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FARM LABOUR STUDIES - No. 1.

THE LABOUR SAVING PROBLEM IN DAIRY
BYRES.

A Preliminary Survey.

by -

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INTRODUCTION

To-day, on the average dairy farm in this area, the labour bill accounts for one-third of farm expenditure and is the largest single item of cash outgoings.

Dairy farming has many technical difficulties and problems but it is true to say that the labour problem - that of obtaining and keeping workers and of using their working hours to the best advantage - is the most immediate concern of very many dairy farmers. From the view-point of workers, byre work has certain disadvantages in comparison with work in the field. Even on the family farm, the desire to minimise the exacting tasks of stock attendance and milking is evident.

Rising labour costs, difficulties in labour supply and the pressing need to make the work speedier, lighter and in general, more attractive, have been, to some extent, met by field and steading mechanisation and by greater attention to organisation and management, but the problem has lost none of its urgency and there is still a need for methods of management, work routines and machinery which will help towards a solution.

In very few ways can the farm be compared to manufacturing industry, where labour organisation and use have increasingly been made the subjects of close and detailed study; but, recognising at the outset certain limitations peculiar to farming, a more intensive examination of labour use within the farm presents an approach which has not been developed to any great extent in Britain.

This report deals with a preliminary attempt to investigate, in a broad and general way, the problem of byre and dairy work in this College area. A survey was made with the object of ascertaining some basic facts and of viewing the problem as seen by the dairy farmer himself. The facts and opinions presented were obtained in the first place as background for future work but it is hoped that they may also prove to be of interest to those engaged in dairying.

The Object and Scope of the Survey.

In the South-West of Scotland, dairying is the most important type of farming; in fact, over much of the low-ground area, the production of milk and dairy stock is the only type of farming encountered. As a preliminary to the investigation of labour problems on the dairy farm, a survey was made of about 100 farms with four main objects in view.

- (1) To obtain information on the number of workers at present employed in dairy stock attendance.
- (2) To gather farmers opinions as to which jobs in the byre and dairy they considered should be classed as the "longest" and the "hardest or most distasteful".
- (3) To note the methods of labour use in relation to milking, feeding and dairy work generally.
- (4) To observe devices and routines at present in use for saving labour or making work easier and speedier to perform.

During the Spring of 1949, visits were paid to 103 dairy farms, almost all of which are located in a traditional dairying area where court and bail methods of housing are almost entirely absent and "parlour" methods of milking are relatively uncommon. The survey relates to the winter months when cows are housed and fed in the byre, and the labour requirements of stock attendance are at their maximum.

No attempt has been made, at this stage, to study in detail, or record accurately, the time taken for any of the operations in the byre and dairy. As the productive results of farm labour are linked to many factors - system of payment of labour, mechanisation, steading layout, the capital available to renovate and remodel, and the competing needs of the various branches and enterprises of the farm - reference has been made to many points considered as likely to be of interest to those concerned with dairy farming or of importance /

importance at a later stage of investigation.

The primary aim of labour saving is to reduce the amount of work which has to be done without decreasing the output, but this is not the only aim. It is equally important to make the work easier, so that the same jobs can be efficiently performed with less effort on the part of the worker. This reduces fatigue and makes the work more pleasant. This aspect was held in mind in all the questions addressed to the farmers visited.

Again, it was not the purpose of the investigation to ascertain the money cost of the methods and equipment described. It was concerned with the labour requirements in a currency of "man-hours" rather than of pounds sterling. As a rule, saving of labour results in saving of cost but this does not always follow. Sometimes the introduction of machinery is profitable because it enables an operation to be performed at the proper time, which would not otherwise be possible, owing to shortage of labour.

The report is addressed primarily to those engaged in dairy farming. Farmers do not all possess equal technical knowledge, so that no apology is made for referring to matters which, though they may be well known to some, are likely to be unfamiliar to others. In the course of the report a number of Scottish terms are used which are described below for the benefit of any readers to whom they are unfamiliar.

"Byre"	-	Cowshed.
"Grip"	-	Dung channel in Cowshed.
"Trevise"	-	The division between stalls.
"Byre-walk"	-	Passage in byre behind cows, in the cowshed.
"Food Cooler"	-	Food barrow.
"Calf Box"	-	Calf pen.
"Graip"	-	Dung fork.

The Number of Farms and the Size of Herds.

Ayrshire was chosen as the main centre for the investigation partly on account of its proximity to the College, and partly because of its importance as a dairying county. The farms visited in the other counties were chosen chiefly to provide some contrast, the herd size being generally larger and the family labour element less important.

The number of farms visited in each county is shown below.

<u>County.</u>	<u>Number of farms visited.</u>
Ayrshire	70
Dumfriesshire	7
Kirkcudbrightshire	10
Wigtownshire	13
Lanarkshire	<u>3</u>
Total	<u>103</u>

The farms are shown in the statement below grouped according to the size of the herd.

<u>Number of Cows in Herd.</u>	<u>Number of Farms in Group.</u>
Under 30	10
30 - 49	36
50 - 69	29
70 and over	28

The average number of cows per herd in the South-West of Scotland is approximately 40. The sample taken in the present study shows, therefore, rather a high proportion of large herds. These were chosen because the larger farms employing paid labour were expected to have labour saving devices more highly developed than smaller farms and, accordingly, seemed to offer greater scope for investigation.

THE LABOUR REQUIREMENTS OF THE WHOLE DAIRY HERD.

Work in the byre and dairy has to be considered in relation to other work on the farm. On the larger farms with large herds, byre and dairy workers are usually fully employed on these duties, but among the smaller herds many of the workers are employed only part time in the byre, the remainder of the day being spent on outside work. The form of organisation is greatly influenced by the needs of milking, which, as an operation, regularly day by day, requires a greater concentration of workers than any other, and takes from one to two hours each morning and evening. In the larger herds, where the dairymen are fully employed on the herd, some additional help may be given at milking time by outside workers. On the smaller family farms, it is usual for three or four workers to be engaged at the milking-time peak, while one or two are sufficient to complete the remainder of the byre and dairy work during the day. On other farms three or four workers may carry out all the dairy work during the morning and evening, so that they are free for outside duties throughout the forenoon and early afternoon. If labour can be saved in the byre, more time is made available for outside work on these farms, or, ultimately, possibilities may arise for using a smaller farm staff.

On the 103 farms covered by this survey, the average size of herd was 55 cows. On an average, on these farms, $3\frac{1}{2}$ persons were found to be employed, for at least part of their time, on byre and dairy work. This figure includes looking after young stock housed indoors.

In order to gain a clearer picture of the amount of labour actually used in the byre and dairy, an estimate was obtained of the proportion of each worker's time spent there and from this the labour requirements of the herd, in terms of Man-Hours per Day, was calculated. For all farms in the survey, the average labour requirement was 21 man-hours per day. The number of hours per day which each worker spends in the byre and dairy varies on different farms but the figure of man-hours per herd per day gives a basis on which the labour used on different farms can be compared.

It should be emphasised that the figures given are not based on accurately timed data but on the farmers' estimates of the time spent on the work by themselves and their employees.

An analysis is given below of the labour requirements of the herds studied, grouped according to the size of herd.

Herd-Size group.	Average No. of cows in group.	Average No. of workers per herd.	No. of Man-Hours worked per herd per day.		
			Average.	Herd with smallest No.	Herd with greatest No.
10 - 29 cows	23	3.2	15	8	20
30 - 49 "	39	3.25	17	6	28
50 - 69 "	58	3.6	21	10	30
70 cows and over	83	4.0	28	16	48

The average number of workers per herd employed on byre and dairy work, increased only a little from the small to the large herd-size groups and practically the same number of workers were employed on herds of 30 to 49 cows as on herds of 10 to 29 cows. The number of man-hours per day, however, increased from the small herds to the large. It seems therefore, that the smaller herds required practically as many workers as the medium sized ones, but, on the former, more of the workers' time was spent on duties outside the byre and dairy. Milking time has the peak labour requirement of the day and the figures suggest that in order to meet the needs of this operation, a minimum of three workers was required on herds of up to about 50 cows. The last two columns show the range of man-hours worked per day in each herd-size group. The difference between the farms requiring the smallest and the greatest number of man-hours per day is sufficiently striking to invite an investigation into the causes, at a later date.

Number of Stock per Worker.

The average number of cows and young stock which one worker looked after is 15 to 16 cows plus 13 calves, young stock and bulls. The numbers of stock tended in each of the four herd-size groups are shown below.

<u>Herd Size Group.</u>	<u>No. of Stock Attended per Worker.</u>		
	<u>Cows.</u>		<u>Other Dairy Stock.</u>
10 - 29 cows	7.4	+	8.1
30 - 49 "	12.0	+	13.3
50 - 69 "	16.2	+	14.6
70 cows and over	21.0	+	12.4

The figures in the last column refer only to young stock and bulls housed on the farms and do not include young stock wintered out, as outwintered stock are usually tended by the outside workers on the farm. Many of the larger herds visited are on farms situated in the southern part of the area, where young stock are often outwintered. Consequently, the proportion of the young stock housed in the steading on these farms is less than on the smaller farms visited, which are situated for the most part in North Ayrshire where soil and climate are not favourable to outwintering.

The number of cows tended per worker increases from the small to the large herds. To some extent this may reflect greater efficiency of labour management in the large herds, but it is also affected by the fact that relatively more of the workers in the small herds are employed only part time on the herd, and because, in the small herds, a larger proportion of young stock is kept indoors than is the case in the larger herds studied.

A Measure of Efficiency

The figures quoted give no indication of the efficiency of the labour used on the herd. This depends on the number of man-hours employed per day and the number of stock attended in one man-day. In order to measure this by a single figure, it is necessary first to bring the labour requirements of cows and young stock to a common denominator. It has, therefore, been assumed that, on an average, three bulls, calves, or young stock require the same labour as one cow, and the term "cow equivalent" has been adopted to represent the total number of stock in terms of one cow. This figure may not be correct for every farm, but it gives a useful approximation. The "cow equivalent" of bulls, calves and young stock is found by adding together the numbers of each and dividing this by three. The result added to the number of cows gives the total "cow equivalent" per herd. The number of "cow equivalents per man day", therefore, gives a measure whereby the labour required on one farm can be compared with that used on another. For all farms the number of cow equivalents per man day (C.E.M.D.) is 27.0: in other words, one worker daily attended to 27 cows or their equivalent in cows and other dairy stock. The average C.E.M.D. for the various herd size groups, together with the highest and lowest C.E.M.D. in each group, is given below.

<u>Herd Size Group.</u>	<u>"Cow Equivalents" per Man Day.</u>		
	<u>Average.</u>	<u>Lowest.</u>	<u>Highest.</u>
10 - 29 cows	17.7	11.5	25
30 - 49 "	24.8	15.3	43.2
50 - 69 "	29.3	18.2	60.8
70 cows and over	28.9	20	51.6

The most striking aspect of these figures is the wide difference in C.E.M.D. between the highest and the lowest herds. If the C.E.M.D. is regarded as a joint measure of the skill in management, efficiency of labour, and convenience of buildings, then these differences may be taken to indicate the wide range which occurs in these factors.