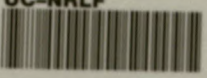
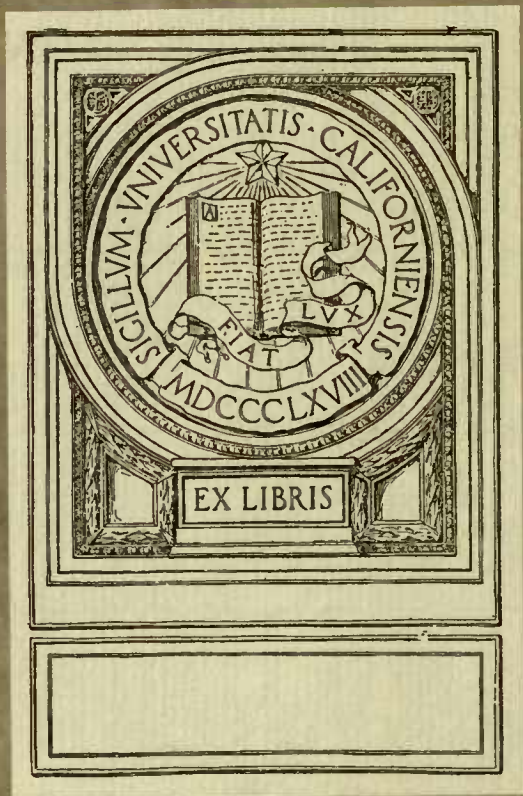


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FINAL REPORT

ON AN

INVESTIGATION INTO THE COST OF MILK PRODUCTION.

From 1st OCTOBER, 1919, to 30th September, 1920.

Presented to Parliament by Command of His Majesty.



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AGRICULTURAL COSTINGS COMMITTEE.

FINAL REPORT

ON AN

INVESTIGATION INTO THE COST OF MILK PRODUCTION.

An Interim Report (Cmd. 1028) was published on 11th November last, covering the first period of the Investigation (from 1st October, 1919, to 30th April, 1920, in the case of England and Wales and from 1st November, 1919, to 30th April, 1920, for Scotland), referred to as the Winter Period through this Report.

The Investigation has now been carried on over a complete year throughout Great Britain, and this Report summarises the results obtained.

Part I. deals with the results of the Investigation over the second period comprising the summer months and extending from 1st May to 30th September, 1920, for England and Wales and from 1st May to 31st October, 1920, in the case of Scotland, referred to throughout as the Summer Period.

Part II. deals with the results extending over the complete year which for England and Wales extends from 1st October, 1919, to 30th September, 1920, and for Scotland from 1st November, 1919, to 31st October, 1920.

PART I.

Summer Period.

I. PARTICULARS OF THE FARMS ON WHICH THE INVESTIGATION HAS BEEN MADE.

The number of farms and town dairies on which the costs were recorded during the Summer Period is as follows:—

	Town Dairies.	Suburban Farms.	Country Farms.
England & Wales (Northern Division)	—	—	50
" " (Southern Division)	—	—	50
Scotland	3	5	36
Totals	3	5	136

Summaries of the classes and acreage of farms under supervision are contained in the Interim Report, Para. II., p. 4. 22 farms in England and Wales and 9 in Scotland ceased costing under the Milk Investigation, some being transferred to the Committee's General Scheme and some gave up the work. On the other hand 10 new farms were taken on. There were 5 fewer dairy farms costed in the Summer Period, the rest of the changes being with one exception mixed farms. The acreage and particulars shown in these summaries are not otherwise materially affected by the changes.

II. PARTICULARS OF THE HERDS.

The total average number of cows in the herds dealt with during the Summer Period in Great Britain was 4,840; 3,223 of the cows being in England and Wales and 1,617 in Scotland.

The average number of cows per farm was as follows :—

Great Britain	...	...	...	...	...	...	...	33.61
England and Wales	...	...	...	...	...	...	...	32.20
Scotland	...	...	...	...	...	...	...	36.75

For particulars as to type of herds, &c., in the Winter Period see Interim Report, p. 5, Para. III. These are not materially affected by the changes in the Summer Period.

III. COSTING METHODS.

The same methods have been followed during the summer as those for the winter, as set out in the Interim Report, p. 5, Para. IV., except in the case of manurial values.

Credit for Manurial Values of Foods.

The manurial values of all foods consumed, home grown and purchased, have been calculated by the same methods as in the first period, but as part of the foods throughout the summer period were fed in the sheds and part when the cows were grazing, the credit which should be allowed in the cost statements for manurial values can only be a matter of estimate. The Costings Officers obtained in each case the estimated value from the farmer of the dung made in the sheds, in order that this might be used as a guide in arriving at the credit which should be allowed.

The following table shows the comparison of the calculated net manurial values and of the estimated value of the dung.

	Calculated Net Manurial Values.		Per Gallon.	Estimated Value of Dung made.		Per Gallon.
	£	s. d.	Pence.	£	s. d.	Pence.
England and Wales (Northern Division)	1,472	9 8	·80	227	11 6	·12
England and Wales (Southern Division)	1,159	0 8	·64	398	5 0	·22
Scotland	1,275	3 10	·49	1,082	0 4	·42
Totals	3,906	14 2	·62	1,707	16 10	·275

As will be seen from the table the credit in either case is comparatively small. In these circumstances the Committee are of the opinion that to make a uniform credit of ·275 pence per gallon, in all cases, being the approximate average value of the dung made in the yards, is a fair and reasonable method of dealing with the matter.

IV. RESULTS OF THE INVESTIGATION.

Costs.

For the purpose of considering the general results of this investigation, it is important that the statement of methods adopted, which were given in the Interim Report, should be read with care, and continually borne in mind. For instance, although the cost of labour for Great Britain is 3.20d. per gallon, the labour represented for this charge was not all directly expended upon the dairy cows on the farms. A part of this charge for labour was incurred in respect of the "Other Dairy Stock," but because the accounts have not distinguished between the labour given to Dairy Cows (in milk and dry) and Other Dairy Stock, the cost is given as one item.

In arriving at the costs, the Homegrown Foods are charged at the following average Market Prices, less cost of marketing :—

	£	s.	d.	
Hay	9	16	2	per ton.
Straw	5	14	7	„
Roots	1	14	3	„

A certain element of profit may be therefore included, and this must be taken into considerations in forming any conclusions upon the figures.

It has been the intention of the Committee as a general principle to adopt Cost of Production as the basis on which Homegrown Foods should be charged in their General Costings Scheme, but that basis has not been available in this Investigation and the only actual basis that could be taken has been the market price less cost of marketing.

Another basis which might have been adopted is "Consuming Value" as is customary in some parts of the country, usually approximately two-thirds of the market price, but it was not felt that this basis was a fair standard.

The difference between market price and other bases does not affect the cost of production to any great extent in the summer but as stated in the Interim Report of the Committee it is one of the determining factors in winter milk production.

The full statement of the cost of producing milk at the farms during the period will be found in Table A in the Appendix, but the following summary gives the chief items.

TABLE 1.

SUMMARY OF COSTS OF PRODUCING MILK AT THE FARMS.

Home-grown Foods valued at Market Prices.

CHARGES.	Great Britain.	England & Wales.	Scotland.
	Pence per gallon.	Pence per gallon.	Pence per gallon.
Labour expended on all Stock in the Herd	3.20	3.72	2.45
Foods and Litter :—			
Cows.—Purchased Foods	3.49	3.55	3.39
Home-grown Foods... ..	1.59	1.32	1.99
Grazing	3.08	3.08	3.08
Other Dairy Stock (All Foods)	2.10	2.15	2.04
Proportion of general Expenses	1.04	1.20	.82
Depreciation of Machinery, &c. ... ..	.12	.15	.08
Maintenance of Herds	Nil.	Nil.	2.81
Total	14.62	15.17	16.66
CREDITS.			
Credit on Cows ... ..	.14	2.22	Nil.
Credit on Other Dairy Stock	2.88	3.55	1.91
Manurial Value of Foods... ..	.28	.28	.28
Total Credits	3.30	6.05	2.19
Net Costs	11.32	9.12	14.47

It will be seen that the total net cost per gallon at the farm, taking home-grown foods at market prices, is :—

	Pence.
Great Britain	11.32
England and Wales	9.12
Scotland	14.47

These results, however, are affected by the questions of depreciation and appreciation of the cows and other dairy stock as will be seen from the following Table 2 and Table 3 later, and the remarks thereon.

V. YIELD OF MILK.

The total yield of milk during the period was : in England and Wales, 875,414 gallons, and in Scotland, 613,398 gallons, the total for Great Britain being 1,488,812 gallons.

The average yield of milk per cow day was as follows :—

	Cows in Milk.	Total Herd.
	Gallons.	Gallons.
Great Britain	2.171	1.892
England and Wales	2.90	1.77
Scotland	2.28	2.09

The percentage of dry cows in the herds for the costing period was as follows :—

	Per cent.
Great Britain	13.00
England and Wales	15.39
Scotland	8.29

VI. GROSS AND NET COST OF FOOD TO COWS.

The cost of food is the most important item in the total cost of producing milk. The results of this investigation show the following costs per gallon due to food supplied to cows alone :—

	Cost of Food to Cows per gallon of Milk.	Percentage of Gross Costs. (Per Table 1.)	Percentage of Net Cost. (Per Table 1.)
	Pence.	Per cent.	Per cent.
Great Britain	8·16	56	72
England and Wales	7·95	52	87
Scotland	8·46	51	59

VII. COMPARISON OF RATIONS.

Owing to the comparatively small amount of feeding done during the summer, the question of rations fed is not of such great importance as during the winter time. Table B. in the Appendix shows the comparative rations fed in England and Wales and in Scotland.

VIII. HOME GROWN FOODS AND COST OF PRODUCTION OF MILK.

The remarks in Para. IX of the Interim Report as to the cost price and market price of home grown foods also apply during the summer period, but again, owing to the smaller quantities fed the question assumes less importance.

Table C in the Appendix shows the costs per gallon for home grown foods based on farmers' prices and market prices respectively. Table D in the Appendix shows the quantities fed and average market prices, while Table E in the Appendix shows the effect of varying rates per ton of the principal foods on the cost per gallon, assuming that the same quantities would be fed at different prices.

IX. MAINTENANCE OF HERDS.

For the sake of convenience the terms " Appreciation " and " Depreciation " of the herds have been used throughout this Report. It must be clearly understood, however, that the credit or charge under these headings include not only the difference between the opening and closing valuations, but also the effect of all purchases and sales, births and deaths, and transfers in and out.

The nett credit after maintaining the cows in the herds taking into account the opening and closing valuations and including a loss of £2,520 14s. 2d. arising from deaths of cows—was £891 17s. 3d.

The value of the cows in the closing valuations was £14,395 2s. 6d. more than in the opening valuations, but the values of the cows bought and transferred in exceeded by £13,503 5s. 3d. those sold and transferred out, leaving the nett increase of £891 17s. 3d. mentioned above.

The number of cows in the closing valuation was 27 more than at the commencement.

The average value per head was slightly greater at the close of the period, the figures being— at commencing valuation, £40 15s. per head; at closing valuation £43 9s. per head.

The average prices of the cows in the herds bought, sold and transferred are shown in Table F in the Appendix.

Of the 5,809 cows passing through the herds during the period, 596 or 9·7 per cent. were purchased, and 300 others, or 5·03 per cent., were transferred into the herds. The number in the herds at the time of the commencing valuation was 4,913, or 84·57 per cent. of the total number of cows accounted for during the period. At the time of the closing valuation, there were 4,940 cows in the herd, or 85·04 per cent. of the total accounted for, 728 or 12·53 per cent. having passed out by sale; 67 or 1·15 per cent. by death, and 74 or 1·27 per cent. had been transferred out of the herds. These total figures are for Great Britain. Separate particulars for England and Wales and Scotland are given in Tables G and H in the Appendix.

X. COMPARISON OF COSTS PER GALLON AND YIELD OF MILK.

The following Table No. 2 shows for each district the direct costs per gallon of milk, and also the average daily yields for cows in milk and all cows.

TABLE 2.

COMPARISON OF DIRECT COSTS PER GALLON AND YIELD OF MILK BY DISTRICTS—APART FROM DEPRECIATION AND APPRECIATION ON STOCK.

District Nos	England and Wales. (Pence per Gallon.)												Scotland. (Pence per Gallon.)							
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	Average for England and Wales.							
														A.	B.	C.	D.	E.	F.	Average for Scotland.
Wages...	2.97	4.09	3.79	4.51	3.68	3.73	5.45	2.87	4.13	3.54	2.70	4.01	3.72	1.45	2.39	3.04	3.66	2.53	3.07	2.45
Foods, less Manurial Values and including Grazing :—																				
Cows ...	6.25	14.18	5.84	9.40	6.89	4.98	8.27	5.12	9.54	4.97	5.98	11.62	7.67	6.41	7.93	6.55	13.06	9.73	9.09	8.18
Other Dairy Stock ...	2.14	1.08	4.35	2.25	.92	1.82	4.23	3.20	2.02	1.92	1.80	1.33	2.15	2.46	3.78	2.51	2.79	.50	.49	2.04
Proportion of General Expenses.	1.05	.56	1.59	.70	1.09	1.32	1.59	.80	1.62	.77	2.18	1.37	1.20	.89	.73	.60	1.18	1.08	.52	.82
Depreciation on Machinery, &c.	.09	.14	.18	.15	.12	.13	.17	.14	.18	.13	.24	.08	.15	.16	.05	.05	.04	.06	.08	.08
Direct Cost ...	12.50	20.05	15.75	17.01	12.70	11.98	19.71	12.13	17.49	11.33	12.90	18.41	14.89	11.37	14.88	12.75	20.73	13.90	13.25	13.57
Yield per Cow per Day, Total Herd (in Gallons).	1.96	1.98	1.80	1.88	1.80	1.84	1.65	1.68	1.59	1.75	1.81	1.57	1.77	1.96	1.99	2.03	2.14	2.34	2.26	2.09

From the foregoing Table, it will be seen that apart from the Yorkshire district (Group 2) where owing to smoke and other difficulties production is expensive, and Group D, the Lothians District in Scotland, where the cost of feeding was high (being 13·06*d.* per gallon as compared with the average for Scotland 8·18*d.*) a high yield is generally accompanied by low costs per gallon.

There were, however, certain other districts which showed abnormal results in some respects as compared with the average figures. For instance, in Group 12, the cost of foods was 11·62*d.* per gallon as compared with the average for England and Wales of 7·67*d.* In Group 4 the costs of foods was about 2*d.* higher than the average owing to the charge for grazing being above the normal. Again in Group 7, while the cost of foods was only slightly above the average, the charge for labour per gallon was 5·45*d.* as against the average for England and Wales of 3·72*d.* In this Group the average yield was 1·65 gallons as compared with the average for England and Wales of 1·77. In the district comprising Salop, Staffs and Warwickshire, the foods cost 9·54*d.* per gallon as compared with the average for England and Wales of 7·67*d.*, while the yield was well below the average.

The counties comprised in the various District Groups are shown in Table J in the Appendix.

Valuations of all livestock including the cows and the other dairy stock were made at the commencement of the investigation, at the close of the 1st period on 30th April last, and also at the close of the second period on 30th September and 31st October last.

It was realised when the winter investigation was made that the appreciation of the herds (particularly in the case of other dairy stock) during the summer period might have a relatively greater effect on the cost of milk production as the total cost per gallon would be much lower than in the winter.

This has turned out to be so and the following Table 3 shows the effect per gallon during the summer period. In arriving at these figures feeding costs of the other dairy stock have not been taken into account, the figures being gross.

TABLE 3.
APPRECIATION AND DEPRECIATION OF THE DAIRY HERDS.

	Cows.		Other Dairy Stock.
	Depreciation.	Appreciation.	Appreciation.
England and Wales :—	Pence per Gallon.	Pence per Gallon.	Pence per Gallon.
District 1	2·07	—	2·13
" 2	—	2·61	2·51
" 3	—	3·27	4·88
" 4	—	·49	3·82
" 5	—	1·84	2·14
" 6	—	2·55	6·78
" 7	—	2·82	4·85
" 8	—	2·21	6·48
" 9	—	7·59	2·69
" 10	—	·11	4·27
" 11	—	1·86	2·60
" 12	—	4·94	·91
Scotland :—			
District A	3·51	—	1·12
" B	·85	—	3·57
" C	1·85	—	4·29
" D	5·34	—	2·65
" E	3·93	—	·56
" F	2·28	—	·49

In Districts 6 and 8 in England and Wales, the numbers of other dairy stock kept are considerably above the average.

As will be seen from the above Table considerable appreciation has taken place in most districts, particularly in the case of other dairy stock, which would result in abnormally low costs being shown in some districts as compared with others.

In recording the district results therefore the Committee have shown separately the direct costs and the appreciation and depreciation of the herds. In arriving at the average costs for Great Britain, England and Wales, and Scotland, however, the Tables have been prepared on the same lines as in their Interim Report.

As the appreciation and depreciation are to a great extent dependent on the accuracy of the valuations, the Committee feel that, taking into account the fact that conditions were approximately the same in the herds at 30th September in each year, and that the division of the year into winter and summer periods is to some extent an arbitrary division for costing purposes, the appreciation or depreciation of the herds should be considered in reviewing the results of the year as a whole, rather than those of the summer period only. This has accordingly been done in Part II of the Report, Para. XV.

PART II.

The Complete Year.

XI. THE YEAR'S INVESTIGATION.

The Committee's Interim Report dealt with the results of the winter period and Part I of this Report deals with the costs for the summer period.

It is desirable to combine the whole results obtained so as to arrive at the cost of production throughout a complete year, which extends in the case of England and Wales from the 1st October, 1919, to the 30th September, 1920, and in the case of Scotland from the 1st November, 1919, to the 31st October, 1920.

XII. COSTING METHODS.

The same principles have been followed in arriving at the year's results as are outlined in paragraph 4 of Cmd. 1028.

Home-grown foods have been included at average market prices.

XIII. RESULTS FOR THE COMPLETE YEAR.

The following Table No. 4 is a summary of the costs of producing milk at the farms for the complete year, the full details of which are shown in Table I of the Appendix.

TABLE 4.

SUMMARY OF COSTS OF PRODUCING MILK AT THE FARMS.
HOME-GROWN FOODS AT MARKET PRICES (FOR TWELVE MONTHS).

	Great Britain.	England and Wales.	Scotland,
	Pence per gallon.	Pence per gallon.	Pence per gallon.
Labour expended on all Stocks in the Herds ...	3·89	4·43	2·98
Foods and Litter :—			
Cows.—Purchased Foods	6·88	7·21	6·33
Home-grown Foods	11·08	12·31	9·01
Grazing	1·68	1·69	1·66
Other Dairy Stock (all Foods)	4·00	4·31	3·50
Proportion of General Expenses	1·18	1·35	·88
Depreciation on Machinery, &c.	·13	·15	·09
Depreciation Cows	·06	—	1·72
Total Direct Charges	28·90	31·45	26·17
CREDITS.			
Appreciation Cows	—	·93	—
" Other Dairy Stock	3·49	3·84	2·92
Manurial Value	1·54	1·74	1·20
Total Credits	5·03	6·51	4·12
Net Cost	23·87	24·94	22·05

It will be seen that the total nett cost for the year per gallon at the farm, taking home-grown foods at market prices is :—

	Pence.
Great Britain	23·87
England and Wales	24·94
Scotland	22·05

It will be seen from the above figures that the ascertained cost of production in Scotland is 2·89d. per gallon lower than in England and Wales, the difference arising from cheaper costs per gallon for labour, food, general expenses and depreciation on utensils. The appreciation on the herds (including other dairy stock) is also lower.

XIV. COMPARISON OF COSTS FOR THE WINTER AND SUMMER PERIODS OF THE INVESTIGATIONS.

The following Table No. 5 shows the comparative costs for the first and second periods for Great Britain, England and Wales and Scotland.

TABLE 5.

COMPARATIVE SUMMARY OF COSTS FOR THE WINTER AND SUMMER PERIODS OF THE INVESTIGATION.

	Great Britain.		England and Wales.		Scotland.	
	1st Period.	2nd Period.	1st Period.	2nd Period.	1st Period.	2nd Period.
	Pence per gallon	Pence per gallon.	Pence per gallon.	Pence per gallon.	Pence per gallon.	Pence per gallon.
CHARGES.						
Labour expended on all Stock in the Herds ...	4.51	3.20	4.99	3.72	3.55	2.45
Foods and Litter :—						
Cows.—Purchased Foods ...	9.87	3.49	10.06	3.55	9.49	3.39
Home-grown Foods ...	19.42	1.59	20.88	1.32	16.54	1.99
Grazing ...	.45	3.08	.61	3.08	.14	3.08
Other Dairy Stock (All foods) ...	5.68	2.10	5.98	2.15	5.08	2.04
Proportion of General Expenses ...	1.29	1.04	1.47	1.20	.93	.82
Depreciation of Machinery &c. ...	.14	.12	.16	.15	.15	.08
" " Cows ...	.24	—	.09	—	.54	2.81
Total Charges ...	41.60	14.62	44.24	15.17	36.42	16.66
CREDITS.						
Appreciation Cows ...	—	.14	—	2.22	—	—
" Other Dairy Stock ...	4.03	2.88	4.06	3.55	4.00	1.91
Manurial Values ...	2.38	.28	2.62	.28	1.91	.28
Total Credits ...	6.41	3.30	6.68	6.05	5.91	2.19
Net Cost ...	35.19	11.32	37.56	9.12	30.51	14.47

In the above figures the home-grown foods have been charged at the market prices ascertained by the costings officer.

In the summer period the reduction in labour cost per gallon will be noted owing to the reduced feeding, cleaning of byres, and other causes.

It will also be noted that owing to increased grazing the cost of foods in the summer period has gone down from 29.29d. in the case of Great Britain; 30.94d. in England and Wales; and 26.03d. in Scotland to 5.08d. for Great Britain; 4.87d. for England and Wales; and 5.38d. for Scotland in the summer period.

XV. COST FOR THE WHOLE YEAR.

The following Table is a Summary of the combined figures for each Group for the two periods, after giving effect to the appreciation and depreciation on the herd for the whole year.

TABLE 6.

COMPARISON OF COST PER GALLON OF MILK AND YIELD OF MILK PER COW PER DAY FOR THE TWELVE MONTHS (TAKING INTO ACCOUNT THE APPRECIATION AND DEPRECIATION OF THE HERDS).

By Districts.

Home-grown Foods Charged at Market Prices.

ENGLAND AND WALES.

District	Cost per Gallon.	Yield. Cows in Milk.	Yield. Total Herd.
	Pence.	Gallons.	Gallons.
District 1 ...	27.03	2.04	1.69
" 2 ...	25.95	2.10	1.95
" 3 ...	25.90	1.83	1.48
" 4 ...	25.67	1.99	1.65
" 5 ...	25.71	2.02	1.70
" 6 ...	21.59	2.06	1.68
" 7 ...	30.28	1.74	1.37
" 8 ...	25.40	1.72	1.34
" 9 ...	22.35	1.90	1.58
" 10 ...	23.07	1.90	1.44
" 11 ...	22.37	1.93	1.51
" 12 ...	27.00	1.98	1.64
England and Wales ...	25.22	1.94	1.59

TABLE 6.

SCOTLAND.

District	A	B	C	D	E	F	Cost per Gallon.		Yield.	Yield.
							Pence.	Gallons.	Cows in Milk.	Total Herds.
							18·23	2·02	1·42	
"	B						21·43	2·14	1·63	
"	C						21·93	2·08	1·61	
"	D						29·49	2·39	2·19	
"	E						22·72	2·39	2·26	
"	F						24·31	2·32	2·09	
Scotland							22·35	2·20	1·81	

The period covered is England and Wales, 1st October, 1919, to 30th September, 1920; Scotland, 1st November, 1919, to 31st October, 1920.

It will be seen that the cost for the whole year varies between 30·28*d.* per gallon, and 18·23*d.* per gallon, and that the great majority of the groups show a nearly uniform cost about midway between the two extremes. In Group 7 where the highest cost is recorded, the average yield is only 1·37 gallons for the whole herd, as compared with an average for England and Wales of 1·59 gallons.

In Group A. in Scotland where the cost is lowest, although the yield is below the average, the feeding costs throughout the winter were very low. In this Group the herds are larger than the average and the method of feeding was apparently very economical.

XVI. OTHER DAIRY STOCK.

It was pointed out in the Committee's Interim Report (Paragraph IV., Page 6), that it has not been considered practicable to show the transactions relating to other dairy stock separately in this investigation though the cost of their foods had been recorded.

The reason for this is that it is exceedingly difficult in practice to keep a separate note of the labour, overhead expenses, manurial values, and other items affecting the other dairy stock, and rather than make an arbitrary apportionment of these charges the Committee included all expenses relating to other dairy stock in the cost of milk production and credited their appreciation in value on the other hand.

It is interesting to note the ultimate effect over the whole year of this method of treating the other dairy stock. The following Table shows the effect of the other dairy stock transactions on the cost of milk but it must be remembered that the cost of labour, establishment charges, &c., and the credit for manurial values are not included in the figures.

	Great Britain.		England and Wales.		Scotland.	
	1st Period.	2nd Period.	1st Period.	2nd Period.	1st Period.	2nd Period.
	Pence per Gallon.	Pence per Gallon.	Pence per Gallon.	Pence per Gallon.	Pence per Gallon.	Pence per Gallon.
Credit for other Dairy Stock including difference between Opening and Closing Valuations, Births, Sales of Calves and Young Stock and Other Herd transactions..	4·03	2·88	4·06	3·55	4·00	1·91
Cost of Foods	5·68	2·10	5·98	2·15	5·08	2·04
Charged to Milk Production	1·65	—	1·92	—	1·08	·13
Credited		·78		1·40		

The effect on the cost of production for the whole year was :—

	Great Britain.	England and Wales.	Scotland.
	Pence per Gallon.	Pence per Gallon.	Pence per Gallon.
Credit for Other Dairy Stock	3·49	3·84	2·92
Cost of Foods	4·00	4·31	3·50
Net charge	·51	·47	·58

XVII. GENERAL.

It will be noticed that in arriving at the total year's cost, the results of 165 farms are combined with the results of 144, 31 farms having been costed for the winter period only, while 10 new farms costed for the summer period only. One hundred and thirty four farms therefore remained constant throughout the year.

For the sake of continuity, however, the Committee have dealt with the results of the whole 165 when combining the figures, as the effect of this on the all year round cost is very slight.

Foods.

The cost of foods is the largest item of cost particularly in the winter time when it is from 80 to 90 per cent. of the nett cost.

The price at which home grown foods are charged in the cost accounts is one of the determining factors. If home-grown foods are charged at cost of production the bare (and lowest) cost of milk is arrived at. If these be charged at market prices, then the cost may include an element of profit.

Herd Transactions.

In an investigation of this character where the cost of home-bred cows is not known and valuations are therefore necessary it is difficult to prevent the cost results from being affected to some extent by variations in the market prices, of cows and other dairy stock, as the mind of the valuer is bound to be affected to some extent by the prevailing prices. The Committee have so far as possible arranged for as conservative a valuation as possible in all cases.

The average rates per head for cows were as shown by the valuations as follows:—

	Great Britain.	England and Wales.	Scotland.
	£ s. d.	£ s. d.	£ s. d.
As at commencement of Investigation	39 10 0	39 2 0	40 6 0
As at 30th April	40 13 0	39 18 0	42 1 0
As at close of Investigation	43 9 0	45 0 0	40 5 4

The above increase was however more than offset by the increased cost of the cows purchased and transferred in to replace cows sold, dead, and transferred out, the nett charge to milk production for the total year being '06*d.* per gallon for Great Britain. Scotland shows a charge of 1'72*d.* as against a credit for England and Wales of '93*d.*, and when comparing the results of the two countries for any period, the fact that these figures are affected by the valuations should be borne in mind.

Local Conditions.

Local conditions should also be borne in mind when considering the results. It will be noticed that in some districts the winter cost of production was above the average while the summer cost was correspondingly lower, the cost for the whole year being normal. To some extent this may have been due to the variations in the valuations at the close of the winter period, but the special local conditions are the predominating factors.

The Agricultural Costings Committee desires to again express its thanks for assistance in carrying out the investigation to the co-operating farmers on whose farms the necessary cost records were kept, to the National Farmers' Union, Dairy Farmers' Associations, Agricultural Colleges, Live Stock Commissioners, County Agricultural Organisers, and others; to the Reading University College; and also to the Institute of Agricultural Economics at Oxford for assistance throughout the investigation and in reporting on the results.

22nd March, 1921.

TABLE A.

SUMMARY OF COSTS.

Summer Period.

(1st May, 1920, to 30th September, 1920.) *England and Wales.*

(1st May, 1920, to 31st October, 1920.) *Scotland.*

	At Market Prices.				
	Great Britain.		England and Wales.	Scotland.	
	£	s. d.	Pence per Gallon.	Pence per Gallon.	Pence per Gallon.
Wages, including Feeding and Attending Cows and Other Dairy Stock, but excluding Delivery and Retail Labour and Management	—	19,827 13 7	3·20	3·72	2·45
Food and Litter:—					
Cows.—Purchased (Costs delivered at the Farm)	21,611	0 4	3·49	3·55	3·39
Home Grown	9,923	12 6	1·59	1·32	1·99
Grazing (at estimated Cost)... ..	19,108	14 5	3·08	3·08	3·08
Total Foods—Cows	50,643	7 3	8·16	7·95	8·46
Other Dairy Stock (on same basis as above and including Milk fed to Calves)	13,059	10 8	2·10	2·15	2·04
Total Foods	63,702	17 11	10·26	10·10	10·50

TABLE A.—*continued.*
SUMMARY OF COSTS—*continued.*

	At Market Prices.						
	Great Britain.		England and Wales.	Scotland.			
	£	s. d.	£	s. d.	Pence per Gallon.	Pence per Gallon.	Pence per Gallon.
Proportion of General Expenses allocated to Milk Production	—		6,493	3 11	1·04	1·20	·82
Depreciation on Dairy Machinery and Utensils at 10 per cent. per Annum (excluding Butter and Cheese-making Utensils)... ..	—		718	19 5	·12	·15	·08
Maintenance of Herd :—							
Cows.—Cost.—After taking into account Valuation of Cows at beginning and end of Period, Purchases, Sales, Transfers, Deaths, &c.	—		—		—	—	2·81
Total	—		90,742	14 10	14·62	15·17	16·66
CREDITS.							
Maintenance of Herd :—							
Cows.—Credit.—After taking into account Valuations of Cows at beginning and end of the Period, Purchases, Sales, Transfers, Deaths, &c.	891	17 2	—		·14	2·22	—
Other Dairy Stock.—Credit.—After taking into account Valuations at beginning and end of the Period, Births, Purchases, Sales, Transfers, Deaths, &c.	17,877	0 3	—		2·88	3·55	1·91
Manurial Values of Foods					·28	·28	·28
Total	—		—		3·30	6·05	2·19
Net Cost	—		—		11·32	9·12	14·47
Yield of Milk	—		—		Gallons. 1,488,812	Gallons. 875,414	Gallons. 613,398

TABLE B.

Summer Period.

COMPARATIVE STATEMENT OF THE WEIGHT AND COST OF RATION PER COW DAY AND PER GALLON OF MILK IN ENGLAND AND WALES AND IN SCOTLAND.
(ALL COWS IN HERD.)

	Average Weight of Ration per Cow per Day.		Average Cost of Ration per Cow per Day.		Average Cost of Ration per Gallon.	
	England and Wales.	Scotland.	England and Wales.	Scotland.	England and Wales.	Scotland.
	Lbs.	Lbs.	Pence.	Pence.	Pence.	Pence.
Purchased Foods	6·34	7·54	6·28	7·12	3·55	3·39
Home-grown Foods :—						
Hay	·48	1·17	·65	·99	·37	·47
Straw	·34	1·33	·15	·92	·08	·44
Roots	1·02	7·30	·28	1·18	·16	·55
Other Foods	4·50	2·59	1·17	1·04	·66	·50
Litter	—	—	—	—	·05	·03
Total—Home-grown	6·34	12·39	2·25	4·13	1·32	1·99
Total—Purchased and Home-grown	12·68	19·93	8·53	11·25	4·87	5·38
Grazing	—	—	5·47	6·44	3·08	3·08
Total	—	—	14·00	17·69	7·95	8·46

NOTE.—Purchased foods are taken at cost prices, and home-grown foods at market prices, less cost of marketing. The period covered is : For England and Wales, 1st May, 1920 to 30th September, and for Scotland, 1st May, 1920 to 31st October, 1920. The above figures are gross ; manurial values have not been deducted.

TABLE C.

Summer Period.

COMPARISON OF FARMERS' PRICES AND AVERAGE MARKET PRICES.

	Net Cost per Gallon.	
	Based on Farmers' Valuation of Home-grown Foods.	Based on Market Prices for Home-grown Foods.
	Pence.	Pence.
Great Britain	1·54	1·59
England and Wales	1·31	1·32
Scotland	1·88	1·99

TABLE D.

Summer Period.

AVERAGE MARKET PRICE OF HOMEGROWN FOODS FED TO COWS IN GREAT BRITAIN.

	Quantities Fed.	Value at average Market Prices.	Average Rate per Ton.	Cost per Gallon.
	Tons.	£	£ s. d.	Pence.
Hay	260	2,550	9 16 2	·41
Straw	250	1,432	5 14 7	·23
Roots	1,178	2,017	1 14 3	·33
Other Foods	1,331	3,671	2 15 2	·59
Total	3,019	9,670	Litter ...	1·56 ·03

TABLE E.

Summer Period.

COST PER GALLON OF MILK AT VARYING PRICES FOR HOMEGROWN FOODS FED TO COWS.

Assuming that the same quantity would be fed. (Showing effect of Gallon Cost of Milk.)

Hay.		Straw.		Roots.	
Price per Ton.	Cost per Gallon.	Price per Ton.	Cost per Gallon.	Price per Ton.	Cost per Gallon.
£ s. d.	Pence.	£ s. d.	Pence.	£ s. d.	Pence.
14 0 0	·59	6 0 0	·24	2 10 0	·47
13 0 0	·54	5 10 0	·22	2 5 0	·43
12 0 0	·50	5 0 0	·20	2 0 0	·38
11 0 0	·46	4 10 0	·18	1 17 6	·36
10 0 0	·42	4 0 0	·16	1 15 0	·33
9 0 0	·38	3 10 0	·14	1 12 6	·30
8 0 0	·34	3 0 0	·12	1 10 0	·28
7 0 0	·29	2 10 0	·10	1 7 6	·26
6 0 0	·25			1 5 0	·24
				1 0 0	·19

It is necessary to point out that the method of valuing homegrown foods applies not only to those fed to cows, but also those fed to other dairy stock, and that the method of valuation has some influence on the net charge on the cost of producing milk as a result of the keeping of these stocks.

TABLE F.
HERD TRANSACTIONS.—GREAT BRITAIN.
Summer Period.

	Cows.			Other Dairy Stock.			Cows.			Other Dairy Stock.		
	No.	£ s. d.	Average Price £ s. d.	No.	£ s. d.	Average Price £ s. d.	No.	£ s. d.	Average Price £ s. d.	No.	£ s. d.	Average Price £ s. d.
Commencing Valuation ...	4,913	200,153 13 0	40 15 0	2,779	59,126 11 0	42 0 0	728	30,566 16 2	42 0 0	1,156	10,152 7 9	—
Number of Calves born...	—	—	—	1,379	—	—	67	—	—	94	—	—
Purchases ...	596	33,691 18 5	56 11 0	206	9,287 10 0	45 11 0	74	4,112 0 0	55 11 0	313	10,928 3 0	—
Transfers in ...	300	14,490 3 0	48 6 0	65	1,536 0 0	23 4 6 0	4,940	214,548 15 6	43 9 0	2,866	66,746 11 6	—
Balance, being Increase in Value of Stock.	—	891 17 3	—	—	17,877 1 3	—	—	—	—	—	—	—
Total ...	5,809	249,227 11 8	—	4,429	87,827 2 3	—	5,809	249,227 11 8	—	4,429	87,827 2 3	—

NOTE.—The loss by deaths included in above figures is—
On 67 cows ... £ s. d. 2,520 14 2
On other dairy stock ... 461 3 2
75 calves died.

The cost of foods for other dairy stock—
On basis of farmers' prices ... £ s. d. 13,014 4 4
" market ... 13,059 10 8
The number of farms in the area is 144.

TABLE G.
HERD TRANSACTIONS.—ENGLAND AND WALES.
Summer Period.

	Cows.			Other Dairy Stock.			Cows.			Other Dairy Stock.		
	No.	£ s. d.	Average Price £ s. d.	No.	£ s. d.	Average Price £ s. d.	No.	£ s. d.	Average Price £ s. d.	No.	£ s. d.	Average Price £ s. d.
Commencing Valuation ...	3,256	132,164 11 0	40 12 0	1,621	33,552 6 0	44 7 0	496	22,002 18 6	44 7 0	851	7,139 18 7	—
Number of Calves born...	—	—	—	1,047	—	—	45	—	—	59	—	—
Purchases ...	417	22,613 5 11	54 4 6	197	8,804 1 0	44 3 0	28	1,180 0 0	42 3 0	230	8,502 3 0	—
Transfers in ...	201	9,020 3 0	44 17 6	47	1,151 0 0	45 0 0	3,305	148,712 18 0	45 0 0	1,772	40,848 17 0	—
Balance, being Increase in Value of Stock.	—	8,097 16 7	—	—	12,983 11 7	—	—	—	—	—	—	—
Total ...	3,874	171,895 16 6	—	2,912	56,490 18 7	—	3,874	171,895 16 6	—	2,912	56,490 18 7	—

NOTE.—The loss by deaths included in above figures is—
On 45 cows ... £ s. d. 1,636 12 6
On other dairy stock ... 353 13 2
46 calves died.

The cost of foods for other dairy stock was—
On basis of farmers' prices ... £ s. d. 7,832 4 8
" market ... 7,868 19 1
The number of farms in the area is 100.

TABLE H.

HERD TRANSACTIONS.—SCOTLAND.

Summer Period.

	Cows.			Other Dairy Stock.			Cows.			Other Dairy Stock.		
	No.	£ s. d.	Average Price £ s. d.	No.	£ s. d.	Average Price £ s. d.	No.	£ s. d.	Average Price £ s. d.	No.	£ s. d.	Average Price £ s. d.
Commencing Valuation ...	1,657	67,989 2 0	41 0 7	1,158	25,574 5 0	22 0 0	232	8,563 17 8	36 18 3	305	3,012 9 2	9 2
Number of Calves born...	...	...	...	332	...	...	22	...	...	35	...	...
Purchases ...	179	11,078 12 6	61 17 10	9	483 9 0	...	46	2,932 0 0	63 14 9	83	2,426 0 0	0 0
Transfers in ...	99	5,470 0 0	55 5 0	18	385 0 0	...	1,635	65,835 17 6	40 5 4	1,094	25,897 14 6	0 6
Balance, being Increase in Value of Stock.	—	—	—	—	4,893 9 8	Balance, being Decrease in Value of Stock.	—	7,205 19 4	—	—	—	—
Total ...	1,935	84,537 14 6	—	1,517	31,336 3 8	Total ...	1,935	84,537 14 6	—	1,517	31,336 3 8	—

NOTE.—The loss by deaths included in above figures is—
 On 22 cows
 On other dairy stock
 29 calves died.

The cost of foods for other dairy stock was—
 On basis of farmers' prices
 " market "
 The number of farms in the area is 44.

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