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Oats
Cost
of
production

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COSTS OF PRODUCING OATS AND HAY ON

WELSH FARMS IN 1945.

by

B. H. ROBERTS, B.Sc.,

Department of Agricultural Economics,

University College of Wales,

Aberystwyth.

1947.

PRICE: ONE SHILLING.

In a pastoral country like Wales the production of oats and hay is bound to figure prominently in the farming organisation. Although the acreage of oats more than doubled in the course of the war years, this crop was produced mainly for feeding to stock rather than for direct human consumption. With the introduction of incentives for ploughing-up of old pastures and the enforcement of directions for increasing the arable area, the area under seeds hay increased considerably while that of meadow hay dropped, in 1944, by over 40 per cent from the pre-war acreage.

In Wales there is a close correlation between the distribution of oats and of cattle. Whether used for the rearing of store cattle or the feeding of dairy cows, the oat feed has always contributed a very significant proportion of the ration, and shortage of feedingstuffs during the war has resulted in its increased use for milk production. A study of 29 identical farms in Wales from 1938-9 to 1941-2* illustrates the changes in the composition of feed for dairy cows during the winter feeding periods.

Table 1.

Quantities Fed per Cow during the winter
months (cwt.)

	:	:	:	:
	: 1938-9	: 1939-40	: 1940-1	: 1941-2
Purchased Concentrates	: 11.16	: 9.23	: 7.23	: 6.45
Home Grown Grains	: 0.96	: 1.11	: 3.28	: 3.61
Hay and Straw	: 18.50	: 17.20	: 19.70	: 15.50
	:	:	:	:

It will be seen that the consumption of purchased concentrates fell by one-half while that of home-grown grain (mainly oats) increased four-fold. The quantity of hay available had decreased substantially and more straw was available for feeding.

The necessity for providing a bigger proportion of the production ration of stock from home-grown foods, coupled with directions for ploughing up grassland, resulted in about a four-fold increase of the area under oats between 1939 and 1942, while the area under rotational hay increased slightly and that under meadow hay fell by about 28 per cent.

* See J. Pryse Howell: War-time Milk Production in Wales. Welsh Journal of Agriculture, Vol. XVII. 1943.

Table 2a.

Acreages for Welsh Counties.
(June 4th Returns).

Year.	Oats.	Seeds	Hay:	Meadow Hay.	All Hay.
1939	160,304	146,563	623,097	769,660	
1940	284,581	144,835	563,401	708,236	
1941	354,306	132,717	499,905	632,622	
1942	403,306	150,238	445,859	596,097	
1943	369,546	185,466	395,433	580,899	
1944	347,837	217,939	362,262	580,201	
1945	332,332	241,318	374,144	615,462	

Expressed as indices the above figures would be -

Table 2b.

Year.	Oats.	Seeds	Hay:	Meadow Hay.	All Hay.
1939	100.0	100.0	100.0	100.0	100.0
1940	177.5	98.8	90.4	92.0	
1941	221.0	90.6	80.2	82.2	
1942	251.6	102.5	71.6	77.4	
1943	230.5	126.5	63.5	75.5	
1944	217.0	148.7	58.1	75.4	
1945	207.3	164.7	60.0	80.0	

If livestock on Welsh farms for the corresponding June censuses were converted into livestock units and related to the acreages of oats and hay, the density of stock per acre, expressed as indices, would be as given in Table 3.

Table 3.

Indices of Stock Units per acre.

Year.	Oats.	Seeds	Hay:	Meadow Hay.	All Hay.
1939	100.0	100.0	100.0	100.0	100.0
1940	53.1	95.3	104.2	102.4	
1941	42.5	103.8	117.1	114.3	
1942	36.6	89.9	123.9	119.0	
1943	41.0	74.8	149.1	125.3	
1944	44.9	65.5	167.7	129.4	
1945	47.3	59.6	163.4	122.7	

Table 3 shows the marked increase in the provision of oats and seeds hay per unit of stock and the corresponding decrease in the amount of meadow hay. The area of oats per unit of stock increased almost three-fold between 1939 and 1942, and by 1945 the area of seeds hay per unit of stock was nearly double that of the pre-war years.

Oats. For the 1945 crop 54 records were obtained, 22 in respect of 1st year oats and 32 in respect of "other" oats. The farms were mainly concerned in milk production, supplemented with stock-rearing and sheep-raising. Nearly half the total area was devoted to grazing. The average cropping is shown in Table 4.

Table 4.

Average Cropping of Farms in 1945.

Crop.	: 1st Year Oats Sample:		: 'Other' Oats Sample.	
	: Acres.	: % of Total:	: Acres.	: % of Total.
Wheat	: 3.8	: 2.5	: 5.7	: 3.5
Barley	: 3.8	: 2.5	: 6.0	: 3.6
Oats 1st year	: 6.7	: 4.5	: 4.6	: 2.8
" Other	: 13.0	: 8.6	: 16.1	: 9.7
" Winter	: 1.4	: 1.0	: 1.5	: 0.9
Mixed Corn	: 8.2	: 5.5	: 6.0	: 3.5
Other Cereals	: 4.0	: 2.7	: 4.1	: 2.5
Pulses	: -	: -	: -	: -
Total Cereals and Pulses	: 40.9	: 27.3	: 44.0	: 26.5
Roots and Green Crop	: 12.1	: 8.1	: 11.5	: 7.0
Seeds Hay	: 15.1	: 10.1	: 15.0	: 9.0
Meadow Hay	: 11.9	: 7.9	: 15.8	: 9.5
Grazing	: 68.0	: 45.3	: 78.4	: 47.2
Rough Grazing & Woodland	: 2.0	: 1.3	: 1.3	: 0.8
Total Area	: 150.0	: 100.0	: 166.0	: 100.0

It will be seen that oats therefore constitute about half the cereal and pulse acreage on these farms, and nearly a third of the total arable area.

There were no hard-and-fast rotation practices on any of the farms in the sample. Very often oats is the first crop of the arable rotation on Welsh farms, and this is the crop which has been described as "1st year oats" in this investigation. "Other ^{oats} crops" occur in various parts of the rotational course, most commonly after another crop or a root crop. The percentage distribution of cases of "other" oats according to the preceding two crops was as shown in Table 5.

Table 5.

Percentage Distribution of Cases according
to Preceding Crops in 1943 and 1944.

Preceding Crop.	: : 1943. : : %.	: : 1944. : %.
Oats	: 27	: 35
Other Corn	: 35	: 29
Roots and Green Crop	: 11	: 32
Hay	: 6	: 2
Grazing	: 21	: 2
	: 100	: 100

Harvesting conditions were nothing like ideal in the 1945 season, and rainfall in parts of Cardiganshire during August, September and October of that year was over three inches per month. Conditions varied between districts, and while it may be expected that on Welsh farms, mainly operated by family labour, opportunities would be taken to "snatch" the harvest during short spells after the normal working day has ended, the season still extended beyond normal limits, and the average yield fell rather short of what would be described as a satisfactory one. Farms in this investigation, however, show a higher average yield than was generally harvested in Wales. Nevertheless conditions were better than those prevailing during the 1943 season when oat costs were collected on Welsh farms.

In estimating the cost of producing oats we are faced with the problem of allocating costs between the joint products of the crop, i.e. grain and straw. This may best be done by valuing the straw, and here all sorts of considerations will apply under varying circumstances on individual farms. The value of oat straw to a Welsh cattle rearer may be quite different from the value for a Scottish seed oats grower. The problem is not difficult, however, when we are considering circumstances on Welsh farms where oats are grown mainly for stock-feeding and where straw provides a useful adjunct to the winter diet of the cattle. For purposes of estimating the net costs of producing grain, the total costs of the oat crop may be allocated in the ratio of 7 to 1 between grain and straw respectively. If we take the ratio of feeding values (weight for weight) as being approximately 4 to 1, and allowing for wastage of straw in trampling and that used for bedding only, and also assume a slightly lower yield of straw than of grain per acre, the allocation of costs in the ratio of 7 to 1 appears to be reasonable.

In Table 6 the Primary Costs of Production per acre for the 1945 and 1943 samples are compared.

Table 6.

Primary Costs of Production per Acre (1945 & 1943).

	1945.		1943.	
	1st year : Oats.	Other : Oats.	1st year : Oats.	Other : Oats.
	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Man Labour	3.12.4	3.5.7	2.17.9	2.11.0
Horse Work	0.8.6	0.6.4	0.7.3	0.10.0
Tractor Work	0.19.5	1.0.7	0.17.8	0.16.8
Contract Services	0.18.11	0.15.0	0.16.10	0.15.6
Manures & Fertilisers (net)	1.3.1	1.2.4	0.7.1	0.18.7
Seed	1.17.4	1.18.9	1.13.8	1.10.9
Rent	1.4.0	1.7.3	0.17.9	0.18.3
Imploment Depreciation	0.7.5	0.8.4	0.6.1	0.5.8
Sundries	0.4.2	0.5.0	0.3.4	0.3.6
Total Cost per Acre	10.15.2	10.9.2	8.7.5	8.9.11
Average Yield per Acre	cwt. 19	cwt. 18	cwt. 14	cwt. 15½
Number of Farms	22	32	40	41
Total Acreage	186¾	365	479	581¾

Unfortunately the results for 1943 and 1945 are not for an identical sample of farms, and when the costs are compared this has to be borne in mind. Eight identical farms were included in the 1st year oats sample in the two years and it may be of interest to present separately the costs in respect of these. They are shown in Table 7.

As may be deduced from the average rent charges, the 1945 sample constituted a better group of farms than the 1943 one. The comparative yields would also indicate this, but it must be borne in mind that conditions of harvesting were somewhat worse in the earlier year. Generally when oats are grown in the first tillage break very little manure is applied; this is borne out by the 1943 sample results, but in the 1945 sample the cost of manures per acre on 1st year oats is higher than that on "other" oats. The charge, however, is very largely for residues brought forward from the application of manures to pasture or hay in the previous two years.

Table 7.

Comparative Results in 1943 and 1945 for Eight
Identical Farms.

	Cost per Acre.			
	1943.		1945.	
	£.	s.	d.	£. s. d.
Man Labour	3.	6.	5	3.16. 7
Horse Work	0.	12.	1	0. 6.10
Tractor Work	0.	13.	8	1. 0. 5
Contract Services	0.	19.	11	0.14. 2
Manures & Fertilisers	0.	12.	3	0. 8.11
Seed	2.	1.	9	1.16. 3
Rent	0.	16.	11	1. 1. 3
Implement Depreciation	0.	7.	2	0. 7. 7
Sundries	-			0. 4. 0
Total Cost per Acre	9.	10.	2	9.16. 0
Average Yield per acre		cwt.		cwt.
		13 $\frac{1}{4}$		17 $\frac{1}{2}$
Total Acreage	74		64	

The average seeding rate in 1943 and 1945 was about 2 cwt per acre, which may be regarded as generous. Where home-grown seed was used it was charged at the current market price for milling oats. Farmyard manure was charged at 10s. per ton. Among overhead costs, depreciation of implements and equipment was charged according to the extent to which they were used, and labour on establishment work on the fields under oats was charged directly to the crop.

Operational Costs. Table 8 gives the cost of operations for the two years, together with the relative costs for 1942. For the latter year the costs are averaged for the whole oats sample, including 1st year and 'other' oats.

Although the total cost of operations was apparently somewhat higher in 1945 than in 1943, sample differences have no doubt influenced the results. The average cost of cultivation work was less in 1945 than in 1943, but cost of harvesting was substantially greater. Harvesting costs would be influenced by weather conditions, and these would be similar for most of the farms, so that farm-to-farm differences would not be so marked as in cultural operations where other factors of operational efficiency come into play.

Table 8.

Operational Costs per Acre.

Operations,	1st Year Oats.		Other Oats.		Total
	1943.	1945..	1943.	1945.	Sample.
	1943.	1945..	1943.	1945.	1942.
	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Pre-seeding (Establishment Costs	0. 1. 8	0. 3. 9	0. 0. 8	0. 2. 3	1. 9. 5
(Cultivations	1. 10. 8	1. 6. 5	1. 6. 0	1. 1. 3	
Manuring	0. 1. 3	0. 2. 0	0. 3. 1	0. 3. 0	0. 2. 2
Seeding and Weeding	0. 7. 0	0. 8. 10	0. 7. 2	0. 10. 6	0. 7. 2
Harvesting	1. 12. 0	2. 6. 0	1. 12. 0	2. 3. 11	1. 12. 0
Total	3. 12. 7	4. 7. 0	3. 8. 11	4. 0. 11	3. 10. 9

It is not an uncommon practice on some Welsh farms to feed the oat crop whole. This was the case on some of the farms in this investigation, so that the acreage threshed was not therefore the same as the acreage grown. In computing threshing costs per acre, the average cost per acre threshed is taken, so that the total cost of production will be approximately the total cost per acre of the grain harvested. Threshing costs per acre in 1945 were higher than in 1943, and it is likely that the lower yield of the latter year (in the case of 1st year oats) would partly account for this.

Table 9.

Threshing Costs per Acre.

	1st Year	Other
	Oats.	Oats.
	£. s. d.	£. s. d.
1943	1. 3. 2	1. 5. 5
1945	1. 15. 2	1. 8. 7

Relation between Yields and Costs. Although grouping farms into yield/ classes may introduce differential factors which would affect costs, the results of such an analysis on the farms in the sample indicate a definite relationship between yields and costs. A high yield will make a greater demand on labour for handling it, and costs per acre can be expected to be higher than in cases where yields are lower. The advantage of the higher yield, however, is that the cost per cwt is reduced (unless there are conditions of diminishing returns).

While costs per acre for the lowest yielding group were something like £8.10. 0 per acre and for the highest yielding group up to about £12, the average costs per cwt were about 15s. and 9s.6d. respectively.

In Table 10 details of costs are shown for four yield groups which are selected to spread over the sample as much as possible.

Table 10.

Yield Group Costs.

	<u>Group 1.</u>		<u>Group 2.</u>		<u>Group 3.</u>		<u>Group 4.</u>	
	Yield under 12 cwt		Yield 12 - 16 cwt		Yield 16 - 20 cwt		Yield over 20 cwt	
	per acre.		per acre.		per acre.		per acre.	
	1st Year	Other	1st Year	Other	1st Year	Other	1st Year	Other
	Oats.	Oats.	Oats.	Oats.	Oats.	Oats.	Oats.	Oats.
No. of Farms	3	7	3	10	8	5	8	10
Cost Items.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Man Labour	2. 3. 4	2. 9. 5	3. 5. 5	2. 5. 4	2.11. 7	2.11. 9	2.14. 5	2.16. 1
Horse Labour	0. 3.11	0.10. 0	0.14. 8	0. 4. 6	0.11. 8	0. 6. 9	0. 6. 4	0. 5.11
Tractor Work	1. 5. 7	0.14. 2	0.14. 9	1. 1. 1	0.16. 1	0.11. 8	0.19.10	1. 2. 9
Contract Work	-	0. 0.10	0. 6. 2	0. 0. 9	-	0.18.11	0.13.11	-
Fertilisers	0.13. 1	0.13. 7	0. 6. 0	1. 2. 0	2. 3.10	1. 1.10	1. 0. 3	1. 5. 2
Seed	1. 7. 9	1.12. 6	1.10. 4	1.15. 0	1. 7. 5	1.14. 2	2. 9. 0	2. 5. 1
Rent	0.13.10	0.19. 8	0.13. 4	1. 2. 7	1. 6. 8	1. 5. 6	1. 9. 7	1.14. 8
Implements								
Depreciation	0. 5. 3	0. 6. 4	0. 7. 3	0. 8. 0	0. 7. 7	0. 8. 8	0. 8. 2	0. 8. 8
Sundries	0. 5. 4	0. 2.11	0. 3. 1	0. 4.10	0. 3. 3	0. 5. 8	0. 4. 9	0. 5. 0
Total	6.18. 1	7. 9. 5	8. 1. 0	8. 4. 1	9. 8. 1	9. 4.11	10. 6. 3	10. 3. 4
Threshing Costs:								
Man Labour	1. 1. 0	0.13. 5	1. 4.10	0.15. 1	0.14. 3	0.16. 3	1. 2. 3	0.15. 2
Horse Labour	-	-	-	-	-	-	-	0. 0. 1
Tractor Work	-	-	-	0. 0. 4	-	-	0. 0.10	0. 2. 8
Contract Work	0.10. 7	0. 6.10	0.11. 4	0.13. 9	0.13. 9	0.15. 4	0.12.11	0.11. 8
Total								
Threshing	1.11. 7	1. 0. 3	1.16. 2	1. 9. 2	1. 8. 0	1.11. 7	1.16. 0	1. 9. 7
Total Costs:-								
Per Acre	8. 9. 8	8. 9. 8	9.17. 2	9.13. 3	10.16. 1	10.16. 6	12. 2. 3	11.12.11
Per Cwt.	0.16. 3	0.13.10	0.13. 2	0.13. 9	0.10. 9	0.11. 3	0. 9. 7	0. 9. 7

It is clear that the land in the higher-yielding groups is higher rented at a larger figure and the cost of fertilisers per acre is also greater. These

factors may possibly account for the high yields obtained.

With the maximum price at 15s.6d. per cwt, and with marketing costs to be covered, it would appear that a yield of less than 15 or 16 cwt allows hardly any margin for the grower. On these farms, however, oats would not be produced for sale, but as a feed for dairy cows in winter, and under particular circumstances the grain may have a relatively higher value than its market price - at least it may produce a better margin as a dairy cow feed than as a directly marketable product. On many farms in Wales the cost of the oat part of the ration for stock can be reduced by greater attention to proper manuring of the crop and the selection of a variety suitable for the land to be sown.

Seeds Hay. Out of a total of 31 farms providing information on costs of seeds hay in 1945, 29 were in the sample for "other oats" costs. The distribution of cropping shown for the latter in Table 4 will therefore be approximately applicable to the seeds hay group as well. A great part of the acreage had been sown under cereal in the previous year, and in five cases only was this the second crop of grass.

The costs per acre varied from a little over £5 to nearly £16, the average for the whole sample being £8.10. 1. In two cases there were yields of over 4 tons per acre, both crops having been heavily manured with dung and artificials. The lowest yield recorded was 1 ton per acre, and the average for the 29 farms was 2 tons. The average yield estimated for all Welsh counties in 1945 was 23.5 cwt.

Seeds hay, like oat grain is a joint-product, and various considerations may apply in determining its cost of production. When it is sown under a nurse crop, it is difficult to determine what apportionment of the preliminary cultivations it should bear. Establishment costs may also have to be spread over a number of years according to the length of the ley. Moreover, after the hay crop is taken, there is generally some useful aftermath available for grazing and this again should bear some of the costs. Another debatable point is whether a crop produced, like hay, for consumption on the farm should be charged with an apportionment of the general farm overhead costs. If the cost of the crop is considered as part of the cost of the final product into which it enters, there is a good deal to be said for charging any overhead costs to the latter.

In this sample the costed area was nearly all 1st year seeds, and the whole of the seeds establishment costs have been charged to the first year. Rent and fertilisers costs only have been apportioned, namely to hay and grazing, in the proportions of four-ninths and five-ninths respectively.

An investigation was carried out in 1944 on a similar group of farms, but not entirely an identical sample. The costs are compared in Table 11.

Table 11.

Primary Costs for 1945 and 1944 Sample per Acre.

	1944.			1945.		
	Hours.	£.	s. d.	Hours.	£.	s. d.
Man Labour	20.5	1.	6. 7	26.3	1.	18. 10
Horse Labour	9.4	0.	7. 1	10.5	0.	7. 10
Tractor Work	3.0	0.	8. 1	2.3	0.	6. 3
Contract Work	-	0.	2. 7	-	0.	2. 5
Fertilisers (net)	-	0.	15. 1	-	1.	10. 2
Seeds	-	1.	4. 1	-	3.	4. 1
Rent	-	0.	11. 4	-	0.	11. 8
Implements	-	0.	8. 10	-	0.	8. 10
Total Costs per Acre	-	5.	3. 8	-	8.	10. 1
Average Yield	-	cwt.		-	cwt.	
	-	33		-	40	
Average Cost per Ton	-	£. s. d.		-	£. s. d.	
	-	3. 3. 4		-	4. 5. 0	
Area Costed	-	Acres		-	Acres	
	-	236 $\frac{1}{2}$		-	281	

Although unitary costs of many of the cost items increased between the two years the increases shown in Table 11 do not reflect the price changes. It is obvious that the 1945 sample crop was more heavily manured than the 1944 one, and that in 1945 the types of seed used were the more expensive pedigree strains. To what extent the choice of seed and the heavier manuring would account for the increased yield, it is difficult to say; in any case cost per ton of hay shows an increase of over £1.

The time spent on, and the cost of, the various operations are shown in Table 12.

Table 12.

Average Operational Costs (Per Acre).

	Time Spent (Hours).			
	Man			
Operation.	Labour.	Horse.	Tractor.	Cost.
Establishment Work	1.3	0.07	-	£. s. d
Cultivation	0.9	1.30	0.2	0. 2. 0
Manuring	6.9	3.80	0.2	0. 2. 11
Harvesting	17.2	5.30	1.9	0. 13. 6
	17.2	5.30	1.9	1. 16. 11
Total	26.3	10.47	2.3	2. 15. 4

In Table 12 there is included a small item,, cost of contract operations on baling cutting and harvesting.

Considerably more than half the time spent on the crop was devoted to harvesting. Under Welsh conditions harvesting can be a difficult problem and is often a protracted operation. While the average time spent on harvesting was 17.2 man-hours per acre, more than half the farms had an average above this; in one case it was 37 man-hours, but here the yield was heavy, and the man-hours per ton were 11.2 compared with the all-farm average of 8.6. The fact that in some cases the time spent on harvesting was as low as 4.2 man-hours per ton indicates that some improvement is possible in the general organisation of hay harvesting.

Most of the farms applied some manure directly to the seed hay crop. Over the whole area, an average of $2\frac{3}{4}$ tons of farm-yard manure, and $3\frac{1}{4}$ cwt of phosphate manures (mainly as slag), per acre were applied. Where farm-yard manure was applied the average dressing was about 8 tons per acre.

It must be borne in mind that the sample of farms in this investigation represents the mixed-farming group where milk production figures prominently. In many store stock raising farms, where hay constitutes the "iron ration", conditions would be quite different; yields would be lower and methods of harvesting would make heavier demands on labour.

Meadow Hay. Although the total area under meadow hay in Wales has decreased considerably in the last few years, it still occupies an area half as large again as does that of seeds hay. Conditions for harvesting were better in 1945 than in the previous year, although there was much to be desired. This crop had grown well and yields were exceptionally good.

Costs of producing meadow hay were obtained from 25 farms: 24 of them were in the seeds hay sample. The total area costed was $221\frac{3}{4}$ acres, an average of nearly 9 acres per farm.

Yields for the group were on average considerably above the estimated average yield for Wales in 1945. They varied from 16 cwt to 67 cwt per acre, the overall average being 37 cwt. The estimated average yield for Wales was 18.2 cwt.

The average total cost per acre was £5. 7. 4, individual farm averages varying from £2. 5. 6 to £10.11. 2. One feature of the low-cost farms was the low manure bill - the average being 5s.9d per acre, against an average of 32s.1d for all farms. The range in the per acre cost was as much, if not more, in the case of manual labour, as in that of any other cost item. This suggests that some of the farms were well mechanised for hay harvesting while others depended entirely on old-fashioned methods, or that in some cases conditions for harvesting were much better than in others. It is significant that the farms with a relatively low labour cost had mechanical appliances for loading. Where hay-loaders were used the average man-hours per acre were about 5 less.

Table 13.

Primary Costs per Acre.
1945 Crop.

	: Hours.	: £. s. d
Manual Labour	: 24.8	: 1.16. 5
Horse Labour	: 10.8	: 0. 8. 1
Tractor Work	: 2.3	: 0. 6. 4
Contract Work	:	: 0. 1.11
Fertilisers (net)	:	: 1.12. 1
Rent	:	: 0.13. 1
Depreciation of Implements:	:	: 0. 8.11
Sundries	:	: 0. 0. 6
Total	:	: 5. 7. 4

The actual man-hours per acre correspond closely to those found in a similar investigation on Welsh farms in 1942*, but the cost per acre has increased by 5s.5d.

Applications of farm-yard manure were not so heavy as on the seeds hay crop, the average over the whole area being nearly $1\frac{3}{4}$ tons per acre. The average dressing, where it was applied, was just over 4 tons per acre. In addition an average dressing of just over 5 cwt of phosphates (mainly as slag) was applied. Larger quantities had been applied in the previous year, and this no doubt partly accounted for the heavy yields obtained.

Costs of the time spent on the various operations are shown in Table 14.

Table 14.

Average Operational Costs. Per Acre.

Operation.	Time Spent (hours).			Cost.
	: Man	: Horses.	: Tractors.	
	: Labour	: Horses.	: Tractors.	: £. s. d
Establishment Work	: 1.0	: -	: -	: 0. 1. 7
Cultivations	: 0.8	: 1.1	: 0.1	: 0. 2. 4
Manuring	: 4.9	: 3.5	: 0.2	: 0.10. 5
Harvesting	: 18.1	: 6.2	: 2.0	: 1.16. 6
Total	: 24.8	: 10.8	: 2.3	: 2.10.10

* Thomas, W. J. Costs of Production of Cereals, Roots & Forage Crops on Welsh Farms in 1942. Published by Dept. of Agricultural Economics, U.C.W., Aberystwyth, 1943.

The cost per ton of meadow hay at 58s. was considerably less than that of the seeds hay at 85s. The difference, however, is rather more than that between the controlled maximum prices of clover hay and meadow hay in the winter of 1945-6.

A comparison of an identical group of farms in the war period will reflect not only changes in unitary costs but also changes arising out of weather conditions and management variations, particularly as substitution in equipment and labour had become necessary. In the case of seeds hay there were six farms, and in that of meadow hay seven farms, which co-operated in 1943 and 1945. Costs for the two years are compared in Table 15.

Table 15.

Comparison of Costs for Identical Farms in
1943 and 1945. Per Acre.

	Seeds Hay.			Meadow Hay.		
	1943.	1945.		1943.	1945.	
	£. s. d.	£. s. d.		£. s. d.	£. s. d.	
Man Labour	1. 7. 11	1. 17. 6		2. 1. 6	1. 15. 7	
Horse Work	0. 6. 1	0. 6. 0		0. 11. 2	0. 9. 3	
Tractor Work	0. 4. 10	0. 8. 1		0. 2. 11	0. 4. 5	
Contract Work	-	0. 2. 2		-	0. 3. 6	
Fertilisers	0. 15. 9	1. 12. 5		0. 10. 5	1. 6. 2	
Seeds	1. 0. 4	2. 12. 4		-	-	
Rent	0. 6. 0	0. 6. 5		0. 10. 9	0. 10. 5	
Incidentals	-	-		-	0. 0. 8	
Depreciation on Implements	0. 6. 10	0. 8. 7		0. 8. 3	0. 9. 5	
Total	4. 7. 9	7. 13. 6		4. 5. 0	4. 19. 5	
Average Yield	cwt 40	cwt 37		cwt 33	cwt 40	
Number of Farms	6	6		7	7	

It is obvious that in 1945 the hay crop was better manured than in 1943, and that, as far as seeds hay was concerned, there was greater resort to the more expensive types of seeds mixtures. Tractors were also in fuller use by 1945. In the case of seeds hay the yield was lower in 1945 than in 1943, despite the fact that more fertilisers had been made available and a more expensive seeds mixture used. When costs in each farm are examined individually, however, it is seen that there was a close correlation between the cost of fertilisers and yields, and some conditions peculiar to some of the farms in this small group tended to offset the influence of improvements in the management of the crop.

While the Welsh farmer can do a great deal to improve his supply of hay by closer attention to some aspects of management, such as manuring and control of grazing in the previous autumn, he is very much at the mercy of the weather when it comes to harvesting. When grazing becomes scarce and the "locking-up" of the hay field is delayed to provide a bite during the emergency gap, the hay gets little time to grow into a full crop. Many farms are too small to make investment in labour-saving equipment an economic proposition, and protracted harvests too often account for a rather poor quality "stand-by" for the winter feeding period.

Note on Costings Principles.

Labour. The total amount of time directly expended on the crop was charged at the ordinary minimum hourly rates plus an adjustment to cover overtime hours.

Establishment Work. Work on such tasks as fencing and hedging on certain fields was charged directly to the crops occupying those fields. No allowance has been made for a share of other overhead expenses generally incurred with the farm organisation as a whole.

Seed. Purchased seed would be charged at merchant's or vendor's prices on the Farm; Home-grown oats seed at the controlled price for feeding oats.

Manurial Residues. Residues from manures applied in the two previous years were charged, proportions of the value apportionable to the last crop being as follows:-

Farm-yard Manure	-	One-sixth
Phosphate (Other than		
Super)	-	One-quarter
Lime	-	One-third

Similar proportions of manures directly applied to the crop were also charged, the remainder being carried forward for succeeding crops.

Implement Depreciation. The relative time spent on the particular crop with various implements was used as a basis for charging apportionments of the total depreciation costs.