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SOME FURTHER OBSERVATIONS ON WASTAGE AND
REPLACEMENTS IN DAIRY HERDS.

by

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Investigation into the various branches of agricultural science has served to increase our knowledge of the principles of selective breeding of plants and animals for specific purposes, of the factors governing their growth and development, and of the prevention and control of certain of the diseases to which they are susceptible. Considerable improvements have also been made in the means and methods of cultivation, harvesting and conservation of crops, as well as in the provision of certain ancillary aids to production such as farm buildings, mechanical equipment, and water supplies. The dairy industry has received its full measure of benefit from these improvements. Yet despite these developments much remains to be done. It would seem that one of the least satisfactory aspects of the dairying industry is the short length of productive life of cows, which is due in large measure to the high incidence of disease. It may be that the initial trouble is the result of faulty nutrition or other forms of bad management and that some of the losses eventually incurred could have been prevented by the application of known methods of treatment. The fact remains, however, that wastage does impose an unduly heavy burden on the industry. This does not really lend itself to evaluation in monetary terms, although certain authorities have sought to estimate the loss in milk and calf production which can be attributed to the major diseases.* Rather is it of a much wider nature since account must also be taken of the additional cost of rearing a greater number of replacements than would otherwise be necessary, many of doubtful milking capacities, some if not most of which will be drafted out of herds before reaching the age of maximum production.

In a recent survey** it was found that the average productive herd life in a sample of Welsh herds worked out at about three-and-a-half years, a figure which, though not synonymous with that for total productive life, does seem to indicate a high degree of wastage. In the present study, however, an attempt is made to undertake a more searching analysis into the wastage aspect, on the basis of the reasons why cows leave herds and the variations which may exist under different conditions of production and management.

The data on which this study is based were obtained in connection with the National Investigation into the Economics of Milk Production and relate to 78 herds distributed throughout the various Welsh counties. An attempt has been made to obtain as representative a sample as possible so that the farms depict a wide variety of natural conditions and systems of management, although milk production is the most important enterprise on the majority of them. The herds show a wide range in levels of production, while the greater number of them contain relatively small numbers of cows. Neither are there any abnormal changes in the sizes of these individual herds as between the beginning and end of the year. A summary of the transactions is given in Table I.

Table I.
Transactions for 78 Herds.

Number of Cows in Opening		Number of Cows in Closing	
Valuations	1169	Valuations	1180
Heifers Transferred In	231	Sales & Transfers Out	280
Cows Purchased	84	Deaths	24
Total Incoming Cows	315	Total Outgoing Cows	304
	<u>1484</u>		<u>1484</u>

Sales and transfers out amount to 23.95 per cent and deaths to a further 2.05 per cent of numbers of cows in opening valuations, thus giving a crude replacement rate of 26.00 per cent.

* Report of Diseases of Farm Livestock, Section I. Some Diseases of Cattle. Prepared by the Survey Committee of the National Veterinary Medical Association of Great Britain and Ireland. (November, 1940).

** J. R. E. Phillips - Some Preliminary Observations on Age Structure, Seasonality of Calving, and Replacements in Dairy Herds. (Published by the Department of Agricultural Economics, University College of Wales, 1947).

The very slight increase in numbers of cows in closing valuations is not sufficient to make any significant difference in the corrected replacement rate. The total productive herd life therefore works out at 3.8 years, which is very near to the figure obtained in the previous study mentioned above. As would be expected, however, there are certain differences in rates of turnover in cows within the sample.

<u>Size of Herd.</u>	<u>Number of Herds.</u>	<u>Average Productive Herd Life.</u> (Years).
Up to 9.99 Cows	23	3.2
10 " 19.99 "	39	3.3
20 Cows and above	16	5.0
All Herds	78	3.8

From the above table it would appear that average productive herd life is of considerably shorter duration in the smaller sized herds than in the larger, the latter also being less dependent on purchases for replacement purposes. For those herds which are entirely self-maintained the average productive herd life works out at 4.6 years, and at 3.1 years for those which depend to varying degrees on purchases.

Again, there seems to be an inverse relationship between average productive herd life and yield per cow.

<u>Average Yield per Cow.</u>	<u>Number of Herds.</u>	<u>Average Productive Herd Life (Years).</u>
Up to 499.99 gallons	20	4.0
500 " 699.99 "	45	3.7
700 gallons and above	13	3.5
All Herds	78	3.8

As already indicated, however, such estimates of average productive herd life are of only limited value for ascertaining wastage, owing to the fact that some cows are sold for further use in other dairy herds. In order to obtain a measure of true wastage the reasons for disposals must be known. A summarized version of these is set out in Table II.

Table II.

Summary of Reasons for Disposals (78 Herds).

<u>Reasons.</u>	<u>Expressed as a Percentage of</u>			
	<u>Total Cows in Opening Valuations.</u>		<u>Total Disposals.</u>	
<u>Normal:</u>				
Low Milk Yield	2.14		8.23	
Surplus	6.67		25.66	
Accident and Injury	0.69		2.63	
Miscellaneous	3.76	13.26	14.47	50.99
<u>Disease:</u>				
Failure to Breed	6.50		25.00	
Mastitis & Udder Trouble	3.25		12.50	
Tuberculosis & Johne's Disease	1.71		6.58	
Staggers, Paralysis, etc.	1.29	12.75	4.93	49.01
		26.01		100.00

The classification adopted is of necessity a very broad one, owing to the very wide variety of reasons for which cows are drafted out of herds. Disposals for "normal" reasons have been listed separately from those due to "disease." This, however, is not an entirely satisfactory division, while the latter

category does not exactly indicate the extent of wastage. Thus some of the cows sold because of low milk yield may not of necessity be naturally low yielders but may be under the influence of some latent disease or suffering from the effects of past disease, while those sold as surplus are not in all cases likely to include the best cows. Disposals included under "Accident and Injury" consist of quite a fair proportion of fatalities, while the "Miscellaneous" group is made up of those sold owing to old age, to change of breed, to calving at the wrong time of year, to shortage of food, and to being too tender.

The classification into the four disease groups may also call for some elucidation. Included in the category "Failure to Breed" are those cows which were actually sterile and those which due to abortion or some other reason failed to become in-calf and were sold out barren. Those removed owing to mastitis and related troubles form a uniform group. Disposals due to tuberculosis and John's Disease have been classed together, while a small number, (among them a few deaths) ascribed to "wasting" have also, for want of more detailed knowledge been placed in this category. Reactors to the tuberculin-test are also included, but unlike other diseased cows these pass into other herds and are thus not lost to milk production. The last category, which incidentally consists almost entirely of fatalities, includes, apart from cases of stomach staggers and paralysis, instances of pneumonia, red-water, deaths during calving, and to strain through heavy milking.

Disposals amount to about one-quarter of total numbers of cows in opening valuations, and are about equally distributed between removals for normal reasons and those due to disease. Sales due to normal trading account for about one-half of those in the former category, while those due to the so-called "Miscellaneous" reasons are next in order of importance. Disposals on account of low milk yield represent just over 2 per cent of total numbers of cows in opening valuations and to just over 8 per cent of total disposals. It is probable, however, that the proportions in this category would show considerable variations in different samples of farms, according to the expected levels of performance in individual herds. Thus one would anticipate a quicker rate of turnover in herds where standards are high than in those where the requirements are not so exacting. A low yielder in one particular herd, moreover, might be regarded as a quite satisfactory, or even a good cow in another, while disposals of this nature are likely to make for an extension in total productive life.

Of the disease losses by far the highest proportion were due to failure to breed, a group which represented $6\frac{1}{2}$ per cent of the total numbers of cows in opening valuations and one-quarter of total disposals. As already explained comparatively few of these outgoing cows were actually sterile; rather were they, as some veterinarians would prefer to designate, temporarily infertile. Nevertheless this is a truly alarming position. Quite a number of cows in this category had previously aborted, leaving its usual aftermath of reproduction troubles. Some of the farmers in the sample had resorted to preventive inoculation of their dairy stock. This gave good results, although 100 per cent immunity could not be expected owing to the possibility of infection at the time of vaccination, and also to the slight possibility of the vaccine not "taking", - no post-vaccinal blood test having been made to ascertain whether this was the case. Moreover, it seems to be widely accepted that sterility and infertility are closely linked up with nutrition and herd management in general, and there is need for much investigational work and for the achievement of positive results before the ravages of these diseases can be curtailed.

Mastitis and udder trouble was also a serious cause of wastage, accounting for $12\frac{1}{2}$ per cent of disposals from herds, although the proportion suffering from latent infection must have been considerably higher. It seems that with this disease again the management factor is all important, and that half-hearted attempts at udder cleaning may be a greater source of contamination than of prevention. Penicillin treatment seems to be very effective in eradicating certain forms of the disease, although unfortunately there are other forms which do not respond to this remedy.

Of the 78 herds in this sample, 46 were tuberculin-tested and/or attested. Tuberculosis and John's Disease amounted to less than 2 per cent of

numbers of cows in opening valuations, and of these disposals 60 per cent were merely reactors to the tuberculin test. Only about 0.7 per cent of cows, therefore, were drafted out in the advanced stages of these diseases. On the whole this is probably a fairly satisfactory position. Certain parts of Wales are comparatively free from bovine tuberculosis, and the bulk of the reactors in the herds in this sample were found in the less clean areas. It may be pointed out that the herds were very free from Johnes Disease, there being only one (fatal) instance in the entire sample.

Disposals due to the staggers complex and related complaints constituted numerically the least important of the disease losses and do not seem to call for further elaboration.

	Per cent.	
<u>Contagious:</u>		
(a) Tuberculosis	13.42	
(b) Mastitis and Udder Trouble	25.51	38.93
<u>Non-Contagious:</u>		
(c) Reproductive system	51.01	
(d) Digestive "	2.68	
(e) Respiratory "	2.01	
(f) Blood Stream and Circulation	2.01	
(g) Parasitic Diseases	3.36	61.07
All Diseases		100.00

When the diseases are classified in types, it is seen that the contagious variety accounted for roughly two-fifths of the total. The greater toll was therefore taken by the non-contagious type, among which those of the reproductive system showed an overwhelming preponderance.

It is interesting, moreover, to compare the reasons for disposals from dairy herds in Britain with those for certain other countries. This is done in Table III.

Table III.

Reasons for Disposals from Dairy Herds.

Reasons.	New Zealand*	U.S.A. Michigan**	Great Britain ^d	Present Study (Wales).
	%.	%.	%.	%.
Low Milk Yield	31.4	41.0	17.7	8.2
Surplus	9.1	21.4	18.3	25.7
Accident and Injury	3.1		1.5	2.6
Miscellaneous	10.7	7.4	4.3	14.5
Failure to Breed	14.4	14.8	26.8	25.0
Mastitis & Udder Trouble	20.9	9.8	7.7	12.5
Tuberculosis & Johnes Disease	1.9	5.6	13.3	6.6
Staggers, Paralysis etc.	8.5		10.4	4.9
Total Disposals	100.0	100.0	100.0	100.0
Disposals as per cent of				
Total Cows	16.8	24.2	21.9	26.0

* A. H. Ward: The Economic Importance of Disease in Dairy Cattle. Proceedings of the Fifth Annual Conference of the New Zealand Society of Animal Production, 1945.

** Data adapted from A. C. Baltzer: Causes for Cow Removals in Michigan Herds Under Test in Dairy Herd Improvement Associations. The Quarterly Bulletin of the Agricultural Experiment Station, Michigan State College, Volume 22, Number 3, February, 1940.

^d Economic Advisory Council: Report of Committee on Cattle Diseases; Cmd. 4591 H.M.S.O. 1934.

The data for New Zealand are based on information obtained by the Herd Recording Department of the Dairy Board of that Dominion, while those for the U.S.A. refer to a sample of herds co-operating with the Michigan Dairy Herd Improvement Associations. The figures for Great Britain represent a summary of investigations conducted by the Hannah Dairy Research Institute, the National Institute for Research in Dairying, Reading, and the School of Agriculture, Cambridge. In all three cases it is possible that the samples reached a somewhat higher standard than the averages for all herds throughout the respective countries. Nevertheless, in the absence of more comprehensive information there is no alternative other than to have recourse to such data. The same criticism might possibly be levelled against the sample in the present study despite the attempt to obtain representative herds. Should these estimates err in any particular direction, therefore, it is probably in that of minimising rather than in accentuating the turnover and losses in dairy herds.

New Zealand compares very favourably with the other countries as regards rate of turnover of dairy cows, despite the high proportion culled because of low milk yield. The Michigan herds seem to be the more disease-free, although, as already indicated, considerable caution must be exercised in the interpretation of these results. For example, 41 per cent of these herds and about one-third of the New Zealand sample are sold because of low milk yield, and it is just possible that many of these cows are suffering from some forms of sub-clinical disease. The proportions disposed of owing to low milk yield, moreover, are considerably higher in these two countries than in Britain, while normal trading in dairy cows seems to be very much less frequent in New Zealand than in Britain and the United States. There are also striking differences in the losses attributed to the major diseases. Thus sterility and breeding troubles seem to be much less frequent reasons for disposal in New Zealand and the U.S.A. than in this country. New Zealand herds are much freer from tuberculosis than those in this country, but seem to be more heavily infected with mastitis. In fact, disease imposes a considerable drain on the resources of the dairy industries of most countries, although its total incidence and that of the different kinds of diseases may vary from one country to another.

Thus far only the overall average position for a sample of farms has been considered, and the sample might conceivably include, on the one hand, healthy herds which have remained intact, and on the other, herds which have suffered grievous losses through the ravages of contagious abortion, mastitis, tuberculosis, or other diseases. Apart from extreme instances such as these, however, it is possible to discuss certain trends in rates of turnover and of losses in cows within a given number of herds. The present sample of 78 herds has accordingly been grouped in various ways in order to ascertain whether there is any association between removals from herds and certain economic factors and circumstances.

Table IV.

Disposals of Cows by Size of Herd.

Reasons.	Expressed as a percentage of Total Cows in Opening Valuations;			Expressed as a Percentage of Total Disposals.		
	Up to	10 -	20 Cows	Up to	10 -	20 Cows
	9.99 Cows	19.99 Cows	and over	9.99 Cows	19.99 Cows	and over
Normal	18	14	10	58	50	47
Disease	12	14	11	42	50	53
Total	30	28	21	100	100	100

Dairy herds in Britain, and more particularly in Wales, contain on the whole relatively small numbers of cows, a fact which incidentally is of considerable importance from the genetical point of view. While those in the present sample ranged upwards to 50 cows, the majority of them were in the lower size-groups, and averaged about 15 cows. The rate of turnover was greater in the smaller herds than in the larger, owing chiefly to the higher proportions in the category of "normal" disposals. When expressed as a percent-

age of total disposals, those due to disease increased with increasing size of herd. The larger herds, moreover, were on the whole less dependent on purchases for herd replacement purposes. A detailed statement of disposals is given in the Appendix (Tables I and 2).

Table V.
Disposals of Cows by Yield of Milk.

Reasons.	Expressed as a Percentage of Total Cows in Opening Valuations:			Expressed as a Percentage of Total Disposals.		
	Up to 499.99 gallons	500 - 699.99 gallons	700 gallons and over	Up to 499.99 gallons	500 - 699.99 gallons	700 gallons and over
Normal	11	13	18	45	49	62
Disease	14	13	11	55	51	38
Total	25	26	29	100	100	100

The view is sometimes expressed that high-yielding cows are more susceptible to disease than low-yielding cows. It is, of course, not possible to verify this assertion from the data available in the present study. In order to do so it would be necessary to distinguish between the high producer on a normal diet and the high producer due to heavy feeding. Again, the data available for this sample of herds relate only to cows which actually left herds for various reasons and do not extend to those remaining in herds although infected to varying degrees by disease. From the above data, however it is seen that disposals due to disease, particularly to infertility, tuberculosis, and staggers, paralysis etc., were much more numerous in the lower-yield groups. These diseases would, of course, serve to lower milk yield and were probably the chief contributory causes of the unsatisfactory performance of the herds in these lower yield groups. Whether these cows would have been high yielders but for the onset of disease, cannot be ascertained, although it would seem that the supposed direct relationship between high milking capacity and susceptibility to disease is subject to many important qualifications.*

During recent years increasing numbers of dairy farmers, in response to the urgent appeals made and the price incentives offered by the government, have taken practical steps to increase the proportion of milk produced during the winter months. Such a policy involves intricate problems of herd management, and it is not surprising that the rate of turnover in cows tends to be higher in those herds which concentrate on winter milk production. There is also a direct relationship between disposals due to disease and the proportion of milk produced during the winter months. As would be expected, removals due to failure to breed show the same general trend.

Table VI.
Disposals of Cows by Seasonality of Production.
(Per Cent Winter Production).

Reasons.	Expressed as a Percentage of Total Cows in Opening Valuations:			Expressed as a Percentage of Total Disposals.		
	Up to 39.99 Per cent	40-49.99 Per cent	50 Per cent and over.	Up to 39.99 Per cent	40-49.99 Per cent	50 Per cent and over.
Normal	11	15	12	57	51	47
Disease	8	14	14	43	49	53
Total	19	29	26	100	100	100

* See A. H. Ward; High Production and its Relation to Disease in Dairy Cattle. Empire Journal of Experimental Agriculture, Volume VII, 1939.

When disposals of cows are classified by systems of herd maintenance, the self-maintained herds, as would be expected, show a lower rate of turnover than those which rely to varying degrees on purchases. Surprisingly, however, the former show a higher proportion of cows drafted out because of disease, due chiefly to the heavier incidence of mastitis. Again, whereas the graded and ungraded milk producing herds have a similar rate of turnover in cows, the proportion of disposals due to disease is much greater in the latter.

Table VII.

Disposals of Cows by Systems of Herd Maintenance
and Grade of Milk.

	Per cent of Total:				Per cent of Total:			
	Numbers of Cows		Per cent of		Numbers of Cows		Per cent of	
	in Opening Val-		Total		in Opening Val-		Total	
	uations.		Disposals.		uations.		Disposals.	
	Self-	Non-	Self-	Non-	Self-	Non-	Self-	Non-
	Main-	Main-	Main-	Main-	Graded	Ungraded	Graded	Ungraded
	tained	tained	tained	tained	Pro-	Pro-	Pro-	Pro-
Reasons.	Herds.	Herds.	Herds.	Herds.	ducers.	ducers.	ducers.	ducers.
Normal	10	17	47	54	16	9	61	35
Disease	12	14	53	46	10	17	39	65
Total	22	31	100	100	26	26	100	100

As already indicated, total disposals from this sample of herds amount to 304 which works out at about 26 per cent of numbers of cows in opening valuations, giving an average herd life of 3.8 years. These disposals, however, include 125 cows which are sold for further milk production and are therefore not lost to the "national dairy herd". Such disposals consist of cows sold owing to low milk yield, to being surplus to farmers' requirements, to miscellaneous reasons such as calving at the wrong period of the year, change of breed, etc., and to having reacted to the tuberculin test. If we regard all the individual herds of this country as one "national herd", cows in the above mentioned categories are still effective milk producers and are not lost to the "herd". The losses consist of those disposals (including deaths) whose milking life is at an end, and which must be replaced in order to maintain the herd at its original level. In the case of this particular sample these amount to 179 cows or 15.22 per cent of numbers of cows in opening valuations. If it is assumed that the transactions in these herds depict fairly closely conditions in the national dairy herd, this is equivalent to a total productive life of about six and a half years. Included in these losses, moreover, are cows which are sold out because of old age, and owing to accidents and injuries. Those in the former category have reached the end of their productive lives and are just undergoing a normal process, while the latter are contingencies which must be expected and usually amount to a fairly constant proportion. Such losses are therefore largely outside the farmers' control. But in the case of the remaining source of losses, namely disease, it is possible to strive to reduce the wastage it entails. For this sample of farms the disease losses amount to 11.7 per cent of numbers of cows in opening valuations.

The percentage monthly distribution of disposals is given in Table VIII. The peak months for total disposals are November and May. In the former month relatively large numbers were drafted out because of low milk yield, and in the latter month reproductive troubles took a rather heavier toll than usual. Purchases of cows and inward transfers of home-bred heifers follow the same general trend so that the monthly distribution of cow numbers does not exhibit any very marked variations. The autumn peak for incoming cows and heifers, however, is somewhat higher than that for the spring, so that numbers of cows carried during the autumn and winter months are rather greater than those kept during the other two seasons. But numbers of cows in milk (including suckling) are greater during the spring and summer months. (See Appendix, Figures I and II.)

Table VIII.

Total Disposals, Replacements & Wastage in Dairy Herds. (Expressed as monthly percentages).

	(1)	(2)	(3)
	Total	Total	
Month.	Disposals.	Replacements.	Wastage.
August	5.59	6.74	5.84
September	8.56	6.74	5.84
October	9.87	8.99	8.76
November	12.17	11.24	13.13
December	6.58	7.30	6.57
January	8.22	8.99	8.76
February	6.91	6.17	5.11
March	9.21	8.43	10.22
April	10.86	14.05	15.33
May	12.17	11.80	8.76
June	4.93	5.06	5.84
July	4.93	4.49	5.84

The peak months for total replacements⁽¹⁾ and for wastage⁽³⁾ are November and April. The monthly percentages do not fall below about four and a half in any instance, but they amount to over three times this figure during the peak months. (See Appendix, Figure III.)

Hitherto, the question of wastage and replacements in dairy herds has been considered in terms of numbers of cows which leave herds. There is, of course, another method of expressing these losses, namely in terms of the cost of herd replacement. Replacement costs may be calculated in a number of different ways. Thus different methods may be used for valuing new entries into herds and their subsequent valuation at the end of the year. The most the following calculations are intended to portray, however, are the general trends in such costs under different economic and managerial conditions. According to the present method purchased cows (apart from those which are full pedigree) are entered at purchase price, while home-bred heifers are transferred in at estimated cost of production. Sales are entered at prices realised and transfers out at their estimated values. The balance of the original herd is entered in the closing valuation at the same value per head as in the opening valuation, and cows purchased and heifers transferred in during the course of the year at their intake values. According to this method, therefore, the replacement cost (or herd depreciation) is determined by the actual difference between the values of incoming and outgoing cows. On this basis the replacement cost for the whole sample of herds works out at £2. 9. 8 per cow and 1.01 pence per gallon.

Replacement costs are naturally higher for the smaller herds, which rely to a greater extent on purchases.

(1) Includes all outgoing cows.

(2) Includes all outgoing cows, excluding those sold for further milk production, namely those on account of low milk yield, surplus, calving at wrong time of the year, change of breed and reactors to tuberculin test.

(3) Includes disposals under (2) less aged cows and those on account of accident and injury.

Table IX.

Replacement Costs by Size of Herd.

Size of Herd.	Number of Herds.	Replacement Costs.	
		Per Cow.	Per Gallon
		£. s. d	Pence.
Up to 9.99 Cows	23	2.12. 1	1.08
10 " 19.99 "	39	2. 9.10	1.00
20 Cows and Over	16	2. 5. 9	0.95
All Herds	78	2. 9. 8	1.01

This is also borne out when the herds are grouped on the basis of those which are entirely self-maintained and those which rely to varying degrees on purchases for replacement purposes.

Table X.

Replacement Costs by System of Herd Maintenance.

	Number of Herds.	Replacement Costs.	
		Per Cow.	Per Gallon.
		£. s. d	Pence.
Self-Maintained	41	2. 5. 0	0.94
Non-Self-Maintained	37	2.17.10	1.14

There is also a direct relationship between replacement costs and yield per cow. The inverse relationship between these two factors is very marked, particularly in the case of the per gallon costs.

Table XI.

Replacement Costs and Yield of Milk.

Yield per Cow (Gallons).	Number of Herds.	Replacement Costs.	
		Per Cow.	Per Gallon.
		£. s. d	Pence.
Up to 499	20	3. 5. 8	1.88
500 " 699	45	2.13. 8	1.08
700 & over	13	1. 0. 4	0.31

The higher proportion of cows disposed of owing to disease in the herds concentrating on winter milk production has already been noted, and this is reflected in the replacement costs. In fact, such costs for herds producing over 50 per cent of total milk during the winter months are about twice the corresponding figure for herds producing under 40 per cent during this period.

Table XII.

Replacement Costs and Seasonality of Production.

Percentage Winter Production.	Number of Herds.	Replacement Costs.	
		Per Cow.	Per Gallon.
		£. s. d	Pence.
Up to 39.99	15	1. 7. 8	0.67
40 " 49.99	41	2.16. 1	1.08
50 and over	22	2.18. 3	1.20

As would be expected, replacement costs are less for those herds which undergo a periodic clinical test than for those which do not. (See Table XIII).

Table XIII.

Replacement Costs and Grade of Milk.

Grades of Milk.	Number of Herds.	Replacement Costs.	
		Per Cow.	Per Gallon.
		£. s. d.	Pence.
Ordinary and Accredited	32	2.19. 0	1.21
All other Grades*	46	2. 3. 8	0.89

* Consists of T.T., Attested, T.T. and Attested, and Accredited and Attested Herds.

Sufficient indication has been given in the foregoing pages of the extent of wastage in dairy herds and the burden it imposes on the industry. There is, however, a growing appreciation on the part of dairy farmers of the urgency of taking active measures to reduce such losses to a minimum. The response to the Attested Herds Scheme in Wales has been very encouraging, particularly in West Wales, where attestation has reached such proportions that consideration is being given to the proposal to form a "clean area" there. The use of the new vaccine B.C.G. for immunising against tuberculosis may prove of great benefit in accelerating progress in this direction, while the use of vaccine S19 has already shown most satisfactory results with contagious abortion. Research work on specific animal diseases and on the wider aspects of animal health is being extended, and with the enlightened co-operation of dairy farmers the present high rate of wastage in herds may well be reduced to a much more modest level.

APPENDIX.

Table 1. Reasons for Disposals; Expressed as Percentages
of Total Numbers of Cows in Opening Valuations.

Table 2. Reasons for Disposals; Expressed as Percentages
of Total Disposals.

Figure I. Incoming and Outgoing Cows for Total Sample of
Herds.

Figure II. Monthly Distribution of Numbers of Cows in Milk
(including Suckling) and Dry.

Figure III. Wastage by Months for all Herds.

Table 1.

Reasons for Disposals Expressed as Percentages of Total
Numbers of Cows in Opening Valuations.

Reasons for Disposals.	Size of Herd.			Yield of Milk.			Seasonality of Production: (Per cent Winter Milk).					
	Up to	10 -		Up to	500 -	700	Up to	40 -	50 per	Self	Non-Self	
	9.99	19.99	20 Cows	499.99	699.99	gallons	39.99	49.99	cent &	tained	tained	All
	Cows.	Cows.	& over.	gallons	gallons	& over	per cent	per cent	over.	Herds.	Herds.	Herds.
<u>Normal.</u>												
Low Milk Yield	2.63	1.83	2.31	2.04	1.70	3.54	0.91	1.78	3.64	1.22	3.31	2.14
Surplus	7.90	8.07	4.38	4.42	6.32	10.62	5.43	8.57	3.94	5.49	8.17	6.67
Accident & Injury	0.53	0.92	0.46	0.34	1.08	-	0.90	0.81	0.30	0.92	0.39	0.69
Miscellaneous	6.84	3.49	2.76	4.42	3.54	3.54	3.62	3.56	4.24	2.75	5.06	3.76
	17.90	14.31	9.91	11.22	12.64	17.70	10.86	14.72	12.12	10.38	16.93	13.26
<u>Disease.</u>												
Failure to Breed	8.42	6.42	5.76	7.49	5.86	7.08	2.26	8.25	6.06	5.04	8.36	6.50
Mastitis & Udder Trouble	2.63	3.85	2.77	0.68	4.47	3.10	2.26	3.40	3.64	4.12	2.14	3.25
Tuberculosis & John's Disease	0.53	2.57	1.15	3.40	1.23	0.88	1.81	0.97	3.03	1.37	2.14	1.71
Staggers, Paralysis etc.	1.05	1.29	1.38	2.04	1.38	-	1.81	1.30	0.91	1.07	1.56	1.29
	12.63	14.13	11.06	13.61	12.94	11.06	8.14	13.92	13.64	11.60	14.20	12.75
	30.53	28.44	20.97	24.83	25.58	28.76	19.00	28.64	25.76	21.98	31.13	26.01

Table 2.

Reasons for Disposals Expressed as Percentages of Total Disposals.

Reasons for Disposals.	Size of Herd.			Yield of Milk.			Seasonality of Production: (Per cent Winter Milk).			Self-Non-Self:		
	Up to	10 -		Up to	500 -	700	Up to	40 -	50 per	Self-	Non-Self:	
	9.99	19.99	20 Cows:	499.99	699.99	gallons:	39.99	49.99	cent.	tained	tained	All
	Cows.	Cows.	& over.	gallons:	gallons:	& over	per cent:	per cent:	& over	Herds.	Herds.	Herds.
<u>Normal.</u>												
Low Milk Yield	8.62	6.45	10.99	8.22	6.63	12.31	4.76	6.21	14.12	5.55	10.63	8.23
Surplus	25.86	28.39	20.88	17.81	24.70	36.92	28.57	29.94	15.29	25.00	26.25	25.66
Accident & Injury	1.72	3.22	2.19	1.37	4.22	-	4.76	2.83	1.18	4.17	1.25	2.63
Miscellaneous	22.42	12.26	13.19	17.81	13.85	12.31	19.05	12.43	16.47	12.50	16.25	14.47
	58.62	50.32	47.25	45.21	49.40	61.54	57.14	51.41	47.06	47.22	54.38	50.99
<u>Disease.</u>												
Failure to Breed	27.59	22.58	27.47	30.13	22.89	24.61	11.90	28.81	23.53	22.92	26.88	25.00
Mastitis & Udder Trouble	8.62	13.55	13.19	2.74	17.47	10.77	11.90	11.87	14.12	18.75	6.87	12.50
Tuberculosis and Johne's Disease	1.72	9.03	5.50	13.70	4.82	3.08	9.53	3.39	11.76	6.25	6.87	6.58
Staggers, Paralysis etc.	3.45	4.52	6.59	8.22	5.42	-	9.53	4.52	3.53	4.86	5.00	4.93
	41.38	49.68	52.75	54.79	50.60	38.46	42.86	48.59	52.94	52.78	45.62	49.01
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Figure I.

Incoming and Outgoing Cows for Total Sample of
Herds. (Expressed as Monthly Percentages).

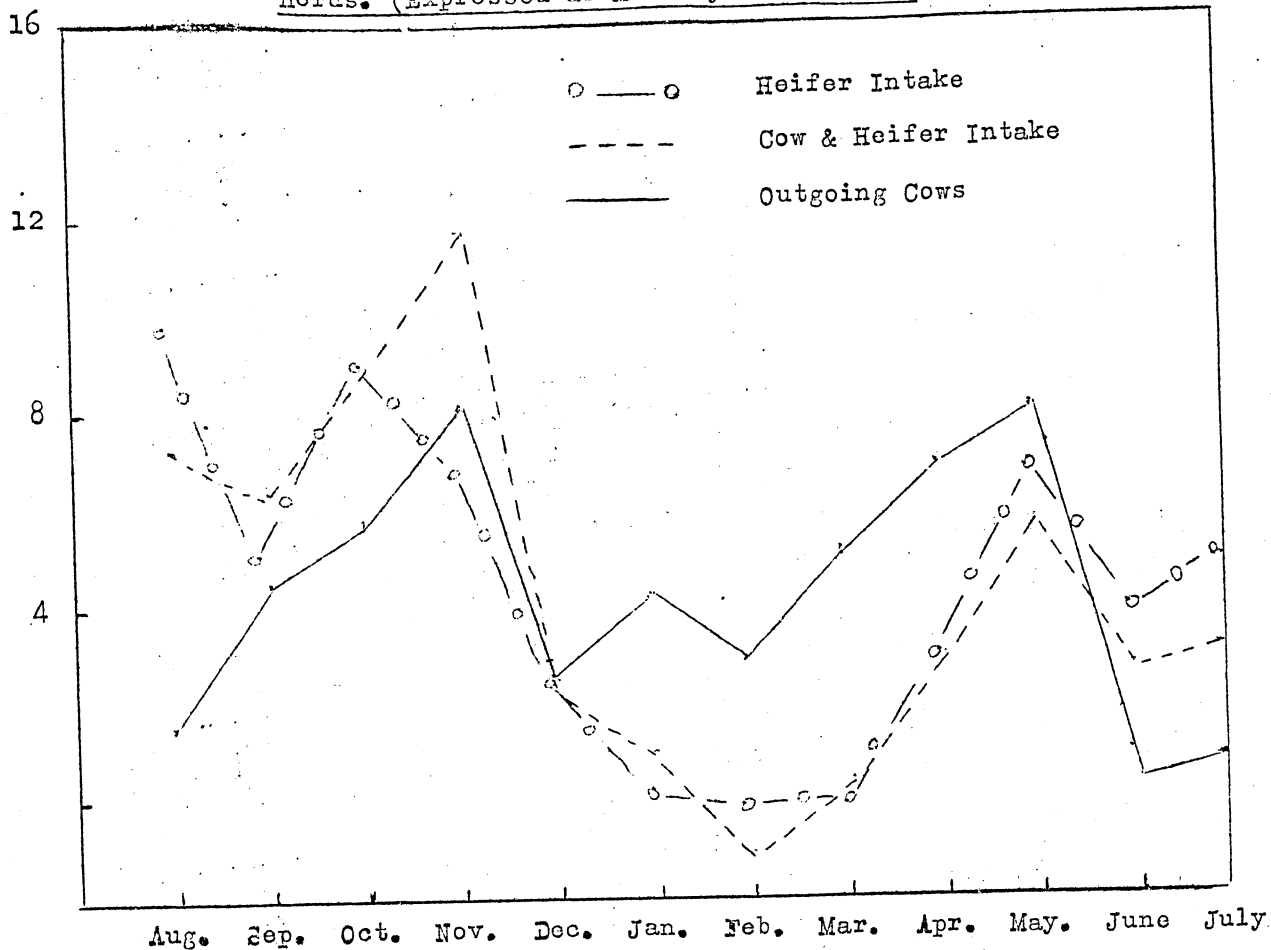


Figure II.

Monthly Distribution of Numbers of Cows in Milk (In-
cluding Suckling) and Dry.
(All Herds).

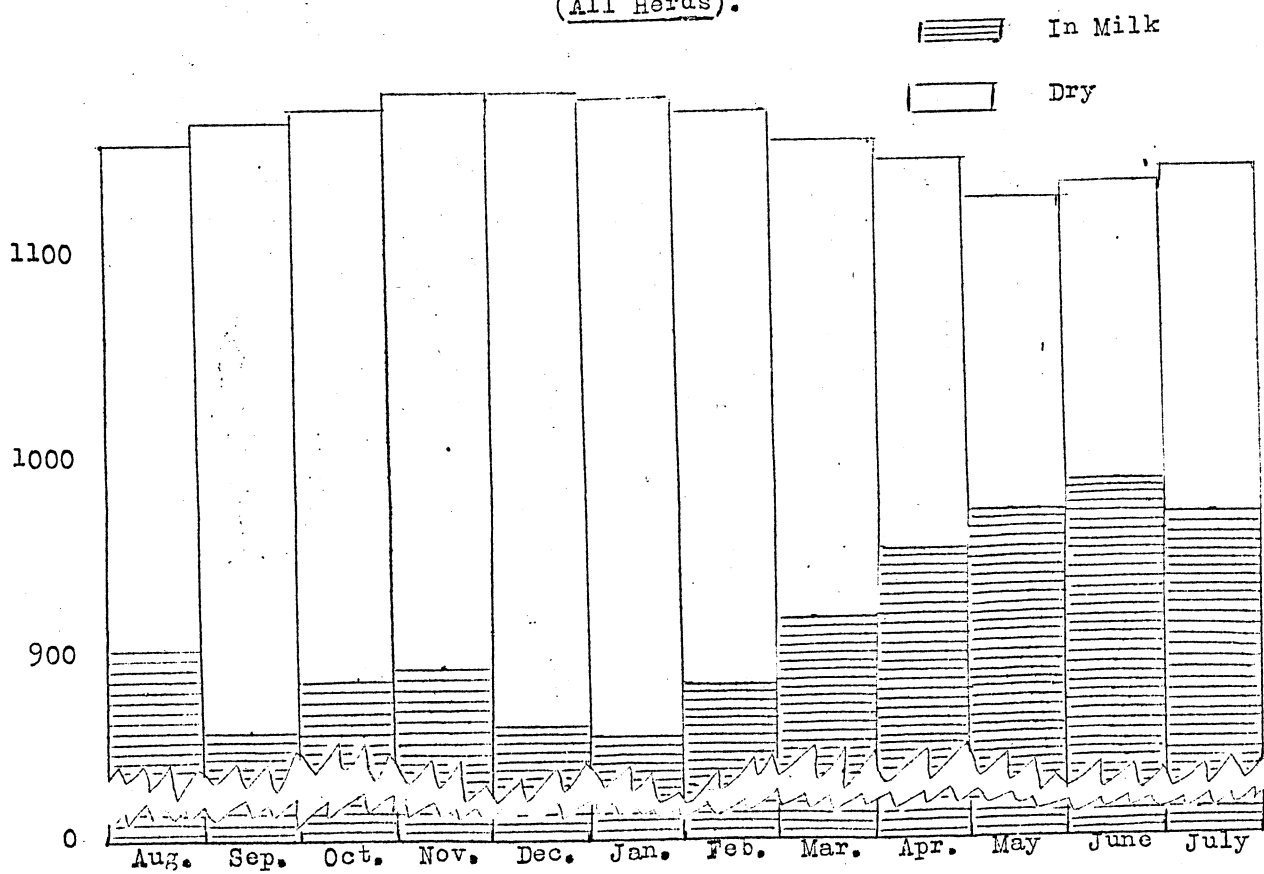


Figure III.

Wastage by Months for All Herds (Expressed
as Monthly Percentages).

