; the remainder was charged to the grain. Thus no charge was made for bedding straw and the grain and feeding straw between them bore the total cost of growing the crop.

The average cost per cwt. of Oats was 11/10d and costs ranged from 8/6d to 26/1d. Mixed Corn cost 12/10d per cwt. and there was a wide range of costs from 7/5d. to 51/-.

Feeding straw cost 2/8d. per cwt. on average.

TABLE IX

COSTS OF GRAIN PER CWT.

	Less than 10/-	10 - 14/-	14 - 18/-	18 - 22/-	More than 22/-	Total
	%	%	%	%	%	%
Oats	17	54	13	8	8	100
Mixed Corn	4	50	18	14	14	100

Only 29% of the Oat Costs were above 14/- per cwt., compared with 46% of the mixed corn costs.

ESTABLISHMENT OF LEYS.

A total of 64 costs of the establishment of leys were obtained from 39 farms in respect of 521 acres. Four hundred and sixty six acres were sown under nurse crops and the remaining 55 acres were sown direct.

The cost of establishing the ley includes only those cultivations which could be charged directly to the ley. Full allowance was made for the cost of seeds, implement depreciation and overhead charges. In the case of leys established under nurse crops no charge was made for rent.

One Year Leys sown under Nurse Crops.

Twenty-seven costs were obtained from 26 farms and related to a total of 291½ acres or an average of 10.8 acres per cost. The average cost of the one year ley sown under a nurse crop was £2. 11. 4d. per acre. Costs ranged from £1. 4. 6d. to £3.12. 3d. per acre.

Two Year Leys sown under Nurse Crops.

Only 3 costs were collected of 2 year leys sown under nurse crops. The cost per acre spread equally over two years averaged £1. 10. 10.

Three Year Leys sown under Nurse Crops.

Eleven costs were obtained of 3 year leys and the average acreage was 5¼ acres. Costs averaged £1. 1. 4d. per acre when the total costs were shared equally over three years. There was a range in cost from 7/6d. to £1. 15. 2d. per acre per year.

Four Year Leys sown under Nurse Crops.

Twelve costs were collected from 11 farms and averaged 6.4 acres per cost. Spread equally over 4 years the cost per acre averaged 17/8d per year. Costs ranged from 10/5d. to £1. 4. 3d. per acre per year.

Direct Reseeding.

Eleven direct reseeding costs totalling 55 acres were collected from 10 farms. The acreage costed ranged from 1.2 to 15.0 acres. The leys were sown down for four years except for 3 leys which were sown down for five years. For the purpose of comparison the net costs have been spread equally over four years.

The average costs per acre of Direct Reseeding are shown in Table X.

The total labour cost was equal to just over 23% of the Net Cost or £2. 10. 10d per acre.

Manual labour was equivalent to just over 13% of the Net Cost and averaged £1. 9. 3d. for 12 man hours per acre. Man hours per acre ranged from 4.5 to 22.0

Horses worked on average 3.5 hours and cost 3/8d. They were used on 8 leys and on 2 were the only form of motive power.

TABLE X

AVERAGE COST OF DIRECT RESEEDING PER ACRE.

	Hours	Cost	Percentage of Net Cost
		£ s d	%
Labour - Manual	12.0	1 9 3	13.3
Horse	3.5	3 8	1.6
Tractor	5.7	16 5	7.4
Contract		1 6	0.9
Total Labour		2 10 10	23.2
Seeds		3 15 8	34.5
Purchased Manures		2 14 8	25.0
Farmyard Manure		17 10	8.2
Rent		17 0	7.7
Depreciation		4 7	2.2
Overheads		6 5	3.0
Total		11 7 0	103.8
Less Manurial Residues		- 8 2	- 3.8
Net Cost		£10 18 10	100.0

Average Cost per Acre per year of 4 year Ley: £2.14.4d.

Your Farm:

Tractors were used on 9 leys and on 3 were the only source of power. On average tractors worked 5.7 hours per acre and cost 16/5d. This amount was equal to over 7% of the Net Cost.

Seed was the most important item of cost and averaged £3. 15. 8d. per acre - equal to more than 34% of the Net Cost. The cost of seeds varied between £2. 18. 0. and £5.16. 0. per acre.

Purchased Manures were the second largest item of cost and at £2. 14. 8d. per acre were equal to 25% of the Net Cost. Compound fertilisers were used on one farm; one ley had a dressing of ammonium phosphate. Shoddy was applied to one ley, and one ley had an application of nitro-chalk. Four leys were limed; three leys had superphosphate at an average rate of 3.5 cwts. per acre, and four leys were slagged at an average rate of 9 cwts. per acre.

Farmyard manure cost 17/10d per acre and was equal to just over 8% of the Net Cost. The total cost of manures was nearly equivalent to the cost of seed. On one ley only no manures were applied.

Rent, the third largest item of importance, cost 17/- per acre.

Depreciation of implements and overheads cost 11/- per acre.

The net manurial residues amounted to 8/2d. per acre and this amount was subtracted from the total cost.

The Net Cost per acre of direct reseeding when shared equally over four years averaged £2. 14. 4d. Costs ranged from £1. 15. 9d. to £8. 8. 11d. per acre per year.

ROOT CROPS &c.

	Swedes & Turnips.	Kale	Mangolds
No. of Records	24 *	31 *	28 †
No. of Farms	24	30	26
Acreage Costed	64.3	67.7	86.5
Average acreage per cost.	2.7	2.2	3.1

* 3 Crops were failures.

† 1 complete failure and 3 semi-failures.

TABLE XI

PREVIOUS CROPPING

	Corn	Roots	Grass	Fallow
	%	%	%	%
Swedes	88	3	9	-
Kale	56	20	18	6
Mangolds	69	18	11	2

The average cost of production per acre of the Swede and Turnip Crops is given in Table XII.

TABLE XII

AVERAGE COST OF PRODUCTION PER ACRE OF 24 SWEDE CROPS

1948 CROPPING YEAR

	Hours	Cost	Percentage of Net Cost
		£ s d	%
Labour - Manual	141.5	15 0 0	47.4
Horse	32.0	1 12 3	5.0
Tractor	19.3	2 13 8	8.5
Contract		15 1	2.4
Total Labour		20 1 0	63.3
Purchased Manures		3 19 3	12.5
Farmyard Manure		4 12 0	14.5
Rent		19 3	3.0
Seeds		9 8	1.5
Miscellaneous		3 3	0.5
Depreciation		8 5	1.4
Overheads		3 15 7	12.0
Total		34 8 5	108.7
Add Share of Failures		14 0	2.2
Gross Cost		35 2 5	110.9
Less Manurial Residues		3. 9 5	10.9
Net Cost		31 13 0	100.0

	Average	Your Farm
Cost per Acre	£31.13. 0.	
Yield per Acre	18.7 tons	tons
Cost per Ton	£ 1.13.11.	

The Total Labour costs of the Crop were the largest item of cost and were equal to just over 63% of the Net Cost or £20. 1. 0. per acre.

Direct Manual labour cost £15. 0. 0. per acre and was equivalent to just over 47% of the Net Cost. An average of 141.5 man hours per acre was recorded but there was a range from 40 to 229 hours.

TABLE XIII

LABOUR HOURS PER ACRE

	Less than 50 hrs.	50 - 100 hrs.	100 - 150 hrs.	150 - 200 hrs.	More than 200 hrs.
	%	%	%	%	%
Swedes	5	5	57	28	5
Kale	4	21	43	25	7
Mangolds	-	4	41	51	4

Table XIII shows that 33% of the Swede crops required more than 150 man hours per acre and that only 10% required less than 100 hours.

On average horses worked 32 hours per acre and cost £1. 12. 3d. Horses were used on all the crops and on five crops were the only form of motive power.

An average of 19.3 hours of tractor work cost £2.13.8d. per acre. Tractors were used on 16 crops.

Contract work, recorded on 6 crops, cost 15/1d. per acre.

Purchased Manures were used on all the crops. Compound fertilisers were applied to 12 crops at an average rate of 6 cwt. per acre. Seven crops received an average dressing of 4 cwts. of superphosphate, and 3 crops had 1 cwt. of potash per acre. Two crops were slagged, and 3 crops had dressings of sulphate of ammonia. One crop received an application of Nitro-chalk. Lime was applied to 4 crops and 1 crop had a dressing of shoddy. On average purchased manures cost £3.19.3d per acre, and this was equivalent to 12½% of the Net Cost.

Farmyard manure was applied to 19 crops at an average rate of just over 10 tons per acre but the rates of application varied between 4 and 25 tons per acre. Farmyard manure cost £4.12.0d. per acre and was equal to 14½% of the Net Cost.

The charge for rent was 19/3d.

On average Seed cost 9/8d per acre, miscellaneous items 3/3d. and implement depreciation 8/5d. Four crops were dusted with insecticide and 2 more with lime. Four crops had to be drilled a second time.

Three crop failures added an average of 14/- per acre to the cost of production.

An average of £3. 9. 5d. per acre for manurial residues was subtracted from the cost. Manurial residues had a cash value equivalent to nearly 11% of the net cost.

The Net Cost per acre averaged £31.13.0d. but costs ranged from £13. 6. 0. to £50. 0. 0. Table XIV shows that 39% of the Swede costs were less than £30 per acre, and that 14% were more than £40.

It is important to note that the root crops have been charged with the full cost of all cleaning cultivations and that credits have not been allowed for cleaning residues.

TABLE XIV

NET COSTS PER ACRE

	Less than £20	£20-£30	£30-£40	£40-£50	More than £50
	%	%	%	%	%
Swedes	10	29	47	14	-
Kale	14	32	43	7	4
Mangolds	4	18	63	15	-

The yields of swedes per acre varied between 6 and 40 tons and averaged 18.7 tons. Table XV shows that 43% of the swede crops yielded between 15 and 20 tons and ten per cent of the yields were more than 25 tons per acre.

TABLE XV

YIELDS PER ACRE

	Less than 10 tons.	10-15 tons	15-20 tons	20-25 tons	More than 25 tons
	%	%	%	%	%
Swedes	5	14	43	28	10
Kale	18	18	29	10	25
Mangolds	11	19	22	37	11

The average cost per ton of swedes was £1.13.11d. but there was a range in costs from £1. 0. 0. to £3.10.10d. Table XVI shows that 37% of the costs were between 20/- and 35/- and that 15% of the costs were more than 50/-.

TABLE XVI

COSTS PER TON

	Less than 20/-	20 - 35/-	35 - 50/-	50 - 65/-	More than 65/-
	%	%	%	%	%
Swedes	-	37	48	10	5
Kale	4	43	21	21	11
Mangolds	4	37	37	11	11

K A L E

The cropping of the land prior to the Kale crop is shown in Table XI.

The average cost of production per acre of Kale is shown in Table XVII.

On average the total labour cost amounted to £17.16.8d per acre and was nearly equal to 63% of the Net Cost. Although this amount was £2 per acre less than for swedes, the percentage of the Net Cost was similar.

Manual labour cost £12.3.8d. per acre. This was equal to 43% of the net cost and was less in proportion than for swedes. Kale was also lower in cost of manual labour and hours of labour per acre. The man hours per acre averaged 114.5 and were 27 hours less than for swedes. There was, however, a range in hours from 48 to 259 per acre, and this was rather wider than for the swedes.

Table XIII shows that on the Kale crop 43% of the hours were between 100 and 150 compared with 57% of the hours for swedes. Twenty one per cent of the man hours were between 50 and 100 hours compared with only 5% for swedes.

Horse hours averaged 35.7 and were the highest per acre of any crop costed. The cost per acre was £1.15.10d. and was equal to more than 6% of the Net Cost. Horses were used on 27 crops; on 5 crops where only horses were used some contract work was recorded.

Tractors worked rather more hours per acre for kale than for swedes and the hours were the greatest recorded on any crop. The cost for 22.5 tractor hours was £3. 2. 0d. per acre and this was almost equal to 11% of the Net Cost. Tractors were used on 20 crops and on 1 crop provided the only form of motive power.

Contract work and gang labour were recorded on 11 costs. The cost per acre was 15/2d; equivalent to nearly 3% of the Net Cost.

Two of the crops, a total of 4 acres, were folded off by dairy cows using an electric fence.

Purchased manures cost approximately the same per acre as for swedes at £3. 18.10d. In the case of kale, however, purchased manures represented nearly 14% of the Net Cost compared with rather more than 12% for swedes. Twenty four kale crops received purchased manures. Thirteen crops had an average dressing of 6 cwt. of compound fertiliser per acre and rates of application varied from 1 to 10 cwts. per acre. Superphosphates were applied to 5 crops at an average rate of 4½ cwt. per acre but there were variations between 3 and 10 cwt. An average of 4 cwt. per acre of Nitro-chalk was applied to four crops and Potash was applied to 3 crops at 1 cwt. per acre. Two crops were slagged and five crops had an average of 2 cwt. of Sulphate of Ammonia per acre. One crop had a dressing of shoddy and one crop had 5 cwt. of salt per acre. Six crops were limed.

Farmyard Manure cost £3.11.3d. per acre; an amount equal to more than 12% of the Net Cost. Considerably less farmyard manure was applied to the kale crop than to the swedes and the cost was about £1 per acre less. To some extent this may have been due to the previous cropping of the kale land where a large proportion had been in roots and grass during 1947. Nineteen kale crops received

farmyard manure and the quantities applied varied from 3 to 25 tons per acre. The average rate of application was just over 10 tons per acre. Twenty per cent more of the swede crops were dunged than the kale where 70% of the crops had farmyard manure.

The total value of manures applied to the kale crops was on average less than that of swedes by more than £1.1.0. per acre. The chief difference was due to the amount of farmyard manure applied.

The rent per acre charged to the kale was slightly higher than for swedes and averaged £1. 0. 3d. per acre.

The cost of seeds was higher for kale and it was necessary to sow two crops a second time and one crop three times. Miscellaneous expenses were similar to those of swedes although implement depreciation cost less.

The share of three crop failures added 13/- per acre to the net cost.

The value of net manurial residues averaged £3. 0. 2d per acre and this was subtracted from the cost. The amount was similar to that on the swede crop and was equal to 10% of the Net Cost.

The net cost of production of the kale crop averaged £28.7.3d. per acre or nearly £3.6.0. less than for swedes. Costs ranged from £15 to £53.

Table XIV shows that 46% of the kale costs were less than £30 compared with 39% of the swede costs.

The average yield of kale was 16.2 tons per acre but yields varied between 4.7 and 35 tons. Table XV shows that 36% of the kale yields per acre were less than 15 tons and that 25% were more than 25 tons. In comparison 19% of the swede crops yielded less than 15 tons but only 10% yielded more than 25 tons per acre.

The costs per ton of kale were spread over a rather wider range than were the costs of swedes. On average kale cost £1.14.11d. per ton and costs ranged from 19/8d. to £3. 18. 0d. Table XVI shows that 32% of the kale costs were more than 50/- compared with 15% of the swede costs.

TABLE XVII

AVERAGE COST OF PRODUCTION PER ACRE OF 31 KALE CROPS.

1948 CROPPING YEAR.

	Hours	Cost	Percentage of Net Cost
		£ s d	%
Labour - Manual	114.5	12 3 8	42.9
Horse	35.7	1 15 10	6.3
Tractor	22.5	3 2 0	10.9
Contract		15 2	2.8
Total Labour		17 16 8	62.9
Purchased Manures		3 18 10	13.9
Farmyard Manure		3 11 3	12.6
Rent		1 0 3	3.6
Seeds		15 8	2.7
Miscellaneous		3 0	0.5
Depreciation		6 9	1.2
Overheads		3 2 0	10.9
Total		30 14 5	108.3
Add Share of Failures		13 0	2.3
Gross Cost		31 7 5	110.6
Less Manurial Residues		3 0 2	10.6
Nett Cost		28 7 3	100.0

	Average	Your Farm
Cost per Acre	£28. 7. 3d.	
Yield per Acre	16.2 tons	tons
Cost per Ton	£1. 14.11d.	

MANGOLDS.

The cropping prior to the mangold crop is shown in Table XI.

The cost of production per acre of mangolds is shown in Table XVIII.

TABLE XVIII

AVERAGE COST OF PRODUCTION PER ACRE OF 28 MANGOLD CROPS.

1948 CROPPING YEAR

	Hours	Cost	Percentage of Nett Cost
		£ s d	%
Labour - Manual	141.0	14 17 0	44.3
Horse	27.5	1 7 7	4.2
Tractor	19.5	2 14 5	8.1
Contract		1 4 8	3.7
Total Labour		20 3 8	60.3
Purchased Manures		5 0 2	15.0
Farm Yard Manure		5 7 8	16.1
Rent		1 3 5	3.5
Seeds		1 0 5	3.0
Miscellaneous		8	0.1
Depreciation		10 0	1.5
Overheads		3 19 0	11.8
Total		37 5 0	111.2
Add Share of Failures		+ 5 3	+ 0.8
Gross Cost		37 10 3	112.0
Less Manurial Residues		- 4 0 3	- 12.0
Nett Cost		33 10 0	100.0

	Average	Your Farm
Cost per Acre	£33. 10. 0.	
Yield per Acre	18.2 tons.	tons.
Cost per Ton	£1. 16.11.	

The Total Labour cost was equivalent to just over 60% of the Net Cost and averaged £20. 3. 8d. per acre. Although this amount was higher than for swedes it was almost 3% less in relation to the Net Cost.

Manual labour cost £14.17.0d per acre and was equivalent to 44% of the Net Cost. The hours of manual labour per acre averaged 141 and the range from 91 to 223 hours was less wide than for swedes and kale. Table XIII shows that 55% of the mangold crops required more than 150 hours compared with 32% for kale and 33% for swedes. Only 4% of the mangold crops required less than 100 hours per acre.

Horse hours averaged 27.5 per acre and cost £1. 7. 7d. Horses were used on 26 crops and on 3 were the only form of motive power.

Tractors were used on 23 crops and were the only form of power on 1 crop. On average tractors worked 19.5 hours per acre and cost £2.14. 5d. The cost of tractor labour for mangolds was equivalent to just over 8% of the Net Cost and was a less important item than on the kale and swede crops.

Contract work and gang labour, however, cost almost twice the amount found on the swede and kale crops. The cost for mangolds averaged £1. 4. 8d. per acre and was recorded on 10 crops only.

Purchased manures cost £5. 0. 2d. per acre for mangolds, and was equal to 15% of the net cost. Twenty-two crops had dressings of purchased manures. Compound fertilisers were applied to 19 crops at an average rate of 7½ cwts. per acre. Three crops had potash at an average rate of 1 cwt. per acre; 5 crops had an average of 2 cwts. of sulphate of ammonia per acre. Slag was applied to two crops and 4 crops had superphosphates at an average rate of 6 cwts. per acre. An average of 3½ cwts. of salt per acre was applied to 4 crops and 6 crops were limed.

Farmyard manure was applied to 25 crops at an average rate of 12 tons per acre and the cost of £5. 7. 8d. was equivalent to just over 16% of the Net Cost.

The total cost of manures applied to the mangold crop was £10. 7. 10d. per acre compared with £7.10. 1d. for kale and £8. 11. 3d. for swedes. Expressed as percentages of the respective Net Costs this was equal to 31% for mangolds, 26% for kale and 27% for swedes.

The charge for rent on the mangolds was the highest of the root crops and averaged £1. 3. 5d. per acre.

The cost of seed was £1. 0. 5d. per acre. Two crops only were dusted and implement depreciation cost 10/- per acre.

One crop failure added an average of 5/3d per acre to the cost of production.

The net manurial residues, which were valued at £4. 0. 3d. per acre, were subtracted from the cost. This amount was larger than on other root crops and was equivalent to 12% of the Net Cost.

The net cost of production per acre of mangolds averaged £33.10.0d. compared with £31. 13. 0. for swedes and £28. 7. 3d. for kale. Net Costs per acre ranged from £18. 0. 0. to £47. 8. 0d. and this range was less wide than on the swede and kale crops. Table XIV shows that 78% of the mangold costs were more than £30 per acre.

The average yield of mangolds was 18.2 tons per acre and there was a range from 7 to 31 tons. Table XV shows that 48% of the mangold yields were more than 20 tons compared with 38% of the swede and 35% of the kale yields. Thirty per cent of the mangold yields, however, were less than 15 tons per acre compared with 19% of the swede and 36% of the kale yields.

The cost per ton of mangolds varied from 19/3d. to £3.19. 3d. and averaged £1. 16. 11d.

SILAGE.

No. of records	13
No. of farms	11
Acreage costed	179
Average acreage per cost	13.7

Costs were obtained of 8 lots of grass silage, of which 3 were from permanent and 5 from temporary grass. Five crops were from first cuts and 3 were from aftermath grass. Costs were also obtained of 5 arable silage crops, one of which was kale. The acreage costed ranged from 1½ to 40 acres of grass and of the 179 acres costed 135 were in grass. The remaining 44 acres were cereal legume

mixture except for 5 acres of kale. Five crops were made into stack silage, 3 into pit silage and 5 crops were ensiled in surface containers. Green crop loaders were used for 3 crops and a cutter blower was used for one crop.

The cost of production per acre of silage is shown in Table XIX.

TABLE XIX

AVERAGE COST OF PRODUCTION PER ACRE OF 13 SILAGE CROPS.

1948 CROPPING YEAR

	Hours	Cost	Percentage of Nett Cost
		£ s d	%
Labour - Manual	30.8	3 3 8	32.8
Horse	3.5	3 5	1.8
Tractor	10.0	1 7 0	13.9
Contract		1 7	0.8
Total Labour		4 15 8	49.3
Purchased Manures		19 5	10.0
Farm Yard Manure		1 14 8	17.8
Seeds		16 7	8.6
Rent		15 0	7.7
Miscellaneous		13 2	6.8
Depreciation		10 3	5.3
Overheads		15 6	8.1
Gross Cost		11 0 3	113.6
Less Share to Grazing		- 11 9	- 6.1
Total		10 8 6	107.5
Less Manurial Residues		- 14 8	- 7.5
Nett Cost		9 13 10	100.0

	Average	Your Farm
Cost per Acre	£9. 13. 10d.	
Yield per Acre	5.8 ton	ton
Cost per Ton	£1. 13. 5d.	

Man hours per acre for arable silage ranged from 35 to 59 except for the kale silage where the hours averaged 201. For grass silage the hours ranged between 16.5 and 57.5 per acre.

Horse labour was only a small item of cost and averaged 3.5 hours per acre. Horses were used on all but one grass silage crop and were the only motive power on 2 grass silage crops.

Tractors were of great importance and averaged nearly 10 hours per acre. The cost was nearly equivalent to 14% of the net cost or £1. 7. 0. per acre. On 1 grass crop tractor power only was used and tractors were used on all but 2 grass crops.

Purchased manures were applied to 8 crops. One arable silage crop received no manures at all. Compound fertilisers were applied to 4 arable crops at an average rate of 4 cwt. per acre; 2 crops had superphosphates and one had sulphate of ammonia. Potash was applied to one crop and 4 crops were limed. Four grass crops were not manured. Of the remainder, 1 crop was limed, and 1 crop had sulphate of ammonia. Potash, compound fertiliser and nitro-chalk were each applied to one crop.

Farmyard manure was applied to 4 of the permanent grass crops at a rate varying from 6 to 10 tons per acre. Two grass crops had dressings of liquid manure. (Although liquid manure was collected on many of the 62 farms from which costs were obtained on only 4 was it applied to the land). Two arable fields were dunged. On average farmyard manure cost £1.14.8d. per acre.

The charge for rent averaged 15/- per acre. This was due to only a proportion of the rent being charged to silage made from aftermath grass.

Miscellaneous expenses, which include molasses and materials for covering the silage, cost 13/3d per acre. Molasses were used for 6 crops and salt for 2 crops. Five crops were not treated in any way.

Implement depreciation costs, which averaged 10/- per acre, were higher for silage than for any other crop and reflected the high degree of mechanisation.

Six of the grass crops were grazed after the silage cut had been taken. The value of the grazing averaged 11/9d per acre and was subtracted from the total cost of the crop.

The net manurial residues were valued at 14/8d per acre and this amount was subtracted from the cost.

The net cost of production averaged £9.13.10d. per acre. Costs ranged from £4.12. 0d. to £11.14. 0d. in the case of grass silage and from £10. 2. 0. to £23. 8. 0. in the case of arable silage. Kale silage cost £45.16. 0. per acre.

The yield of silage ranged from 1.2 to 10.0 tons per acre for grass silage and from 3.5 to 6.7 tons for arable crops. The kale silage yielded 28 tons per acre. The average of all crops was 5.8 tons.

The cost per ton for all crops averaged £1.13.5d. but ranged from £1. 0. 0. to £3. 12. 0. for grass silage and from £1. 12. 0. to £3. 12. 0. for arable silage. The cost per ton of kale silage was £1. 12. 10d.

MEADOW HAY.

Costs were obtained of 498 acres of meadow hay representing 32 different crops.

Table XX shows the average cost of production per acre of meadow hay during 1948.

The total Labour Cost averaged £3. 11. 11d. per acre, an amount equivalent to 55% of the Net Cost.

Manual labour cost £2. 8.11d. per acre and was equal to almost 38% of the Net Cost. On average 23.8 hours of manual labour were required per acre but there was a range from 11.4 to 48.2 hours.

TABLE XX

AVERAGE COST OF PRODUCTION PER ACRE OF 32 MEADOW HAY CROPS

1948 CROPPING YEAR

	Hours	Cost	Percentage of Nett Cost
		£ s d	%
Labour - Manual	23.8	2 8 11	37.5
Horse	6.4	6 5	4.9
Tractor	5.0	13 1	10.0
Contract		3 6	2.7
Total Labour		3 11 11	55.1
Purchased Manures		15 4	11.7
Farmyard Manure		2 0 6	31.0
Rent		1 3 7	18.2
Miscellaneous		5 9	4.4
Depreciation		4 6	3.4
Overheads		12 4	9.5
Gross Cost		8 13 11	133.2
Less Share to Grazing		- 1 14 2	- 26.1
Total		6 19 9	107.1
Less Manurial Residues		- 9 3	- 7.1
Nett Cost		6 10 6	100.0

	Average	Your Farm
Cost per Acre	£6. 10. 6d.	
Yield per Acre	29.1 cwts	cwts.
Cost per Ton	£4. 9. 6d.	

TABLE XXI.

MAN HOURS PER ACRE

	Less than 15 hrs.	15 - 20 hrs.	20 - 25 hrs.	25 - 30 hrs.	More than 30 hrs.
	%	%	%	%	%
Meadow Hay	19	28	25	16	12
Seeds Hay	9	20	31	18	22

Table XXI shows that 19% of the meadow hay costs required less than 15 hours per acre and that 12% required more than 30 hours.

Horses were used on 30 crops and on 7 were the only motive power. On average horses worked 6.4 hours and cost 6/5d per acre.

The cost of tractor labour was equivalent to 10% of the Net Cost and averaged 13/1d per acre. Tractors worked 5 hours per acre and were used on 24 crops.

Contract work and gang labour cost 3/6d per acre but were recorded on only 13 crops. On one farm all the work apart from manual labour was done by contractors.

On most farms haytime was spread over a fairly long period because of the weather and several methods of working were recorded. Nine crops were swept to stacks, hay loaders were used on 2 crops and 4 crops were baled.

Prior to mowing all but 4 crops received some attention such as manuring or harrowing.

Purchased manures were equal in value to 12% of the Net Cost and averaged 15/4d. per acre. Three crops received an average of 1 cwt. of sulphate of ammonia per acre and 3 crops had 1 cwt. per acre of nitro-chalk. Ammonium phosphate was applied to 1 crop and 1 crop had superphosphates. Four crops were slagged and 8 crops had an average of 1½ cwts. of compound fertiliser per acre. Four crops were limed.

Farmyard manure cost on average £2. 0. 6d. per acre which was equivalent to 31% of the Net Cost. On 18 crops where farmyard manure was used the average rate of application was almost 7½ tons per acre. On 13 crops, 12 of which were Dales farms, there were records of farmyard manure being applied to meadowland for the second year in succession.

The total manures applied to the meadow hay crop were equivalent to almost 43% of the Net Cost and were therefore an item of considerable importance. On 5 meadow hay crops, however, no manures were applied.

The charge for rent was equal to just over 18% of the Net Cost and averaged £1. 3. 8d. per acre.

Miscellaneous items, including teas, thatching materials etc., cost 5/9d per acre. The allowance for implement depreciation was 4/6d. per acre.

The average value of aftermath grazing was £1.14.2d. per acre and was equal to 26% of the Net Cost. A higher value for grazing was allowed for some Dales farms where ewes had grazed the meadows in spring. In other cases one third of the rent, net manures, pre-mowing operations and maintenance costs were charged to the aftermath grazing. On three crops only the aftermath was not grazed. The net costs of meadow hay ranged between £2.19.5d. and £10.18.0d. per acre. The average cost was £6.10.6d.

TABLE XXII

NET COSTS PER ACRE

	Less than £4.5	£4.5 - £6.0	£6.0 - £7.5	£7.5 - £9.0	More than £90
	%	%	%	%	%
Meadow Hay	16	41	28	9	6
Seeds Hay	2	22	45	18	13

Table XXII shows that 57% of the net costs of meadow hay were less than £6. 0. 0.

The yield per acre of meadow hay averaged 29.1 cwts.

TABLE XXIII

YIELDS PER ACRE

	Less than 20 cwts.	20 - 27 cwts.	27 - 34 cwts.	34 - 41 cwts.	More than 41 cwts.
	%	%	%	%	%
Meadow Hay	18	26	35	18	3
Seeds Hay	3	13	24	34	26

Table XXIII shows that 18% of the meadow hay yielded less than 20 cwts. per acre and that 21% yielded more than 34 cwts.

TABLE XXIV

COSTS PER TON

	Less than £3	£3 - £4	£4 - £5	£5 - £6	More than £6
	%	%	%	%	%
Meadow Hay	3	34	34	13	16
Seeds Hay	7	44	36	8	5

The costs per ton of meadow hay ranged between £2. 7. 5d. and £8.13.0d. with an average of £4. 9. 6d. Table XXIV shows that 64% of the meadow hay cost between £3. 0. 0. and £5. 0. 0. per ton.

SEEDS HAY.

Costs of production were obtained from 42 farms of 54 seeds hay crops totalling 793 acres.

Table XXV shows the average cost of production per acre of the Seeds Hay Crop.

The Total Labour Cost was equal to just over 50% of the Net Cost and averaged £3.10.10d. per acre.

Direct manual labour cost £2. 9. 8d. and was equal to just over 35% of the Net Cost. The hours of manual labour per acre averaged 23.7 and were similar to those of the meadow hay although 13 seeds hay crops were mown a second time. (This was principally due to more time being spent applying farmyard manure to the meadow land thus equalising the hours). On five crops no pre-mowing operations were recorded. The distribution of the hours of manual labour is shown in Table XXI.

Horses worked on average 4.1 hours per acre on the seeds hay and nearly 50% less hours were required compared with the meadow hay. Horses were used on 50 crops and on 5 were the only form of motive power.

Tractors were used on 49 crops and were the only source of power on 4 crops. Tractors worked on average 4.5 hours per acre and cost 12/2d. The cost and hours of work were slightly less than for meadow hay.

TABLE XXV

AVERAGE COST OF PRODUCTION PER ACRE OF 54 SEEDS HAY CROPS

1948 CROPPING YEAR

	Hours	Cost	Percentage of Nett Cost
		£ s d	%
Labour - Manual	23.7	2 9 8	35.2
Horse	4.1	4 0	2.8
Tractor	4.5	12 2	8.7
Contract		5 0	3.5
Total Labour		3 10 10	50.2
Purchased Manures		1 1 0	14.9
Farmyard Manure		6 5	4.5
Rent		1 1 8	15.3
Miscellaneous		4 7	3.3
Depreciation		6 7	4.7
Overheads		12 7	8.9
Establishment of Ley		1 5 0	17.7
Gross Cost		8 8 8	119.5
Less Share to Grazing		- 17 0	- 12.0
Total		7 11 8	107.5
Less Manurial Residues		- 10 8	- 7.5
Nett Cost		7 1 0	100.0

	Average	Your Farm
Cost per Acre	£7. 1. 0d.	
Yield per Acre	36.1 cwts.	cwts.
Cost per Ton	£3.18. 1d.	

Contract work cost 5/- per acre and was recorded on 21 crops. Nineteen crops of seeds hay were baled.

Purchased manures which cost £1. 1. 0. per acre, 5/8d. per acre more than for meadow hay, were almost equivalent to 15% of the net cost. Eight crops were slagged at an average rate of 6 cwts. per acre and compound fertilisers were applied to 11 crops at an average rate of 3 cwts. An average of 3 cwts. per acre of superphosphates was applied to 8 crops and 10 crops received a dressing of 1 cwt. per acre of Nitro-chalk. Eleven crops had an average of 1 cwt. of sulphate of ammonia per acre. Seven crops were limed and shoddy was applied to one crop.

Farmyard manure was a minor item in the seeds hay costs and cost only 6/5d per acre compared with £2. 0. 6d. for meadow hay. The cost of farmyard manure was equal to 4.5% of the Net Cost of seeds hay compared with 31% of the Net Cost of meadow hay. Farmyard manure was applied to 7 seeds hay crops at an average rate of 5 tons per acre. Five crops which were dressed with farmyard manure for the second year in succession were on Dales farms.

Eighteen crops received no manures of any description. The total cost of manures applied to the seeds hay averaged £1. 7. 5d. per acre and was equal to just over 19% of the Net Cost. This compares with an average cost of £2.15.10d for manures and almost 43% of the net cost in the case of meadow hay.

The rent charged to the seeds hay averaged £1. 1. 8d. per acre.

Miscellaneous costs were rather less than those of the meadow hay at 4/7d per acre but implement depreciation was 2/1d. more and averaged 6/7d. per acre.

The cost charged for establishing the seeds hay averaged £1. 5. 0. and was equivalent to almost 18% of the Net Cost.

An average of 17/0d was allowed for aftermath grazing and was equal to 12% of the net cost. The average value of the aftermath was only half that of the meadow hay and was chiefly due to 13 seeds hay crops being mown a second time. In addition, on 15 crops the aftermath was not utilised.

The net value of the manurial residues was 10/8d. per acre and this amount was subtracted from the cost. The manurial residues of the seeds hay crop include a cultural residue for the turf value of the ley.

The net cost per acre of seeds hay ranged from £4. 9.10d. to £13. 6. 0. and was rather wider in range than for meadow hay and about £2. 0. 0. per acre higher. The average net cost of production was £7. 1. 0d. per acre or about 10/- more than for meadow hay. Table XXII shows that seeds hay costs tended to lie at the upper end of the range compared with meadow hay. Thirty one per cent of the seeds hay costs were more than £7.10. 0. per acre compared with 15% of the meadow hay costs.

The yield of seeds hay averaged 36.1 cwts. or about 7 cwts. more per acre than for meadow hay and the range was wider than for meadow hay. Table XXIII shows that 60% of the yields of seeds hay were more than 34 cwts. per acre compared with 21% of the meadow hay yields.

The cost per ton of seeds hay ranged from £2.15. 8d. to £7.2.0. and averaged £3.18. 1d. Table XXIV shows that 80% of the costs per ton of seeds hay were between £3 and £5 compared with 68% of the meadow hay costs. Twenty nine per cent of the meadow hay cost more than £5 per ton compared with 13% of the seeds hay.

PASTURE

Table XXVI shows the cost of pasture per acre on 62 farms during 1947-48. An average of 31.5 acres of pasture was costed per farm but there was a range from 2 to 102 acres. Costs were obtained of all the pastures grazed by the dairy cows and on some farms this was not the total acreage of pasture.

The total labour cost per acre was 7/10d. and this item was equal to more than 12% of the Net Cost.

Direct manual labour cost 5/- per acre on average for 2.4 man hours.

TABLE XXVI

AVERAGE COST PER ACRE OF PASTURE.

62 FARMS 1947-48

	Hours	Cost			Percentage of Net Cost
		£	s	d	%
Labour - Manual	2.4		5.	0.	8.1
Horse	0.3			4	0.5
Tractor	0.4		1	1	1.7
Contract			1	5	2.3
Total Labour			7	10	12.6
Purchased Manures			16	10	27.3
Farmyard Manure				3	0.4
Rent		1	1	3	34.5
Miscellaneous			1	6	2.5
Depreciation				5	0.6
Overheads			1	7	2.6
Share of Ley			4	0	6.5
Total		2	13	8	87.0
Less Manurial Residues		-	6	0	- 9.7
Total		2	7	8	77.3
Add share from aftermath		+	14	0	+ 22.7
Net Cost		3	1	8	100.0

	Average	Your Farm
Number of Grazing weeks per acre	26.5	
Cost per cow grazing week per acre	2/4d.	

TABLE XXVII

MAN HOURS PER ACRE

Less than 1.5 hours	1.5 - 2.5 hrs.	2.5 - 3.5 hrs.	3.5 - 4.5 hrs.	More than 4.5 hours.
%	%	%	%	%
21	42	6	15	16

Man hours per acre ranged from 0.1 to 10.2 hours. On 63% of the pastures less than 2.5 hours were required per acre.

Horse labour utilised on 27 farms and averaged 4d. per acre.

Tractors cost 1/1d per acre and were used on 32 farms.

Contract work and gang labour costing 1/5d. per acre were recorded on 18 farms.

The cost of purchased manures was equal to just over 27% of the Net Cost and at 16/10d per acre was the second largest item of cost. Purchased manures were used on 41 farms.

On three farms farmyard manure was applied to pasture.

Rent was the most important item of cost and was equal to more than 34% of the Net Cost and averaged £1. 1. 3d. per acre.

Miscellaneous costs included gates, wire, posts etc., cost 1/6d. and implement depreciation 5d. per acre.

A charge for establishing leys was made on 28 farms.

The net value of manurial residues averaged 6/- per acre and this amount was subtracted from the cost.

Aftermath was grazed by cows on 51 farms and 14/- per acre were charged for this grazing. The cost was nearly equivalent to 23% of the Net Cost.

The net cost of pasture averaged £3. 1. 8d. per acre but ranged from £1. 1. 3d. to £8. 6. 3d.

TABLE XXVIII

NET COST PER ACRE OF PASTURE

Less than £2.5	£2.5 - £3.5	£3.5 - £4.5	£4.5 - £5.5	More than £5.5
%	%	%	%	%
37	22	18	15	8

Table XXVIII shows a steady decline from the low cost to high cost pasture. Fifty-nine per cent of the costs were less than £3. 10. 0.

GRAZING

In assessing the average number of grazing weeks per acre records were obtained of all the grazing stock.

All grazing weeks recorded outside the six summer months were reduced to allow for the lower productivity of the pasture and adjustments were made for grazing by stock other than cows. For the purposes of comparison all grazing was converted to cow week equivalents. This standard was the amount of day and night grazing per cow during one week in summer. One cow grazing week was reckoned equivalent to grazing by:

1 horse per week,
1⅓ semi-adult cattle per week,
2 young cattle per week,
6 adult sheep per week.

On average about 13 acres of aftermath per farm were grazed by milk cows.

The grazing weeks per adjusted acre were obtained by dividing the number of grazing weeks by the sum of the pasture acreage plus the pasture equivalent of the aftermath.

During 1948 pasture yielded 23.0 cow grazing weeks per adjusted acre and there was a wide range of grazing weeks from 9.6 to 47.9

TABLE XXIX

COW GRAZING WEEKS PER ADJUSTED ACRE

Less than 10 weeks.	10 - 20 wks.	20 - 30 wks.	30 - 40 wks.	More than 40 weeks
%	%	%	%	%
2	29	50	13	6

The number of grazing weeks per acre depends upon several factors chief of which are management, intensity of stocking (which may be influenced largely by farm size)

types of grazing stock, length of the grazing season and the natural fertility of the land. On the farms studied 2 groups were found to have the highest number of grazing weeks per acre. The first group was of fairly small but heavily stocked farms, and the second group was of farms where fairly intensive sometimes rotational grazing of leys was practised.

Twenty-four per cent of the grazing weeks recorded related to dairy cows. Grazing by cows only was recorded on 3 farms.

The average cost per cow grazing week was 2/4d. but costs ranged from 1/- to 3/10d. The distribution of the costs was fairly even and is shown in Table XXX.

TABLE XXX

COST OF GRAZING PER COW WEEK

Less than 1/6d	1/6d - 2/-	2/- - 2/6d	2/6d - 3/-	More than 3/-
%	%	%	%	%
10	26	26	27	11

The number of grazing weeks per cow averaged 26.9 during 1948 and ranged from 14.3 to 39.4 weeks. On average 3.6 weeks per cow were recorded during the six winter months.

TABLE XXXI

GRAZING WEEKS PER COW PER YEAR

Less than 21 weeks.	21 - 24 wks.	24 - 27 wks.	27 - 30 wks.	More than 30 weeks.
%	%	%	%	%
6	11	43	28	12

Forty per cent of the grazing weeks per cow were more than the average of 26.9

TABLE XXXII

ADJUSTED ACRES OF PASTURE PER COW

Less than 0.7 acres	0.7 - 1.0 acres	1.0 - 1.3 acres.	1.3 - 1.6 acres	More than 1.6 acres
%	%	%	%	%
6	26	39	18	11

On average 1.18 adjusted acres of pasture were required during 1948 and there was a range in the acreage per cow from 0.6 to 2.5. Table XXXII shows that 65% of the cows had between 0.7 and 1.3 adjusted acres of pasture.

S U M M A R Y.

1. During 1948/49 Costs of Fodder Crop production and pasture were obtained from 62 farms co-operating in the Milk Cost Investigation.

2. Thirty-five Oat crops cost £14.6.0d. per acre. The average field of grain was 21.0 cwts. per acre and cost 11/10d.per cwt.

3. Twenty-two mixed corn crops had an average cost of £14.18.3d. per acre. The average yield of grain was 20.6 cwts. per acre and cost 12/10d. per cwt.

4. The average cost per acre of 27 one-year leys sown under nurse crops was £2. 11. 4d.

5. Three two-year leys sown under nurse crops cost £1.10.10d. per acre per year.

6. Eleven three-year leys sown under nurse crops cost on average £1. 1. 4d. per acre per year.

7. The average cost per acre per year of 12 four-year leys sown under nurse crops was 17/8d.

8. Eleven four-year leys sown direct cost £2.14.4d. per acre, per year.

9. The average cost of 24 Swede and Turnip crops was £31.13.0d. with a yield of 18.7 tons per acre. The cost per ton was £1.13.11d.

10. The average cost per acre of 31 kale crops was £28.7.3d. and the yield per acre averaged 16.2 tons. The cost per ton was £1.14.11d.

11. Twenty-eight mangold crops cost on average £33.10.0d. per acre. The yield was 18.2 tons and the cost per ton was £1.16.11d.

12. Thirteen silage crops cost on average £9.13.10d. per acre. The yield averaged 5.8 tons and the cost per ton was £1.13.5d.

13. The average cost of 32 meadow hay crops was £6.10.6d. per acre. The yield averaged 29.1 cwts. per acre and the cost per ton was £4. 9. 6d.

14. Fifty-four seeds hay crops cost £7.1.0. per acre. The yield averaged 36.1 cwts. per acre and the cost per ton was £3.18.1d.

15. The average cost of pasture on 62 farms was £3.1.8d. per acre. There were 26.5 grazing weeks per acre, per year, and the cost per grazing week was 2/4d.

COSTS OF FODDER CROPS PER TON & PASTURE

	1947-48			1948-49			
	£	s	d	£	s	d	
Oats	12	10	9	14	0	0	*
Mixed Corn	14	10	0	15	12	0	*
Feeding Straw	2	12	6	2	12	0	
Swedes	1	19	3	1	16	0	
Kale	1	14	4	1	16	0	
Mangolds	1	18	9	2	0	0	
Seeds Hay	4	19	5	4	0	0	
Meadow Hay	4	6	10	4	9	0	
Silage	1	14	1	2	0	0	
Pasture (per week)		2	5		2	4	

* includes charge for grinding.