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Cost of production U.S.

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(Department of Economics.)

INTERIM REPORT

ON

COST OF MILK PRODUCTION, WINTER 1949 - 50.

BY

J.D. ROWBOTTOM.

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DEPARTMENT OF ECONOMICS.

STAFF

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J.A. MACLENNAN, B.Sc.
J.D. ROWBOTTOM, B.Sc.
B. PEART, B.A.
MISS H. SMITH, B.Sc.

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ECONOMICS OF LIVESTOCK PRODUCTION - Winter Fattening of Sheep, 1947-48, 1948-49.
- Winter Fattening of Cattle, 1947-48, 1948-49.

≠ 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.

This interim report covers the six-monthly period from 1st October, 1949 to 31st March, 1950. The number of herds costed is 80 which is the same as for the Winter Period 1948-49. Of the 80 herds costed for this period 74 were included in last year's records, and six new herds have been recruited to keep up the numbers. As the size, quality and type of the six new herds is very similar to those replaced the effect of the change on average costs of production, yields and herd size should be very little. Once again records were obtained on specially prepared weekly returns distributed to the farmer in book form for the purpose of this investigation.

II. GENERAL DESCRIPTION OF FARMS AND HERDS STUDIED.

The changes have altered the distribution of the herds over the counties. Fife, which was always strongly represented, has increased by two as compared with the previous winter period, and so also did Angus. Minor changes took place in other counties.

TABLE I. - GEOGRAPHICAL DISTRIBUTION AND SIZE OF HERD: 80 FARMS.

County	Average No. of cows in herd.						Total Number of Herds
	Under 21	21-40	41-60	61-80	81-100	Over 100	
Angus	-	-	-	6	1	2	9
East Perth	1	4	5	1	1	-	12
Fife	1	4	7	2	2	1	17
Clackmannan & Kinross	-	-	2	-	-	-	2
West Lothian	3	3	1	-	-	-	7
Midlothian	-	3	7	4	1	1	16
East Lothian	-	3	-	2	-	-	5
Berwick	1	2	-	-	2	-	5
Roxburgh	-	2	-	-	-	-	2
Selkirk	-	2	-	-	-	-	2
Peebles	1	1	1	-	-	-	3
TOTALS	7	24	23	15	7	4	80

The tendency for the individual herds costed to increase in size persisted, and the average number of cows per herd is now 51, an increase of three over the 1948-49 winter period. This is due in part to the new herds which on an average were slightly larger/

larger than the ones they replaced. The herd size showed a wide variation, ranging from the smallest herd with 10 cows to the largest with 122 cows. Four herds, as last year, had over 100 cows and there were 7 with less than 21 cows.

The majority of herds costed were, as for the winter period 1948-49, situated on arable farms from which crop sales are important. The new herds entering the investigation were all situated on arable farms on which the dairy herd forms the most important source of income.

The average size of farm, excluding the town dairy, was 273 acres with a rental value of £360 being equal to 26/4d. per acre which shows a slight increase in value per acre over the previous winter six months. The actual size of farms varied from a dairy smallholding of 45½ acres to an upland farm of 912 acres with a large area of mountain and heathland.

The total number of cows costed was 4,103, an increase of 232 over the winter period 1948-49, this being reflected in an increase in the average herd size already mentioned. The number of dry cows was 1,102 or 26.8 per cent, and 29 cows were temporarily suckling calves. The proportion of dry cows is the same as for the previous winter six months, thus any change in average milk yield which will be considered later is not due to a difference in the number of dry cows. Individual herds showed wide variation in the proportion of dry cows, ranging from 2 per cent. for a town dairy to 59 per cent. for a herd which places emphasis on summer milk production.

Ayrshires were by far the most common breed of cows kept. Out of a total of 80 herds costed, 60, i.e. 75 per cent., were Ayrshire herds. Other pure bred herds comprised, 8 Friesian herds (including 3 pedigree ones), and 1 pedigree Red Poll herd. Only a few of the herds were crossbred or mixed herds - 86¼ per cent. were of one breed although not necessarily pedigreed. Most of the herd sires were from pedigree herds and again as in the winter period 1948-49, 25 herds had a high proportion of pedigree stock. Official milk records were kept on 58 of the costed farms and 4 others were recorded privately.

A great majority of the herds costed, 69, i.e. 86¼ per cent., were producing the highest grade of milk Certified or Tuberculin Tested. The Standard Grade of milk was produced by 7 herds and only 4 herds produced Ordinary or Non-Graded Milk. One of the herds producing ordinary milk was in the process of becoming attested. In most cases the milk sold off the farms costed went wholesale to the Scottish Milk Marketing Board, or producer-wholesale to to a retailer. However, 21 farms sold the greater proportion of their milk direct to the consumer.

Only two herds were hand-milked, the remainder being machine milked. Combine auto-recorders were used on 18 farms and, of these herds milked in special parlours, ten were housed in byres, six in ordinary cattle courts, one was confined to a well bedded paddock and one kept on the pastures in which a movable bail milker was used.

The mild winter followed an excellent summer and plenty of good hay and other home grown feeding stuffs were available. Conditions on the whole were favourable to all farming activities. That this was so in the case of milk production is borne out by the fact that the average milk yield per cow

was/

was 339 gallons, an increase of 18 gallons over the winter period 1948-49.

TABLE II. - MILK YIELD PER COW PER FARM: WINTER, 1949-50

cf., WINTER 1948-49

	151 to 200 Galls.	201 to 250 Galls.	251 to 300 Galls.	301 to 350 Galls.	351 to 400 Galls.	401 to 450 Galls.	Over 450 Galls.	TOTAL
No. of herds 1949-50	2	8	18	21	12	13	6	80
1949-50 percentages	3	10	22	26	15	16	8	100
1948-49 percentages	5	11	25	27	18	9	5	100

The above table shows the distribution of herds according to their average milk yield. As in the previous year the concentration of herds is in the "average group". In general there has been a movement of herds rightwards - i.e., to the highest yielding groups. The percentage of herds in the lowest yielding groups has decreased, and that in the highest yielding groups has increased.

III. COSTS OF PRODUCTION.

Preparation of Costs data. Every care has been taken to ensure the utmost comparability of the data not only between different farms, but also between our own and other colleges in Great Britain.

The following principles have been adhered to.

(i) Winter and Summer Periods.

The year has been divided into two six-monthly periods, viz.,

Winter .... 1st October to 31st March inclusive.
Summer .... 1st April to 30th September inclusive.

(ii) Purchased Foods.

All foods purchased whether concentrates or roughages have been charged at cost (including haulage to the dairy premises).

(iii) Home Grown Foods.

These have been charged at prices intended to cover costs of production including carting to a point within close proximity to the dairy premises. Costs were completed/

completed for most of the grain, fodder and root crops in 1949 by the Economics Department as a whole. From this and other information the following average prices were derived, which include milling charges in the case of corn crops:-

Crop	Price per ton £ s. d.	Crop	Price per ton £ s. d.
Oats) including	16 - -	Swedes & Turnips	1 16 -
Beans) grinding,	22 10 -	Mangolds	1 16 -
Mashlum) etc.	17 10 -	Kale	1 15 -
Hay, Rotation	5 10 -	Cabbage	1 15 -
Straw, fed	2 12 -	Silage	2 6 8

No charge has been made for straw used as litter.

Variations from the averages were made in the light of ascertained costs of individual farms, or because of their special circumstances.

(iv) Labour

Any labour which may be regarded as a cost of distribution as distinct from production (e.g., bottling milk, sterilising bottles, etc.) has not been charged. The milk is really costed up to the point where it passes "over the cooler and into the cans".

Unpaid family labour, viz., manual work undertaken by the farmer and/or his wife or any member of his household, has been charged at the rates locally current for equivalent hired labour; appropriate adjustments have been made for overtime work.

(v) Miscellaneous Costs.

Those comprise three elements, viz.,

(a) Expenses directly chargeable to the dairy herd or necessarily incurred in milk production e.g., bull upkeep, veterinary fees and medicines, consumable dairy stores, coal, milk recording fees etc.

(b) Repairs, depreciation and maintenance of dairy equipment; and

(c) Overheads i.e., an appropriate share of certain general farm expenses which has been calculated at the rate of 5/4d. per £. of the direct labour bill incurred on milk production. The basis upon which this item is calculated is in keeping with the recommendations made by the Scottish Conference of Agricultural Economists. Incidentally this is the biggest element in the composition of miscellaneous costs.

(vi) Herd Maintenance (or "Cow Replacement").

This important but fluctuating item of cost has been temporarily ignored in the preparation of our Interim Report, on the grounds that it can only properly be dealt with when we have detailed information covering a whole year. Some guidance as to the probable cost of this item may be found in the four published annual reports. The/

The average cost over the four years was 2.03d. per gallon of milk produced or £2. 9.11d. per cow for the winter period.

(vii) Items excluded.

The following items have not been included as items of cost:-

Managerial or supervisory work.
Milk haulage, and other costs of distribution.
Interest on capital.

(viii) Credits.

From the GROSS COSTS of milk production, credits have been deducted for the following items so as to arrive at the NET COSTS per cow and per gallon:-

Calves sold or retained.
Unexhausted manurial residues.

Both these items have been ascertained on an agreed basis.

WINTER MILK COSTS.

The average costs for the 80 herds are shown in Table III below.

TABLE III. - WINTER MILK COSTS (PROVISIONAL), * 1949-50.

NUMBER OF HERDS COSTED	80
AVERAGE NUMBER OF COWS IN HERD	51
AVERAGE MILK YIELD PER COW (GALLONS).....	339

Items	Per Cow		Per Gallon		Per Cent
	£. s. d.		d.		
FOODS - Purchased	12. 6. 2		8.72		30
- Home Grown	14. 2. 4		10.01		35
TOTAL		26. 8. 6		18.73	65
LABOUR- Hired	6. 2. 6		4.34		15
- Family	10. 3		.36		1
- Farmer & Wife	1. 5. 4		.90		3
TOTAL		7.18. 1		5.60	19
MISCELLANEOUS COSTS		6. 9. 1		4.57	16
GROSS COSTS		40.15. 8		28.90	100
Less: CREDITS for Calves) U.M.R.)		2.13. 2		1.88	-
NET COSTS		38. 2. 6		27.02d.	-

* Excluding Herd Maintenance (i.e. "Cow Replacement").

It will be seen that these interim costs, excluding Herd Maintenance, worked out at £38. 2. 6. per cow, equal to 27.02d. per gallon of milk/

milk produced as compared with £34. 3. 4. and 25.55d. respectively for the corresponding winter period in 1948-49. These costs represent increases of nearly £4 per cow for the half year, and nearly 1½d. per gallon of milk produced, notwithstanding the higher milk yield per cow. Whilst costs per cow for the winter period have risen by something like 12 per cent., milk yields have risen by 6 per cent. - and an increase in costs per gallon of about 6 per cent. is the result. The rising costs of purchased foods are largely responsible for this appreciable increase in the cost of milk production.

FOODS which again formed two-thirds of the total cost were, of course, the highest single item of cost. Compared with the previous winter six months, the increase was £3.11. 7. per cow, made up of £3. 7. 7. on Purchased Foods, due to the rising prices of these foods following the removal of the subsidies thereon, and 4/- on Home Grown Foods. Although the average yield per cow was higher during the period under review than for the winter period 1948-49, the increase in yield has not been sufficient entirely to offset the sharp rise in the cost of feeding stuffs, with the result that the food cost per gallon of 18.73d. was 1.65d. greater than last year.

The quantity of concentrates fed, both Purchased and Home Grown, per gallon of milk produced was 4.53 lb. - a slight increase compared with the corresponding winter period last year. It seems clear that if costs of production are to be kept down, then a greater output is necessary, and also at the same time a greater use must be made of Home Grown Feeding Stuffs, e.g. Silage, Dried Grass.

LABOUR which is the second highest item of cost, forming 19 per cent. of the total cost, rose by 5/3d. per cow; but in this case the cost per gallon fell slightly compared with 1948-49. The increase was solely due to an increase in costs of hired labour as there was a reduction in the cost of the manual labour of the farmer and his wife and family.

MISCELLANEOUS costs rose by 8/8d. per cow due to an increase in cost of practically all the small items which go to make up this item. The extra cost per gallon was however only .07d.

CREDITS for calves and unexhausted residues were more per cow and per gallon than for last winter.

In Table IV below the distribution of herds according to cost per cow and cost per gallon is shown.

TABLE IV - DISTRIBUTION OF HERDS ACCORDING TO COST PER GALLON OF MILK PRODUCED AND COSTS PER COW.

	Net Cost Per Gallon						Total Number of Herds
	Up to 20d.	d. 20-25	d. 25-30	d. 30-35	d. 35-40	Over 40d.	
No. of Herds	7	18	33	13	6	3	80
	Net Cost per Cow						Total Number of Herds
	Up to £25	£ 25-30	£ 30-35	£ 35-40	£ 40-45	Over £45	
No. of Herds	5	12	11	24	12	16	80

The/

The majority of the herds are grouped around the average cost per gallon and produced milk at from 20d. to 35d. per gallon; but there is a wide range from lowest to highest cost - 1/5d. to 4/4d. - a greater range than in the previous winter period. The herd which last year had the lowest cost per gallon is again in the same position. This herd shows up exceptionally well having a higher than average yield per cow and lower than average cost per cow, both these factors combining to give a very low cost per gallon. At the other end of the scale the high cost per gallon of producing milk on a few of the farms was the result of a low milk yield and high costs of labour and overheads associated with small herds.

The cost of keeping a cow for the winter six months, as last year showed a very wide range from the lowest to the highest cost. Comparing Table IV with a similar table for the 1948-49 winter period the costs per cow show an upward trend. The main differences are a decrease from 28 to 17 herds with costs of under £30 and an increase of 7 with costs over £45 for the six months. The individual costs tend to be more "spread out" and not grouped so much around the average as they were last year.

In the result, as already stated, these provisional figures show that increased costs per cow, partly offset by higher milk yields, show an increase of nearly 6 per cent. in the cost per gallon of milk produced. Fortunately, at the same time the average monthly wholesale price of milk rose by 8 per cent.; prices seem to be keeping pace with rising costs, thus ensuring the profitability of milk production. If, however, prices should fall or remain steady, an increase in production will be needed to counteract this.

IV. THE FEEDING OF DAIRY COWS.

Again for the third year in succession we were favoured with a mild open winter. This followed an excellent summer with good hay crops and other crops having above average yields, although towards the end of the summer period grass in some cases may have been short because of the hot weather.

Table V below sets out the food consumption for the six months and compares this with the two previous winter periods.

TABLE V - FOOD CONSUMPTION PER COW - SIX MONTH WINTER PERIODS.

A comparison between 1947-48, 1948-49 and 1949-50.

	Average of 84 farms 1947-48 Cwt. per cow.	Average of 80 farms 1948-49 Cwt. per cow.	Average of 80 farms 1949-50 Cwt. per cow.
Concentrates			
Purchased	8.00	7.97	8.31
Home Grown	4.00	4.61	4.76
Total	12.00	12.58	13.07
Dried Grass	.11	.76	.63
Hay	15.76	14.53	14.51
Straw	11.08	10.12	9.97
Draff	11.29	10.96	9.77
Roots	43.98	42.14	37.37
Green Fodder & Oat Sheaves	12.27	15.91	18.94
TOTAL	106.49 cwt.	107.00 cwt.	104.26 cwt.

It/

It is clear that silage continues to replace roots in the feeding of dairy cows. Whilst the quantity of turnips fed has fallen by 5 cwt. per cow (equal to 3 lb per day) as compared with last year, and the quantities of hay, straw and draff have also decreased somewhat again, green fodder (which includes silage) has once again been fed in increasing quantities viz. something like 3 cwt. per head more than in 1948-49, equal to 2 lb. per head per day more. Over the whole group, the quantity of silage fed averaged 6.89 cwt. per cow; on the 25 farms which actually fed silage to their dairy herds it averaged 23 cwt. per cow, equal to 14 lb. per head per day. The quantity of concentrates fed increased slightly. As compared with 1947-48 the feeding of dairy cows in 1949-50 showed even bigger changes.

ACKNOWLEDGMENT.

Grateful acknowledgment is made of the valuable assistance of the dairy farmers who took part in this investigation, supplied the necessary records and other information, and unfailingly gave the investigators considerate attention on the occasion of their visits. Each collaborating farmer will receive along with this report a copy of his own records and costs. The investigation is continuing and again, this summer, details are required of the costs of some of the fodder crops. It is hoped that farmers will favour us with their continued help and interest.