Milk
Cost of production 0.S.

Economic Report No. 1.

EDINBURGH AND EAST OF SCOTLAND COLLEGE OF AGRICULTURE.

(Department of Economics).

INTERIM REPORT

ON

COST OF MILK PRODUCTION, SUMMER, 1948.

BY

J.R. PHILLIPS.

13, George Square, Edinburgh, 8.

February 1949.

Economic Report No. 1.

This report is a continuation of the series of interim milk reports previously designated bulletins.

DEPARTMENT of ECONOMICS.

STAFF

D. WITNEY, B.Com.
J.D. NUTT, B.A., N.D.A.
D.M.R. LEASK, B.Sc.
W.B. DUTHIE, B.Sc.
J.W. DAVIS, B.Sc.
J.R. PHILLIPS, N.D.A.
J.A. MACLENNAN, B.Sc.
E. STEWART, B.Sc.

RECENT PUBLICATIONS.

ECONOMIC ASPECTS OF WAR-TIME FARMING, 1939 - 40 to 1944 - 45.
FINANCIAL RESULTS OF EAST OF SCOTLAND FARMS (Hill Sheep, Stock Rearing Stock-Raising and Feeding, Arable, and Dairy Farms) viz.,
1945 - 46 - 200 farms.
1946 - 47 - 205 farms.
CROP COSTS STUDIES - OATS, POTATOES, and SUGAR BEET 1945+, 1946, 1947.
COSTS OF MILK PRODUCTION - Whole Year 1945 - 46. Whole Year 1946 - 47.
MECHANISATION STUDIES - TRACTOR COSTS AND PERFORMANCE 1944 - 45+, 1945 - 46.
- COMBINE HARVESTERS IN SOUTH EAST SCOTLAND 1944, 1945, 1946, 1947.
- ECONOMIC ASPECTS OF FARM MECHANISATION.

+ No further copies available.

Enquiries regarding the above publications should be addressed to either the Secretary of the College, or the Provincial Agricultural Economist.

I. INTRODUCTION.

The costs of milk production for the Summer Period 1948, are set out in this interim report in a similar manner to that used for the past three years. The period covered is the six months from April to September inclusive, but instead of the more usual 26 weeks, this period extended to 27 weeks to bring the last week of the costs year nearer to the end of September. This extra week had the effect of increasing the cost per cow and yield of milk per cow by roughly one-twentysixth over the normal, but had no perceptible effect on the unit cost of the milk produced. This anomaly has been corrected in the averages by adjusting them to a 26 week period thus making possible valid comparisons with past periods, and, in due course, with future periods. After the costs for the Summer Period have been discussed the report sets out a table showing the cost for the year ended 30th September 1948 and final tables for the Winter and Summer Periods incorporating figures for Herd Maintenance. The whole of this report is based on the results of 83 herds costed throughout the year.

II. GENERAL DESCRIPTION OF FARMS AND HERDS STUDIED.

Location and size of Herds. It is highly gratifying to note that interest in our investigation on the part of our collaborating farmers is being exceptionally well maintained. Compared with the Winter Period there were only three changes in the herds costed. Two farmers were obliged to give up the costs work, but one additional farmer has come forward with results for the whole year. This affects the distribution of the location of the herds as there are now one less in both Perth and Midlothian and one more in East Lothian.

The average size of herd for the period under review was 45 cows - a decrease of 2 cows from the Winter Period 1947-48. During the three years covered by the costs it has been noticeable that on an average there was one more cow per herd kept in each winter period than in the following summer.

Type and Size of Farms. The changes in the farms costed have reduced the average size of farm by two acres, compared with the Winter Period. Both the farms leaving the investigation were larger, and the incoming farm was rather smaller, than the average. The average rent is equal to 24/10d. per acre, which is almost identical with that for the Winter Period. Rough grazings account for about 15% of the area of these farms.

Type and Composition of Herds. Since the herds costed in the Summer Period were almost the same as in the Winter there were no radical changes in the breeds, pedigree status, or quality of stock.

In all, 3729 cows were costed, including 34 which were temporarily suckling calves and 740 dry cows; these latter represented 20% of the total. This proportion of dry cows is 1% less than for the Summer Period 1947, but was not unexpected, for reasons stated in the interim report for the Winter Period 1947-48. In our winter report we showed a rather high percentage of dry cows (28%) due to later calving than usual and this led to there being fewer dry cows during the Summer Period. Even with this lower average proportion of dry cows, two herds had as many as 40% dry. The average size of herd for the period was 45 cows, with individual herds ranging from 11 to 103 cows.

Quality of Milk. During the Summer Period one farmer producing Standard milk replaced his herd with attested cows, and allowing for the changes in the herds costed this brings the total to 64 attested herds. All these herds produce the Tuberculin Tested or Certified Grade of milk and represent 77% of the total. Of the rest, 10 herds, (12%) produced the Standard Grade of milk, and the remaining 9 herds (11%) produced Non-graded or Ordinary milk.

As in the Winter Period only four herds out of the total of eighty-three were hand-milked. Most of the milk produced was sold wholesale but there were seventeen herds, i.e., 20%, from which the major portion of the production was sold direct to the consumer.

Milk Yield per Cow. Following a winter which was rather more favourable to milk production, but showed indifferent results due to the higher proportion of dry cows in the herds, the spring began well with "an early bite" and open weather. The /

The remainder of the period - the summer months - were comparatively cold and wet and while the cold was not desirable, the rain did keep the grazing land green, especially during the later months when grass usually begins to go back. One detrimental effect which the heavy rainfall had was to slow down the clearing of the hay crop, thus tying-up the aftermath grazing. Nevertheless milk production per cow was exceptionally high with an average of 369 gallons per cow for the period. This compares very favourably with 347 gallons per cow for the 1947 summer, showing an increase of 22 gallons, equal to 6%, and more than offsets the decrease reported for the 1947-48 Winter Period. The difference between the Winter and Summer pro-:duction was 84 gallons - an unusually high figure.

The variation in summer milk yields per cow per herd was exceptionally wide, ranging from as low as 154 gallons for the six months, to as high as 555 gallons, easily the widest margin we have found during the three years of our costs inves-:tigation.

In the table below the herds are grouped according to milk yield per cow per herd and the percentage figures are given for the three Summer Periods, 1948, 1947 and 1946, for comparison.

TABLE I. - MILK YIELD PER COW PER HERD: SUMMER 1948 cf., SUMMERS 1947 & 1946.

	Under 201 Galls.	201 to 250 Galls.	251 to 300 Galls.	301 to 350 Galls.	351 to 400 Galls.	401 to 450 Galls.	451 to 500 Galls.	Over 500 Galls.	Total
No. of herds in 1948	2	3	11	17	22	15	10	3	83
Do. 1948 as percentages	2	4	13	20	27	18	12	4	100%
Do. 1947 as percentages	-	6	17	32	20	19	5	1	100%
Do. 1946 as percentages	-	10	10	31	27	14	4	4	100%

Although 1948 shows fewer herds giving under 300 gallons per cow, there are two herds with exceptionally low yields. On the other hand there are more herds at the other end of the scale with yields of over 450 gallons per cow. Apart from this increase in the diversity of milk yields there has been a general upward move-:ment of herds from the lower yield groups, a matter for much satisfaction in view of the need for high output.

III. COSTS OF PRODUCTION.

Preparation of costs data. The data have been carefully analysed for each herd costed and summarised to allow comparisons between individual farms and between different areas.

In this period, Summer 1948, we have adhered to the main principles set out in the previous reports; a summary of these is given below.

(i) The Year was divided into two six-monthly periods - viz., Winter and Summer.

(ii) Home Grown Foods have again been charged at the prices used during the Winter 1947-48 Period.

Grazing costs were calculated individually for each farm and the total cost for the year was charged in this period.

(iii) Labour was charged for the production of milk to the point of cooling and bulk storage, unpaid family labour being charged at rates equivalent to those paid to hired workers, with appropriate allowances for overtime work.

(iv) Miscellaneous Costs included expenses directly chargeable to the dairy herd, such /

such as bull upkeep, veterinary fees, dairy stores, depreciation and repairs and maintenance of dairy equipment. Overhead expenses, calculated on the same lines as in the previous year, were also included.

(v) Herd Maintenance has been temporarily ignored, as is usual in our interim reports.

(vi) Credits for calves sold and retained, and for unexhausted manurial residues, were deducted from the GROSS COSTS to give the NET COSTS per gallon.

SUMMER MILK COSTS, 1948.

In Table II below, the average costs are set out for the 83 herds studied.

TABLE II. - COSTS PER GALLON AND PER COW (PROVISIONAL)†
AVERAGE YIELD PER COW 369 GALLONS.

Items	Per Gallon		Per Cow		Per Cent.
	d.		£ s. d.		
FOODS - Purchased	3.14		4:16: 7		19
- Home Grown	2.11		3: 4:10		12
- Grazing	3.32		5: 2: 1		20
TOTAL		8.57		13: 3: 6	51
LABOUR - Hired	3.53		5: 8: 6		21
- Family	.46		14: 2		3
- Farmer & Wife	.87		1: 6: 9		5
TOTAL		4.86		7: 9: 5	29
MISCELLANEOUS COSTS		3.44		5: 5:10	20
GROSS COSTS		16.87		25:18: 9	100%
Less: CREDITS for Calves, U.M.R.		.84		1: 5:10	-
NET COSTS		16.03d.		£ 24:12:11	-

† Excluding Herd Maintenance (i.e., "Cow Replacement").

Foods, the most important item of cost, accounted for over half the cost per cow for the Period. Compared with the previous summer there is an increase of 3/5d. in the cost per cow - the result of higher costs for grazing and purchased foods offset by a comparatively big fall in the cost of home grown foods. In the Summer Period 1948, purchased foods per gallon of milk produced, cost exactly the same as in the previous Summer but grazing cost a little more and other home grown foods over ½d. less. The overall result is a reduction in cost of nearly ½d. per gallon from 1947 to the 1948 Summer Period, due to the increased milk yield per cow. During the period concentrated foods were fed at the rate of 1.95 lb. per gallon of milk produced. This figure is rather less than for the Summer Period 1947 but the total amount of concentrates per cow remained very similar for the two periods, at about 6¾ cwt. per cow. Thus the greater milk yield in the summer of 1948 has been produced from grass, probably the cheapest of all foods.

Labour Costs per cow were 1/1d. more than in the Winter Period 1947-48. This increase in the cost of labour can be attributed mainly to the changes in the National Insurance payments effective from 5th July, but also in some measure to the effect that shortage of labour has on the wage payments. There is thus very clear evidence that the rise in the cost of labour continues. When the labour cost per gallon is compared with that for the Summer Period 1947 it shows a decrease of .12d. spread over all the three categories of labour employed. While in 1946-47 the summer cost of labour was 1d. per gallon less than for the Winter Period, in the year under review the summer labour cost is nearly 1½d. less than for the Winter Period.

Miscellaneous Costs /

Miscellaneous Costs for the period were 3/- per cow less than for the Winter Period 1947-48. However this still shows an increase of 7/10d. over the Summer of 1947 that even the higher milk yields could not fully offset. Thus the cost per gallon for this item was slightly higher in 1948 than in the 1947 Summer Period.

Credits for calves and unexhausted manurial residues showed a rise in both the per gallon and per cow figures over the previous Summer Period.

The total net cost per cow averaged £24:12:11d. for the period, 14/2d. more than that for the Summer Period 1947. The net cost per gallon averaged 16.03d. which is roughly ½d. less than shown in the interim report for the Summer 1947. The range in costs was from £12: 6: 2d. to £43:16: 0d. per cow and from 7.85d. to 44.31d. per gallon of milk produced.

In Table III below the herds costed are grouped according to both cost per gallon and per cow.

TABLE III. - DISTRIBUTION OF HERDS ACCORDING TO COST PER GALLON OF MILK PRODUCED AND COST PER COW (6 MONTHS 1st APRIL to 30th SEPTEMBER 1948).

Net Cost per Gallon.								
	Under 12d.	d. 12-15	d. 15-18	d. 18-21	d. 21-24	d. 24-27	Over 27d.	Total
No. of Herds	14	25	17	13	10	3	1	83
Net Cost per Cow.								
	Under £15	£ 15-20	£ 20-25	£ 25-30	£ 30-35	£ 35-40	Over £40	Total
No. of Herds	2	18	30	19	8	4	2	83

On one-half of the farms it cost from 1/- to 1/6d. to produce one gallon of summer milk and from £20 to £30 to keep a cow for the six months. The ranges have increased from last Summer's results with the cost per gallon showing a general fall to lower levels and the cost per cow rising higher.

The overall results are most satisfactory when comparing this period with the Summer Period 1947. They show only a small increase in cost per cow of less than 3% and this has been more than counterbalanced by a considerable increase in the milk yield per cow of 6%. Finally the cost per gallon has decreased by 3% and with the wholesale price of milk higher by about 2d. per gallon (nearly 10%) the profits for the period must have been more satisfactory. This is all the more welcome when, as we reported in the Winter Period, there were indications of a lower turnover.

IV. MILK COSTS FOR THE YEAR ENDED 30th SEPTEMBER 1948.

As the full report on the year will not be available for some time, the following tables are being included in this interim report to show the final costs for 83 herds. The two half-yearly periods have been revised to include only these 83 herds and to complete them the herd maintenance cost has been added. Following these is the table setting out the average costs per gallon and per cow for the whole year.

TABLE IV. - WINTER MILK COSTS 1947-48: AVERAGE OF 83 HERDS. /

TABLE IV. - WINTER MILK COSTS 1947-48: AVERAGE OF 83 HERDS.
AVERAGE NUMBER OF COWS IN HERD 46
AVERAGE MILK YIELD PER COW (GALLONS) 287

Items	Per Gallon		Per Cow		Per Cent
		d.		£ s. d.	
FOODS - Purchased	7.13		8:10: 7		23
- Home Grown	10.94		13: 1: 8		36
- TOTAL		18.07		21:12: 3	59
LABOUR - Hired	4.51		5: 7:11		15
- Family	.60		14: 4		2
- Farmer & Wife	1.11		1: 6: 6		3
TOTAL		6.22		7: 8: 9	20
MISCELLANEOUS COSTS		4.57		5: 9: 4	15
HERD MAINTENANCE		1.91		2: 5: 8	6
GROSS COSTS		30.77		36:16: 0	100%
Less: CREDITS for Calves) U.M.R.)		1.73		2: 1: 6	-
NET COSTS		29.04d.		£ 34:14: 6	-

TABLE V. - SUMMER MILK COSTS 1948: AVERAGE OF 83 HERDS.
AVERAGE NUMBER OF COWS IN HERD 45
AVERAGE MILK YIELD PER COW (GALLONS) 369

Items	Per Gallon		Per Cow		Per Cent
		d.		£ s. d.	
FOODS - Purchased	3.14		4:16: 7		17
- Home Grown	2.11		3: 4:10		11
- Grazing	3.32		5: 2: 1		18
TOTAL		8.57		13: 3: 6	46
LABOUR - Hired	3.53		5: 8: 6		19
- Family	.46		14: 2		2
- Farmer & Wife	.87		1: 6: 9		5
TOTAL		4.86		7: 9: 5	26
MISCELLANEOUS COSTS		3.44		5: 5:10	18
HERD MAINTENANCE		1.91		2:18: 9	10
GROSS COSTS		18.78		28:17: 6	100%
Less: CREDITS for Calves) U.M.R.)		.84		1: 5:10	-
NET COSTS		17.94d.		£ 27:11: 8	-

TABLE VI. /

TABLE VI. - WHOLE YEAR COSTS 1947 - 48: AVERAGE OF 83 HERDS.
AVERAGE NUMBER OF COWS IN HERD 45
AVERAGE MILK YIELD PER COW (GALLONS) 656

Items	Per Gallon		Per Cow		Per Cent.
		d.		£ s. d.	
FOODS - Purchased	4.87		13: 6: 3		20
- Home Grown	5.93		16: 4: 2		25
- Grazing	1.88		5: 2: 9		8
TOTAL		12.68		34:13: 2	53
LABOUR - Hired	3.98		10:17: 7		17
- Family	.48		1: 6: 3		2
- Farmer & Wife	.98		2:13: 7		4
TOTAL		5.44		14:17: 5	23
MISCELLANEOUS COSTS		3.92		10:14: 3	16
HERD MAINTENANCE		1.91		5: 4: 5	8
GROSS COSTS		23.95		65: 9: 3	100%
Less: CREDITS for Calves) U.M.R.)		1.23		3: 7: 3	-
NET COSTS		22.72d.		£ 62: 2: 0	-

In bringing the half-yearly costs up to date the main difference is the addition of the cost of herd maintenance amounting to 1.91d. per gallon. This is rather less than the cost for this item last year.

The year's costs show an increase in cost per cow of all the main items except for herd maintenance. The production of milk per cow showed a rise of 16 gallons to 656 gallons and the net cost per cow was £1 : 0: 7d. higher than last year. The cost per gallon gives a balanced result of these two factors and for the year under review it is 22.72d. which is .18d. less than for last year.

The average size of herd costed was 45 cows and this is one less than in the 1946-47 costs.

ACKNOWLEDGMENTS.

Grateful acknowledgment is made of the assistance of the dairy farmers who supplied the information necessary to complete this investigation, and who always gave the investigators considerate attention on the occasion of their visits. Many of these farmers have again given cost records for some of the home grown fodder crops and these will be utilised in the current Milk Costs year.

Each farmer will receive a copy of his own records for the 1948 Summer Period and the Whole Year 1947-48, along with this report; the report on the full year's costs, now in preparation, will be circulated as soon as available.