

## **FINANCIAL RESULTS ON MIXED DAIRY FARMS IN 1942-43 AS COMPARED WITH 1938-39.**

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In May, 1939, a report on the financial results secured on 98 "mixed" dairy farms on the North Cork-Limerick border, in the accounting year ended 30th April, 1938, was presented to the Society. (*Journal SSI 1938-39*) For 93 of these farms, comparable data were again collected in 1939, covering the accounting-year ended 30th April, 1939, and portion of these data appeared in the Society's *Journal for 1939-40*

In 1943, information, similar to that collected in 1938 and 1939, was again secured for some of the farms mentioned, the accounting-year being 1st May, 1942, to 30th April, 1943. This information is here summarised, and where possible, measurements are effected of the changes occurring since 1938-39—the last complete accounting-year of peace

The essential basic information was again collected by the "survey" method, which necessitated a personal visit to each of the farms included in the inquiry. The farmers concerned were not required to keep formal accounts specially for the purpose of the investigation. As in the case of previous surveys, however, the detailed records concerning the quantities and values of produce sold to, and farming-requisites bought from, the local creamery, were freely made available to me by the management, and I should like, at this point, to pay a very sincere tribute to the individual farmers, and to the management and staff of their creamery, for the kindly and whole-hearted co-operation which I received from them at all stages of the work

The primary purpose of the 1942-43 inquiry was to determine, for the farms in question, the nature and extent of the changes in farming-organisation, and financial results, brought about by the war. Accordingly, in order to ensure the maximum possible degree of comparability, the scope of the latest survey was restricted to those farms on which no important change in size or management-personnel had taken place between 1938-39 and 1942-43. For the same reason, also, a few farms on which dairying had been superseded by "dry-stock" farming, between the two account periods, have been excluded. As a result of these eliminations, only 74 of the 93 farms dealt with in 1938-39 were included in the 1942-43 survey

Of these 74 farms, 4 have had to be excluded from account, because the records obtainable were incomplete on some vital point. Of the remaining 70 farms, 9 were between 100 and 150 acres, and 6 between 150 and 200 acres. These 15 farms are not included in this publication because —

- (1) A correct expression of the financial results secured in the case of some of these farms, would have necessitated the incorporation of certain explanatory data, which would not be in accord with the guarantee of confidence and anonymity in publication, given as a pre-condition to securing the necessary basic information.
- (2) If, in order to avoid this difficulty, the farms in question were excluded from their appropriate size-groups, the resulting group-averages would probably be deficient in statistical stability.

Only 55 farms, therefore, are dealt with in this paper. All are under 100 acres, and are located within a district roughly 7 miles by 3 miles. Their distribution, according to size, is shown in Table I.

TABLE I  
*Distribution of Farms according to Size.*

Size of Farm	Number of Farms	Total Area	Average Area per Farm
(Statute Acres)	(No.)	(Acres)	(Acres)
Under 40	17	484	28
40—60	17	828	49
60—100	21	1,526	73
<b>TOTAL</b>	<b>55</b>	<b>2,838</b>	<b>52</b>

All references in the following pages to the 1938-39 survey, are applicable only to the above 55 farms, the relevant data having been abstracted from the 1938-39 records, and re-cast into a fresh summary.

For convenience, the paper has been divided into four main sections, dealing respectively with —

- (1) Changes in farm-organisation between 1938-39 and 1942-43
- (2) Changes in total output—volume and value—over the same period
- (3) Size and composition of the labour-force used during each of the account-periods under review
- (4) Changes in the remuneration of the labour-force between the two periods

In presenting the information under these heads, I have had to make extensive use of tables and diagrams, with a view to facilitating examination and interpretation of the available data, and I have, accordingly, limited personal comment to what seemed to be the minimum necessary for the clarification of the tables. In an appendix, brief explanations are given of the methods employed in

the evaluation of live-stock inventories, farm-produce appropriated for domestic consumption, depreciation of equipment, "units" of labour used, etc

### **Changes in Farm-Organisation Between 1938-39 and 1942-43.**

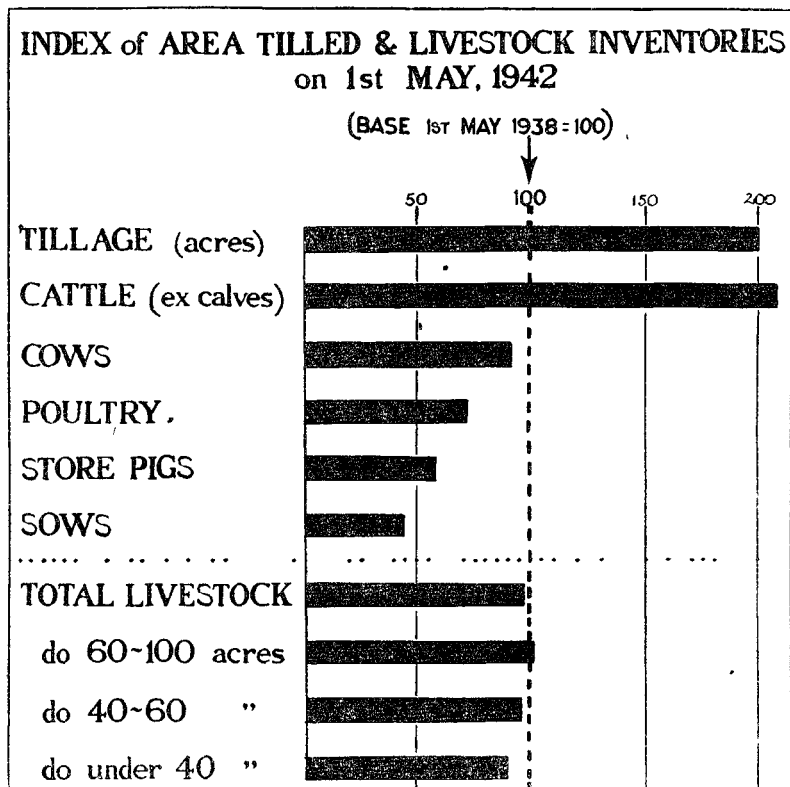
Although, at the time of the 1938-39 survey, no two of these farms were exactly alike as regards economic organisation, or technique of production, still, on almost all of them, there existed a particular type of farming which was popularly described as "mixed" dairy farming. That is to say (1) milk-production was the pivot of their whole farm organisation, (2) a substantial proportion of the farm income was derived from pigs and poultry production, and (3) the production of crops, particularly for sale, occupied only a minor place in the general economy of the farm.

By 1942-43, this pattern of farming had changed considerably at some of its most important pre-war points, as a result of the combined impact of 5 widely-recognised factors of change arising from the war conditions. These factors constitute an indispensable background to the interpretation of the 1942-43 data, accordingly, at this point, it may be desirable to enumerate them briefly, as follows —

- (1) The introduction of compulsory tillage regulations, which, in a general way by 1942-43, had set limits to the individual farmer's pre-war freedom of choice in deciding what, to him, appeared an optimum system of land-utilisation, with particular reference to the most desirable balance between cropping and live-stock production
- (2) The comparative scarcity (and substantially increased cost) of artificial manures, at a time when increased supplies would have greatly facilitated the change in farming-policy enjoyed by the programme of compulsory tillage
- (3) The scarcity (and increased cost) of the concentrated foods which, in pre-war days, constituted the main food for pigs and poultry on these farms, and which, in the case of milch cows, were very extensively used to supplement farm-produced foods during the winter and spring months
- (4) The increase in the price-level of all types of farm produce.
- (5) The national "drive" to ensure adequate home-grown supplies of food—particularly wheat

A rough provisional idea of the reaction on these 55 farms to the factors of change just mentioned, can be obtained by comparing the area under crops, and the numbers of live stock on 1st May, 1938, and on 1st May, 1942, because these broadly delineate the system of production adopted by the farm-owners for the 1938-39 and 1942-43 seasons respectively. Accordingly, in Fig 1, the acreage devoted to tillage-crops, and the principal live-stock inventories as on 1st May, 1942, have been diagrammatically shown as a percentage of the comparable items as on 1st May, 1938. Where different classes of live stock have been combined in a single index, the number in each class on the 1st May, 1942, has been valued at the price levels ruling on 1st May, 1938, and the aggregate of the values so obtained has then been converted to a percentage of the actual comparable values as on 1st May, 1938.

FIG. 1



The diagram indicates that considerable changes in policy and organisation took place on these farms between 1938-39 and 1942-43. These changes are considered in some detail in the following paragraphs

The area under tillage crops doubled. The wheat acreage quadrupled, the area devoted to oats and barley doubled, while the area under roots and potatoes increased by 20 per cent. According as farm-size increased, there developed a tendency to devote the extra area ploughed more to grain crops—particularly to wheat—than to root crops.

A considerable change took place also in the balance that existed in the pre-war year, between the different live-stock enterprises. Cows were reduced by 8 per cent (-68 in number), but the number of 1 year and 2 year old cattle more than doubled (+120 in number). Taking cows and cattle together, there was an overall increase of 2 per cent between the two account-periods. (Farms under 40 acres, 6 per cent decrease, 40-60 acres, 1 per cent increase, 60-100 acres, 6 per cent increase). On the farms under 60 acres, the tendency to reduce the size of the dairy herds, and to increase the number of cattle over 1 year, was more pronounced than on the farms over 60 acres. (On the 30th April, 1943, the position as

regards cows and cattle was practically the same as on 1st May, 1942, the number of cattle being unchanged, and the number of cows showing an increase of only 6 )

Breeding sows on 1st May, 1942, were less by 55 per cent than on 1st May, 1938 (-35 in number) while stocks of store pigs were reduced by 40 per cent (-146 in number) The aggregate decrease in breeding sows and stocks of store pigs amounted to 45 per cent The reduction in the number of sows was greatest on the farms between 40 and 60 acres, and least on the farms between 60 and 100 acres, while the opposite position obtained with regard to stocks of store pigs Taking the pigs-enterprise as a whole, it was on the farms under 40 acres that the greatest reduction in stocks was effected During 1942-43, further decreases in stocks took place On 30th April, 1943, stocks of sows and store-pigs were less by 17 per cent and 13 per cent respectively than on 1st May, 1943

Stocks of poultry on 1st May, 1942, showed an overall decrease of 28 per cent For all classes of poultry except geese the reduction was somewhat more noticeable on the farms under 60 acres, than on the farms over 60 acres Generally speaking, stocks of turkeys and ducks were more drastically reduced than stocks of hens and geese In fact, stocks of geese were maintained at very nearly their pre-war level

As a result of the above-mentioned rearrangement of the live-stock enterprises, the combined stocks of live stock on 1st May, 1942—which as previously mentioned, roughly throw into relief the farmers' production plans for 1942-43—showed an overall decrease of 2 per cent as compared with 1st May, 1938 A substantial reduction—10 per cent—occurred on the farms under 40 acres, on the farms between 40 and 60 acres the reduction was 3 per cent, while on the farms over 60 acres, an improvement of 2 per cent, as compared with the pre-war year, took place

The above-mentioned changes in farm-organisation were not, of course, uniform, either in extent or in direction, on all the farms in question But the broad outline given, provides a fair picture of the general reaction to the change in conditions between the two periods For example, on 2 out of every 3 farms the number of cows and hens was reduced and the number of 1 year cattle was increased Again, on 53 per cent of the farms the number of sows decreased, while on a further 36 per cent there was no change as compared with the pre-war year

### **Output, Volume and Value**

In this paper, output refers only to that portion of the total farm-production which was available for disposal, either in the form of sales off the farm, or of consumption in the farmers' homes It does not include farm products which were used for further production, e g, it includes potatoes sold, but not potatoes used for pig-feeding, as this latter portion of the potato crop is accounted for under the heading "output of pigs" Similarly, milk sold is included under the heading "output of milk", but milk fed to calves emerges in the final results under the heading "output of calves" The value of butter used in the farmers' homes is not included, as this product was bought and paid for by the farmers in question, in the same manner as if they were ordinary non-agricultural customers of the

creamery The term "sales" represents, in the case of the different classes of live stock, nett sales (i.e., after deduction of the cost of any purchases made), and includes the conventional adjustments for the value of inventories at the beginning and end of the account period. Home-bred heifers transferred into the herd during the year, have been credited to the "cattle" account, just as if they had been sold off the farm, and have been debited to the cows account in the same manner as ordinary purchases from sources outside the farm. This arrangement has been adopted in order to ensure reasonable uniformity in the method of treating the cost of "herd-replacement" on all farms, whether the essential replacements were made with home-bred heifers or with purchased cows.

Identical principles were followed in the determination of the 1938-39 and the 1942-43 output. As regards the latter, however, most of the farmers from whom I collected data seemed to be apprehensive lest portion of it had been secured at the expense of some diminution in soil fertility. If these apprehensions were soundly based, then it follows that there has been imported into the 1942-43 figures of output an immeasurable element of capital receipts not present in the 1938-39 figures. I am concerned with the presentation only of data capable of statistical determination and expression. Accordingly, the above-mentioned viewpoint, however important and pertinent it may, in fact, be, lies outside the scope of this paper.

### Changes in Volume of Output

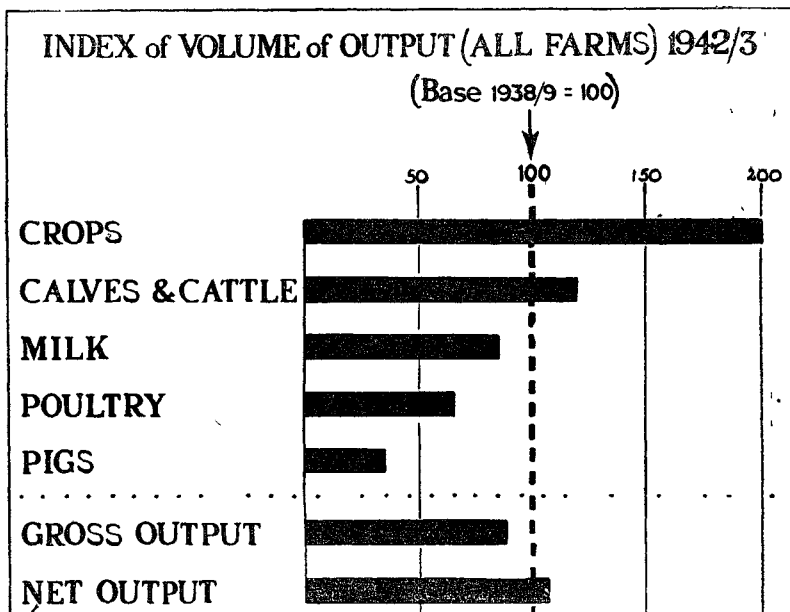
In the previous section, the changes in the methods of land-utilisation and stocking in 1942-43, as compared with 1938-39, have been given in broad outline. The changes in volume of output resulting from these changes in farm-management policy, are shown in detail in Table 2 and, in a general way, for the principal products, in Fig 2. The necessary measurements have been made by valuing

TABLE II  
*Index of Volume of Output (All Farms) in 1942/43*  
(Base 1938/39=100)

Item	Total Output	Sales off Farms	Appropriated for, or used in Farmers' Homes
Milk (New)	85	84	103
Calves	106	106	—
Cattle	231	231	—
Pigs	35	14	138
Poultry Products	65	66	65
Crops	200	213	184
Turf	—	—	—
All above Products (Including Skim-Milk)	89	85	123
Do ex Turf	89	85	118

the quantitative output of the different products in 1942-43 at the respective price-levels applicable to these farms in 1938-39, and expressing the resulting figures in terms of the actual value of output in 1938-39

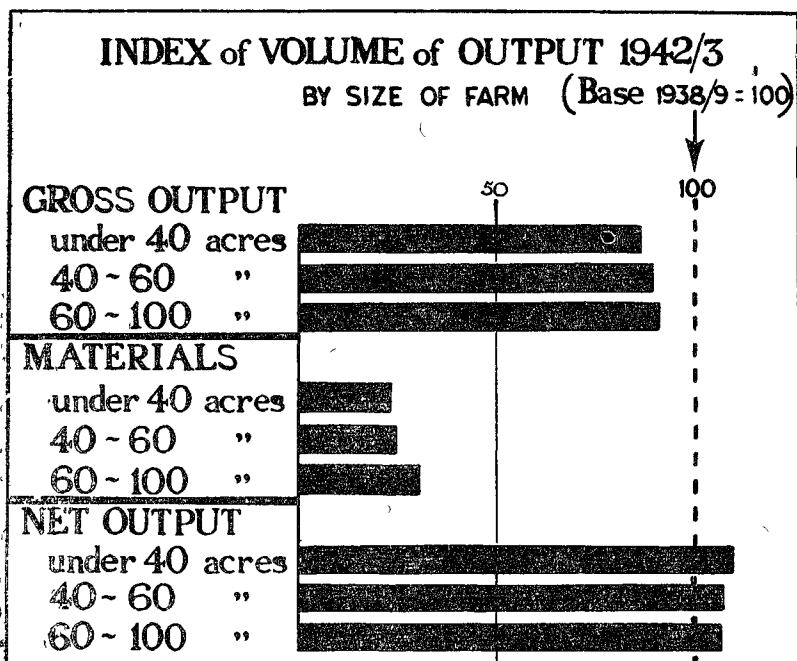
FIG 2



The gross output declined in volume by 11 per cent between the two years in question. This was the compound of a decrease of 19 per cent in the case of live stock, and live-stock products, and an increase of 111 per cent in the case of crops and turf. The comparable figures for the country as a whole (calculated from the *Irish Trade Journal*, December, 1943) were decrease in volume of gross output, 8 per cent, decrease in volume of output of live stock and live-stock products, 16 per cent, increase in volume of crops and turf, 26 per cent. The data in these respects covering the group of farms in question, are not, of course, quite comparable with those cited for the country as a whole, because the methods of calculation are not exactly the same, e.g., opening and closing inventories are not adjusted for in the national figures, nor do the limiting dates of both account-periods exactly coincide, and because turf was a relatively unimportant item of output on these 55 farms, whereas it bulks fairly substantially in the figures of national output. Above all—to allude to the obvious—any comparison between these farms and the agricultural industry as a whole, must always be subject to the qualification that they constitute only a minute proportion of what is a most diffused and varied structure. But even the above highly qualified comparison of the two sets of data does reflect the relatively preponderating influence of live-stock production on these 55 farms in the pre-war year, and the relatively more drastic changes which the war conditions produced on their pre-war economy. A more detailed analysis of this point will be made at a later stage.

By contrast with the decrease in the volume of gross output, the volume of nett output, i.e., volume of gross output less the quantum of foods, seeds and manures purchased to supplement intra-farm production-resources, increased on these 55 farms during the same period by 7.4 per cent. During the recent Dáil debate on the Agricultural Estimates, the Minister for Agriculture is reported as having stated that the volume of nett output for the industry as a whole had increased by 9 per cent between 1938-39 and 1942-43 (Parliamentary Debates, Vol 93, No 2, p 742). Presumably, in this calculation, the output of turf was included at its gross figure. As stated in the Appendix, however in all computations in this paper turf is brought into account at its gross value less the cost of turf-banks, extra wages paid for turf cutting, and special haulage-costs, because this method seemed to be the fairest and most convenient one to adopt under the circumstances surrounding this group of farms. If, however, these special turf-winning expenses had been treated as ordinary

**FIG 3**



farm-expenses, the value of turf would have stood at a higher figure in these accounts, so that the increase in the volume of nett output for these 55 farms would have worked out at 7.8 per cent, as compared with the national average of 9 per cent given by the Minister.

In Fig 3, the above-mentioned changes in volume of output by size of farm, are diagrammatically presented.

The decline in the volume of gross output became less marked according as farm-size increased (range from -14 per cent to -9 per cent), and the same feature characterised the decrease in the



volume of materials purchased to supplement intra-farm resources (range from -78 per cent to -70 per cent) In the case of the increase in the volume of nett output, the range was from 10 per cent to 6 per cent according as farm-size increased

As stated, the volume of output of live stock and live-stock products decreased by an over-all average of 19 per cent, while that of crops and turf more than doubled (+111 per cent) The range by size-groups—moving from smallest to largest—was—live stock and live-stock products, from -25 per cent to -16 per cent, crops and turf, from +160 per cent to +76 per cent

The following analysis of the changes in the quantum of materials purchased supplements the above diagram —

- (1) *All Foods*—average decrease 81 per cent, range -83 per cent to -78 per cent according as farm-size increased
- (2) *Concentrates Only*—average decrease 93 per cent, which is representative of all size-groups
- (3) *Manures*—average decrease 83 per cent, range -78 per cent to -82 per cent according as farm-size increased
- (4) *Seeds*—average increase 85 per cent, range +61 per cent to +100 per cent according as farm-size increased

The decrease of 11 per cent in the volume of gross output was due to the fact that the increase in the volume of output of crops, calves and cattle, although substantial, was much more than counterbalanced by the decrease in the volume of output of other live stock and live-stock products The changes that occurred in the case of the principal individual products making up the total output might be broadly summarised as follows —

*New Milk* The volume of output of new milk decreased by 15 per cent, as a result of the decrease of 8 per cent in the number of cows carried (already referred to), and a reduction of about 7 per cent in the "effective" milk-yield per cow, i.e., the gross yield less the quantity of milk fed to calves The actual decrease was about 34 gallons per cow Owing to the scarcity and increased cost in 1942-43 of the concentrated calf-foods that were generally used in 1938-39, it is probable that more new milk was fed to calves on these farms in 1942-43, than in the pre-war year Accordingly, the decline of 7 per cent in the "effective" milk-yield per cow—does not necessarily mean that the same percentage decrease occurred in the gross yield On the face of the figures, however, it seems that gross yields did fall between the two periods but to what extent, it is impossible to say, in the absence of cow-testing data for all the farms concerned.

The decrease in the output of milk became slightly greater according as farm-size decreased, the relevant indices for the different size-groups being—under 40 acres—83, 40-60 acres—85, and 60-100 acres—86

Although the total output of milk decreased, there was a slight over-all increase of 3 per cent in the total quantity appropriated for domestic use For this increase, the farms under 40 acres were entirely responsible In their case, the estimated domestic consumption of milk in 1942-43 was 28 per cent greater than in 1938-39, practically no change occurred on the farms between 40 and 60 acres; while on the farms between 60 and 100 acres a slight decrease—about

6 per cent—took place. In the case of the farms under 40 acres, the recorded increase averaged slightly over a gallon per household per week, while for the farms between 60 and 100 acres, the decrease amounted to approximately a half-gallon per household per week. The indices of the volume of milk-sales for the different size-groups were 81, 84, and 86, according as farm-size increased.

*Calves and Cattle* The volume of output of calves increased by 6 per cent. This was due to the general tendency to retain calves to a greater age in 1942-43 than in 1938-39, as a result of the improvement in the level of cattle prices. The increase was very uniform through the different size-groups, the indices being 106, 104, and 106 according as farm-size increased.

The volume of output of cattle (1 year and over) more than doubled. This increase also was a reflection of the improvement in cattle-prices generally, and particularly of the potentialities of the "in-calf" heifer trade during the period under review. The changes that occurred between the two years in question can be more clearly shown by citing the following figures relating to the number of cattle dealt with in each year.

TABLE III  
*Cattle (1-yr and 2-yr) dealt with in 1942, 43*

Size Group	1-2 yr old		2-3 yr old		Total Cattle	
	1938/39	1942/43	1938/39	1942/43	1938/39	1942/43
Acres	No	No	No	No	No	No
Under 40	14	35	1	3	15	38
40—60	18	46	—	9	18	55
60—100	62	146	15	36	77	182
<b>All Farms</b>	<b>94</b>	<b>227</b>	<b>16</b>	<b>48</b>	<b>110</b>	<b>275</b>

*Pigs* The output of pigs decreased in volume by 65 per cent between the two account periods. The burden of this serious decline fell entirely on the non-agricultural consumers of bacon, the proportion of the total output derived from sales off the farms being only 14 per cent of the pre-war figure, while the proportion attributable to domestic appropriations increased by 38 per cent. The latter figure, however, refers only to the number of pigs slaughtered on the farms between the limiting dates of the account-periods, and cannot necessarily be taken as indicating an exactly equivalent annual increase in bacon consumption in the farm households concerned. Nor can the figure be taken as indicative of a uniform trend, as is shown by the following analysis based on the estimated weight of pigs slaughtered on these farms in 1938-39 and 1942-43.

TABLE IV  
Changes in Farm-Slaughterings of Pigs between 1938/39 and 1942/43

Size-Group	Farms Showing Increase	Farms Showing Decrease	Farms Showing No Change
Acres	No	No	No
Under 40	10	5	2
40—60	9	7	1
60—100	15	5	1
All Farms	34	17	4

It might be added that most of the recorded increase in farm-slaughterings took place on 17 of the 34 farms listed in the above analysis as showing an increase, and that the change, as compared with 1938-39, appeared to be primarily due to (1) an increased demand for meat resulting from increased age of certain family-members, (2) the increase in the cost of beef and mutton in 1942-43 as compared with 1938-39 and the consequent reduction in the pre-war purchases of these types of meat, (3) the uncertainty and scarcity of factory-cured supplies of bacon

As regards the volume of sales, it was the trade in fat pigs that suffered the greatest decline. Measuring the changes that occurred between the two periods in terms of actual sales only, i.e., without reference to purchases, or inventories, the trade in store pigs showed a decrease of 62 per cent, whereas the decline in the volume of sales of fat pigs amounted to 86 per cent.

The output contracted to a somewhat greater extent on the farms under 60 acres than on the farms over 60 acres, the indices of total output for the different size-groups being 32, 29 and 39 according as farm-size increased.

*Poultry* As the term poultry includes five different classes of products, the following tabular exposition of the changes occurring between the two periods seems desirable.

TABLE V  
Index of Volume of Output of Poultry Products, 1942-43  
(Base 1938-39=100)

Item	Total Output	Sales	Domestic Consumption
Eggs	65	62	69
Hens and Chickens	78	105	61
Ducks	61	78	53
Geese	53	93	40
Turkeys	65	61	39
TOTAL	65	66	65

As may be seen from the above table, the volume of output of the poultry enterprise as a whole, decreased by 35 per cent. The farm-households shared the burden of this decline in about equal measure with the non-agricultural consumers. The egg and the poultry sections of the joint enterprise were equally responsible for the total decrease in output.

In the case of eggs, the contraction of the volume of output resulted from a reduction of about 30 per cent in the average number of commercial laying-birds maintained during the year, and from a drop of about 7 per cent in the average egg-yield per bird.

The non-agricultural consumers bore a slightly greater share of the burden arising from the reduction of the output of eggs than the farm-households. In the case of poultry, however, the positions were reversed. In fact, as far as hens and chickens were concerned, the volume of sales in 1942-43 was slightly in excess of the 1938-39 level, while the volume of sales of geese decreased by only 7 per cent.

According as farm-size increased, the decrease in the volume of output of the poultry enterprise as a whole, became more pronounced, the 1942-43 index being 77 in the case of the farms under 40 acres, and 59-64 in the case of the farms over 40 acres. In each of the size-groups, the volume of sales was maintained at a slightly higher level than the volume of domestic consumption.

*Crops* The volume of output of crops and vegetables doubled between 1938-39 and 1942-43. The non-agricultural consumer secured a greater proportion of this increase than did the farm-households, the index for sales being 213, and the index for domestic appropriations being 184.

The output of oats and barley increased by 21 per cent, that of beet almost trebled, but the total amount involved was relatively small. There was a slight reduction in the volume of output of hay and roots, but again the actual total amount in question was comparatively small. The output of wheat was about three and a half times that of 1938-39 while the output of potatoes and vegetables increased by about one-third.

Sales of wheat reached about three and a half times the 1938-39 level. By contrast with the general practice prevailing in 1938-39, home-grown wheat was used for bread-making in almost all the farmers' homes in 1942-43, so that the proportion of the total output of wheat derived from domestic appropriations in 1942-43 was about four and a half times that of 1938-39.

With a view to facilitating reference, the changes in volume of output by size of farm mentioned in the previous paragraphs, are condensed in the following table —

TABLE VI

*Index of Volume of Gross Output in 1942/43 by size of Farm**(Base 1938/39= 100)*

Product	Under 40 Acres	40-60 Acres	60-100 Acres	All Farms
New Milk	83	85	86	85
Calves and Cattle	116	127	120	121
Pigs	32	29	39	35
Poultry	77	59	64	65
Crops	243	250	168	200
<b>TOTAL</b>	86	89	91	89

Before proceeding to an examination of the changes occurring in the value of output between the two account-periods, it may be useful to conclude this section with a very broad recapitulation of the major changes that took place in the volume of output —

- (1) The output of milk decreased in volume by 15 per cent , that of poultry products by 35 per cent , and that of pigs by 65 per cent . On the other hand, the volume of output of calves and cattle increased by 21 per cent, while that of crops doubled . The composition of the output on these farms, therefore, underwent a considerable change since the pre-war years
- (2) The combined effect of these changes was a reduction in the gross output of 11 per cent
- (3) In securing this gross output, the volume of materials purchased to supplement the intra-farm resources decreased by 74 per cent , with the result that the decrease of 11 per cent in the volume of gross output was accompanied by an increase of 7.8 per cent in the volume of the nett output

### **Value of Output.**

So far the discussion has been confined to (a) the changes in farming-policy and (b) the consequent changes in the form and volume of output, which the war-conditions caused on these farms . These changes in volume of output, in association with the increased level of agricultural prices in 1942-43, caused the changes in value of output, to be dealt with in this section

Table VII shows, for 1942-43, (a) the total value of the output and (b) that portion of the total output attributable to domestic appropriations or consumption . Fig 4, immediately following, indicates, for 1938-39 and 1942-43, the value of the output of the principal products and their relative importance as contributors to the total value of output

TABLE VII

(a) Value of Total Output (b) Value of Produce Appropriated for Domestic Consumption—  
(1942/43)

Product	(a) Value of Total Output		(b) Value of Produce for House*		
	Value	As Percentage of Total Output	Value	As Percentage of Item in Second Column	As Percentage of Total Output
Milk (New)	(£) 12,271 35	% 42 8	(£) 790 10	% 6 44	% 2 75
Milk (Skim)	411 20	1 4	89 40	21 74	0 31
Calves	5150 95	18 0	—	—	—
Cattle	1,495 25	5 2	—	—	—
Horses	68 00	0 2	—	—	—
Pigs	2,347 70	8 2	1,234 10	52 56	4 30
Poultry	2,679 85	9 3	1,177 75	43 94	4 00
Crops	3,767 40	13 1	1,482 20	39 34	5 16
Stocks Adjustment	154 30	0 5	—	—	—
Sundries	72 65	0 3	—	—	—
Turf	293 30	1 0	293 30	100 00	1 02
TOTAL	28,711 95	100	5,066 85	17 64	17 64

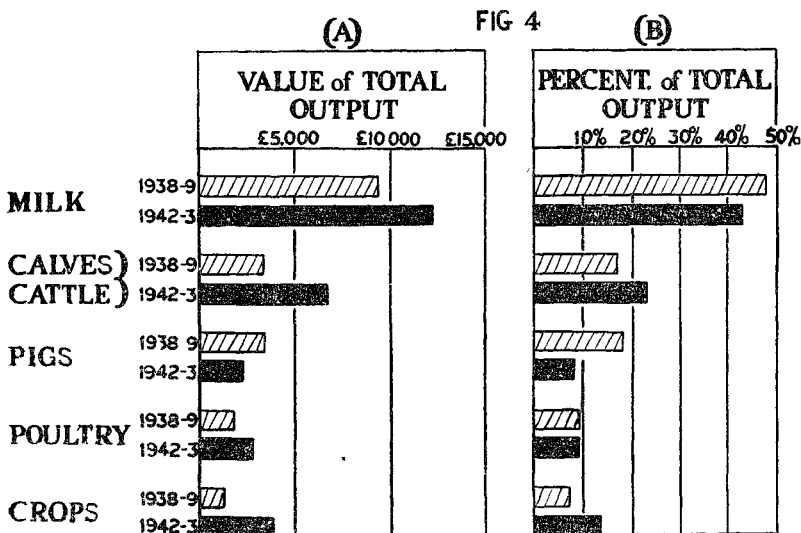
\* Does not include dairy produce purchased at creamery

The contents of Table VII and Fig 4 might be broadly summarised as follows —

- (1) The total value of the output in 1942-43 increased by 47 per cent as compared with 1938-39. The increase averaged £168 per farm. Excluding Horses, Turf and Sundries, total output increased in value by 46 per cent, as against a decrease in volume of 11 per cent. Nett output increased in value by 75 per cent as compared with an increase in volume of 7 per cent.
- (2) The proportion of the total value of the output derived from domestic appropriations increased from 12½ per cent in 1938-39 to 17½ per cent in 1942-43. The estimated value of the produce accounted for under this head practically doubled between the two years, while its estimated volume increased by slightly less than one-fifth. As already indicated, crops and bacon accounted for most of this increase.

\* If the 15 farms over 100 acres were included, the increase in value of output would have been about 53 per cent (as compared with the national average of 57 per cent excluding turf, or 61 per cent including turf).

- (3) Total cash farm-incomes, as measured by sales off the farms, increased by an average of £120 per farm, ranging from an average of £60 per farm in the size group under 40 acres to £183 per farm in the size-group 60-100 acres
- (4) The value of the output of milk increased by 32 per cent between 1938-39 and 1942-43, as against a decrease in volume of output of 15 per cent. Certain market advantages, however, enabled these farmers to secure for the milk sold to the creamery a price greater by approximately 12½ per cent than the average applicable to the dairy industry as a whole during the year in question. The value of the output of calves and cattle almost doubled, while their quantitative output increased by only 21 per cent. The aggregate value of the output of milk, calves and cattle increased by 51 per cent as against a decrease in volume of output of 5 per cent.



- (5) The milk-production enterprise continued to maintain its pre-war predominant position as a contributor to the total farm-income—although the proportion of the total income derived from new milk decreased slightly (from 48 per cent to 43 per cent) between the two years. This decrease was counter-balanced by an increase in the proportion of the total farm-income derived from the calves, cattle and skim-milk enterprises. The nett result of these changes was that in 1942-43 as in 1938-39, these closely-related dairying enterprises, in combination, contributed 66-67 per cent of the total farm-income. It may, therefore, be said that by 1942-43, at any rate, the emergency conditions had not deprived these farms of their fundamental dairying characteristics, as measured by the relative contribution of the combined dairying enterprises to the total farm-income. (For a further analysis of Appendix 12)

In both account-periods, practically the same proportion (5.6 per cent) of the total value of the output of milk was derived from the valuation placed on the estimated quantity of milk used in the farm-households

- (6) The poultry enterprise, with a contribution of 9 per cent, to the total farm-income, exactly retained its pre-war relative position. In value, its output increased by 48 per cent, while, as previously stated, in volume the output decreased by 35 per cent. In both account periods, roughly the same proportion (44 per cent) of the total value of the output came from the values placed on the quantities of poultry-products consumed in the farm-households.
- (7) The pig enterprise experienced a substantial change for the worse between 1938-39 and 1942-43, the value of the output decreasing by 31 per cent as compared with a contraction of 65 per cent in the volume of output. In the pre-war year, with a contribution of 18 per cent to total farm-income, it was the second most important enterprise on the farm, in 1942-43 it provided only 8 per cent of the total farm-income, and had been superseded in importance by all the major farm-departments. The primary purpose of the enterprise also changed very noticeably between the two account-periods. In 1938-39 only about 16 per cent of the total value of the output was attributable to domestic appropriations, by 1942-43 the proportion derived from this source had increased to 53 per cent.
- (8) A radical change also took place in the combined crop enterprises between the two periods. The value of output almost trebled, while the volume of output doubled. In the pre-war period, the output of crops was about 6 per cent of the total value of output, by 1942-43 the contribution to total farm-income from this source was 13 per cent. The proportion of the total value of the crops output which was derived from domestic appropriations decreased slightly between the two years from 46 per cent in 1938-39 to 39 per cent in 1942-43.

As a very brief summary of the broad changes in value of output outlined in the previous paragraphs, it might be said that —

- (1) Value of output as a whole increased by 47 per cent between 1938-39 and 1942-43
- (2) The farms in question retained their pre-war basic characteristics as dairy-farms, but, as regards the indirect by-products of dairying, the emphasis had been shifted from pig-raising to crop-production
- 3 Except in the case of poultry-products, the farm-households provided a more important market than in pre-war days, for the disposable farm-output

In dealing with the value of output no distinction has so far been drawn between the different size-groups. Accordingly Table VIII has been constructed to show, for the different size-groups, the proportion of the total value of output contributed by the different enterprises.



TABLE VIII

*Value of Output of Different Products in 1942/43 as a Percentage of Total Value of Output, by size of Farm*

Products	Under 40 Acres	40-60 Acres	60-100 Acres	All Farms
Milk (New)	% 41.3	% 43.2	% 43.1	% 42.8
Milk (Skim)	1.2	2.0	1.3	1.4
Calves	17.5	16.4	18.9	18.0
Cattle	3.3	3.8	6.7	5.2
Horses	0.1	0.4	0.2	0.2
Pigs	8.9	8.5	7.7	8.2
Poultry	12.4	10.8	7.3	9.3
Crops	13.6	12.8	13.1	13.1
Turf	1.5	1.0	0.8	1.0
Sundries + Stocks Adjustment	0.2	1.1	0.9	0.8
TOTAL	100	100	100	100
Appropriations for Domestic use as Percent- age of Total Output	22	18	16	18

This table indicates that, in most respects, the different size-groups conformed fairly closely to the general pattern outlined for the 55 farms as a whole. However, it might be noted that the relative importance of the milk and the closely related calves and cattle enterprises, increased according as farm-size increased, but the increase became noticeable only when the 60-acre mark was reached. By contrast the "farm-yard" enterprises—pigs and poultry production—decreased in relative importance according as farm-size increased, the decrease becoming more noticeable again when the 60-acre mark was reached. The relative importance of the pig-industry was about the same in all size-groups, but a fairly sharp decline in the relative position of the poultry enterprise occurred on the farms over 60 acres. Despite these variations, however, the live-stock enterprises as a whole, contributed practically the same proportion of the total farm-income (84-85 per cent), irrespective of size-group. In the case of crops, the relative importance of the output was very uniform as between the different size-groups at 13-14 per cent of the total value of output, while as regards turf, a somewhat similar uniformity existed, irrespective of size-group.

In only one important respect would the above general statement as regards the variations between the different size-groups in 1942-43 be inapplicable in 1938-39. In 1938-39, on the farms under 40 acres, the pigs-enterprise contributed 23 per cent of the total farm income

as against 16 per cent on the farms over 40 acres, while, as stated, by 1942-43 the relative importance of the output of pigs had been depressed to the same level in all the size-groups

### Total Labour Income.

Table IX shows for the different size-groups (a) the division of the total value of the output as between sales off the farms, and domestic appropriations and (b) the "total labour-income", i.e., the total amount available as remuneration for all the workers, irrespective of whether they were hired or family workers

TABLE IX  
*Proportion of Total Output Available as "Total Labour Income"*

Size of Farm	TOTAL OUTPUT			Expenses excluding cost of all Labour	' Total Labour-Income '	' Total Labour-Income ' as Percentage of Total Output
	Sales	Consumed in Farmers' Homes	Total			
(Acres)	(£)	(£)	(£)	(£)	(£)	%
Under 40	4,712 20	1,363 55	6 075 75	1,639 20	4,436 55	73
40—60	6,461 95	1 404 95	7,866 90	1,924 40	5,942 50	76
60—100	12,470 95	2,298 35	14,769 30	3,683 45	11,085 85	75
All Farms	23,645 10	5 066 85	28,711 05	7,247 05	21,464 90	75

The percentage increase in the total value of the output in 1942-43 compared with that of 1938-39, was reasonably uniform as between the different size-groups, the range being from 42 per cent to 51 per cent, according as farm-size increased. As previously stated, the overall average increase was 47 per cent.

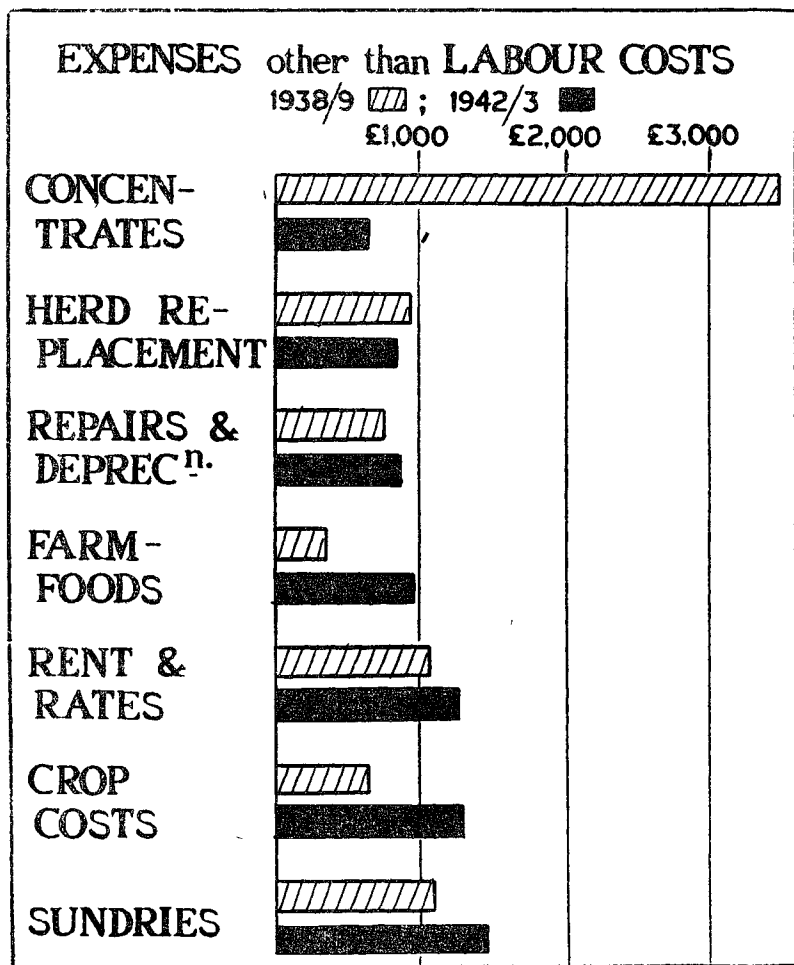
Cash incomes, however, as represented by the value of sales, increased by an average of only 39 per cent. In this respect, there was a greater difference in the degree of improvement, as between the different size-groups, than that occurring in the case of total farm-income. On the farms under 40 acres, the percentage increase in cash-incomes was 28 per cent, on the farms between 40 and 60 acres, 37 per cent, and on the farms between 60 and 100 acres, 45 per cent.

The aggregate valuation of domestic appropriations of farm-produce worked out at slightly over twice the 1938-39 figure. In the case of the farms under 40 acres, it amounted to two and a quarter times, and in the case of the farms over 40 acres, twice the pre-war figure.

As regards expenses other than labour costs, a general idea of the change in the distribution between 1938-39 and 1942-43 may be gleaned from Fig 5.

The expenses appearing in the diagram were mainly cash-expenses, which had to be met out of the proportion of the total value of output derived from sales. Primarily as a consequence of greatly decreased purchases of concentrated foods (-93 per cent in volume), these general farm-expenses in 1942-43 averaged 13 per cent less than in

FIG. 5



1938-39, decreasing by 18 per cent on the farms under 40 acres, by 16 per cent on the farms 40-60 acres, and by 8 per cent on the farms 60-100 acres. The values of the different items of expenditure in 1942-43 and in 1938-39 are compared by size of farm in the following table —

TABLE X

*Index of Expenses other than Labour Costs by Size of Farm in 1942/43*

(Base 1938/39=100)

Items	All Farms	under 40 acres	40-60 acres	60-100 acres
Grinding and Farm-Foods	278	246	153	484
Crop Costs	205	187	221	206
Rent and Rates	116	110	118	116
Repairs	127	160	130	116
Depreciation	104	105	102	104
Herd Replacements	93	74	102	97
Concentrates	15	13	13	16
Miscellaneous	142	174	115	147
TOTAL	87	82	84	92

Three items in the above table require to be briefly annotated —

- 1 *Farm Foods and Grinding* The index for "Farm Foods" alone was 250 Under this heading are grouped the costs of hay, grazing, feeding-oats, etc., purchased to supplement home-grown foods Fifty-six per cent of these purchases (in value) consisted of hay and grazing In 1942-43 the farms over 60 acres were responsible for 45 per cent of the total expenditure under these heads, as compared with 25 per cent in 1938-39, in volume their purchases trebled In the case of the farms under 60 acres, the volume of farm-foods bought was slightly below the 1938-39 level In this connection the figures already given for the changes in stocking had better be repeated with a view to clarifying the situation outlined above

COMBINED COWS AND CATTLE INDEX ON 1ST MAY, 1942

(Base 1st May, 1938=100)

Under 40 acres	94
40-60 "	101
60-100 "	106

- 2 *Repairs and Depreciation* The cost of depreciation has been calculated at the same rates for the different items of farm-equipment in both account-periods In the case of some types of equipment the actual rate of "wear-and-tear" had increased considerably since 1938-39 To an indefinable extent, therefore, the cost of depreciation in the 1942-43 account is understated in relation to the comparable cost in 1938-39 No depreciation charge has been computed for buildings in either of the

account-periods, because of the impossibility of determining a generally applicable rate

As regards repairs, the prices of all types of materials and services had practically doubled since the pre-war period. In addition, certain types of repairs-materials had become almost unprocurable—at least through ordinary trade-channels. For these reasons, certain repairs that would normally be required in 1942-43, have had, in many instances, to be postponed indefinitely, while a portion of the repairs actually effected, were looked upon by the farmers as of only a temporary make-shift character. This seemed to apply particularly to repairs to buildings and to harness. Accordingly, the farmers concerned were of the opinion that a relatively heavy post-war bill awaits them, as a result of the limitations which the present abnormal conditions impose on the proper maintenance of the farm-equipment and farm-buildings, and this point of view should, I think, be given due weight when the item "repairs and depreciation" in the foregoing table is being considered.

- 3 *Herd-replacement* The slight reduction in the cost of herd-replacement occurring between the two years, is a reflection of the improvement that took place, in the interval, in the sale-value of discarded cows. Actually the ratio between the number of cows drafted out of the herds and the number of cows in the herds at the start of the account-period was slightly higher in 1942-43 than in 1938-39. The respective proportions were 17 per cent and 15 per cent, and the respective number of cows involved 128 and 123.

As a result of the above-mentioned decrease of 13 per cent in the expenses other than labour costs, the proportion of the total value of output which remained as "total labour-income", increased from an overall average of 57 per cent in 1938-39 to 75 per cent in 1942-43. In 1938-39 as in 1942-43, the size-group averages in this respect approximated very closely to the general average, being 54 per cent, 59 per cent and 58 per cent according as farm-size increased.

The combined result of the 47 per cent increase in the total value of output, and of the 13 per cent decrease in the expenses other than labour-costs, was an average increase of 91 per cent in the total labour-income—90 per cent in each of the size-groups under 60 acres, and 93 per cent in the size-group over 60 acres.

In this section it has been shown that between the two account-periods the value of the gross output increased by 47 per cent, the value of the nett output by 75 per cent; and the value of the "total labour-income" by 91 per cent. In a previous section it was shown that the volume of gross output decreased, over the same period, by 11 per cent but that, as a result of a decrease of 74 per cent in the quantum of foods, manures and seeds bought, the nett output increased in volume by 7 per cent. With the determination of the changes in the volume of nett output, however, the analysis of the quantitative changes ended. Now that the financial changes have been examined to the point of ascertaining the changes in the value of the "total labour-income" resulting from the changes in the value of gross output, it may be interesting to attempt to extend the partial

analysis already made of the changes in the volume of output, to the point where the changes in the *quantum* of the "total labour-income" resulting from the changes in the quantum of gross output can also be determined

In attempting to do this, it has been necessary to revalue the expenses, other than labour-costs, incurred in 1942-43 on the basis of the cost-levels ruling in 1938-39, and to deduct the figure so obtained from the value of the gross output deflated, as in the section dealing with volume of output, to the 1938-39 levels of prices. The resulting figure which is the "total labour-income" which the 1942-43 system of farming would have yielded at the 1938-39 price-levels, is then expressed as a percentage of the actual "total labour-income" produced in 1938-39.

This revaluation can obviously be made with comparative ease and precision in the case of the following items — Rent, Rates, Concentrates, Farm Foods Bought, Seeds, Manures, Grinding Charges, Repairs, Depreciation on equipment, Threshing, Ploughing, Mowing, Reaping, Horse-shoeing, Spraying, Service, Veterinary, and Cow-testing Charges, Depreciation on draught animals, Herd Replacement, Reductions in Stock Valuations and Marketing Costs. Expenditure under these heads constituted 92 per cent of the total expenses to be devalued. The remaining 8 per cent consisted of Lubricating Oil and Grease (£36), Cartage charges (£67) and Sundries (£204). These charges, particularly Sundries, could be exactly revalued only at the expense of a considerable amount of time. Accordingly, in making the necessary calculations I have simply retained the costs of Cartage and Sundries at their 1942-43 levels, and have reduced the charge for Oil and Grease to £30, as representing what the 1942-43 volume of purchases of these materials would probably have cost at the 1938-39 level of prices.

Table XI, accordingly, indicates, by size of farm, the changes that occurred in the quantum of "total labour-income" between 1938-39 and 1942-43. For convenience of reference certain figures already given, are repeated, and in Fig 6, the contents of the column headed "All Farms" in the table are diagrammatically presented.

TABLE XI

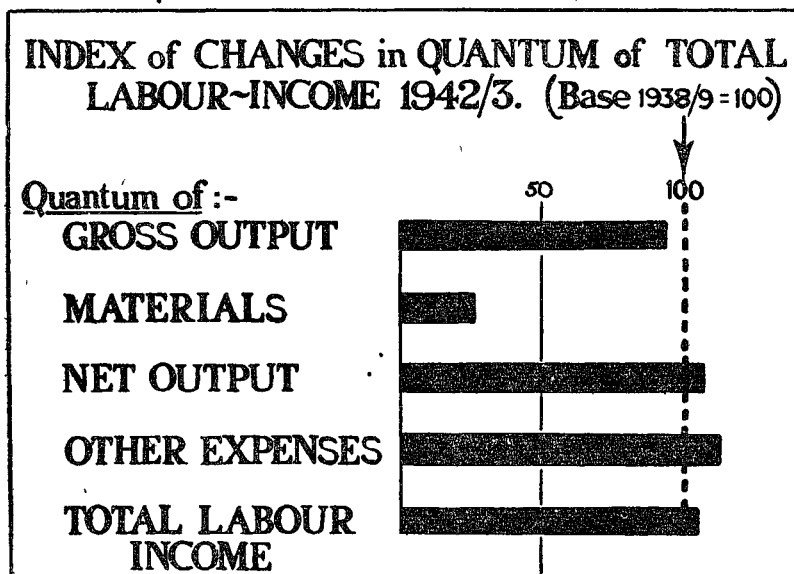
*Percentage Changes in Quantum of "Total Labour-Income" by Size of Farm  
in 1942/43 compared with 1938/39*

(Increase +    Decrease -)

	All Farms	Under 40 Acres	40—60 Acres	60—100 Acres
Quantum of Gross Output	% -11	% -14	% -11	% - 9
„ „ Materials	-74	-78	-77	-70
„ „ Nett Output	+ 7	+10	+ 7	+ 6
„ „ Other Expenses	+13	+17	+ 8	+14
„ „ Total Labour Income	+ 5	+ 7	+ 7	+ 4

If the volume of repairs and replacements in 1942-43 had been up to the 1938-39 standard (which, presumably, was the minimum necessary for the adequate maintenance of equipment) the quantum of "total labour-income" would have increased, since 1938-39, by slightly more than 4 per cent in the case of the whole group of farms, by slightly less than 7 per cent in the case of the farms under 40 acres; by slightly less than 6 per cent in the case of the farms 40-60 acres, and by  $2\frac{1}{2}$  per cent in the case of the farms 60-100 acres

FIG. 6



It should also be borne in mind, of course, in connection with the above table, that the quantum of artificial manures used on these farms in 1942-43 was less, by 83 per cent, than that used in 1938-39. The effects of this radical change with regard to "input", on the volume of gross output, and consequently on the quantum of labour-income in 1942-43 as compared with 1938-39, cannot obviously be estimated

Table XII gives a further analysis of the total value of the output showing per acre (1) the total value of the output, the expenses other than labour-costs and the total labour-income, (2) the value of the nett output, and (3) the value of sales as a percentage of the total value of output in each of the account-periods. Fig 7, immediately following, shows how these items in 1942-43 compared with the same items in 1938-39





largely independent of the area farmed. For convenience, the former are termed "land"-products and the latter "farm"-yard products. The value of turf and sundries has been excluded when making this calculation. The value per farm of that portion of the total output appropriated for domestic use is also given in this table.

TABLE XIII

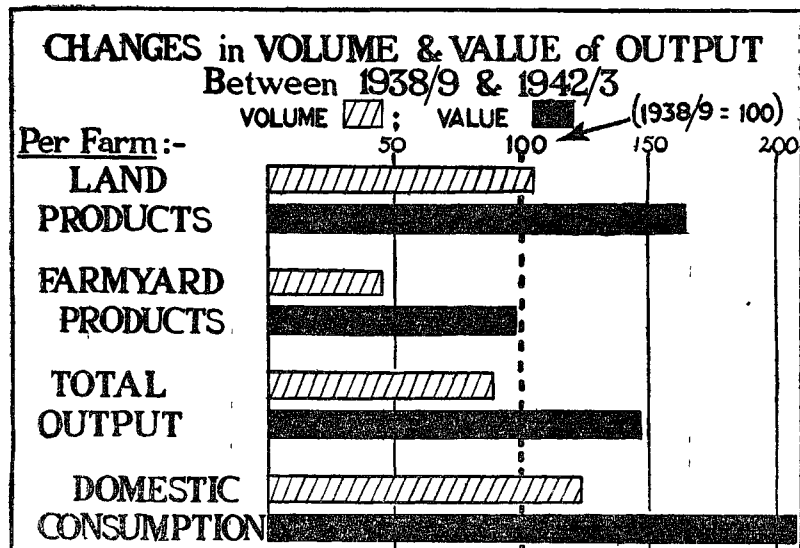
(1) Output of 'land' products and 'farm-yard' products per Farm (2) Total Output per Farm (3) Domestic Appropriation per Farm

Size of Farm	Output of Land Products		Output of Farm-yard Products	Total Output	Appropriated for Farmers' Homes (including turf)
	Per acre	Per Farm	Per Farm	Per Farm	Per Farm
(Acres)	(£)	(£)	(£)	(£)	(£)
Under 40	9 66	275	76	351	80
40 — 60	7 46	364	89	453	83
60 —100	8 07	586	105	691	109
All Farms	8 16	421	91	512	92

The changes that occurred in the above respects between 1938-39 and 1942-43 can be most concisely indicated by means of the following diagram, which shows, for 1942-43, the volume and value of output with base 1938-39 = 100.

The volume of output of "farm-yard products" declined by 55 per cent, but the value of the output fell by only 3 per cent. As

FIG. 8



already pointed out, however, their relative importance as contributors to the total farm-income dropped from 27 per cent to 18 per cent, the decline being most noticeable in the case of the farms under 40 acres—from 33 per cent of total income to 21 per cent. On the other hand, the volume of output of "land-products" increased by 5 per cent as against an increase in the value of the output of 65 per cent. As contributors to total farm-income they increased in importance in all size-groups—from an over-all average of 73 per cent in 1938-39 to 81 per cent. in 1942-43. The change in this regard was again most noticeable on the farms under 40 acres—the increase being from 67 per cent. of total income to 78 per cent.

Appropriations for domestic purposes increased in volume by 23 per cent and in value were slightly more than twice the 1938-39 level. On the farms under 40 acres these increases were somewhat more significant than on the farms over 40 acres.

### Size and Composition of the Labour-Force.

Before proceeding to show how the "total labour-income" was divided between the hired workers and the family workers, it is desirable to give a picture of the general position in regard to the family labour on these farms by showing —

- (a) the number of persons, excluding hired workers, living on these farms during 1942-43,
- (b) the extent and nature of the labour contributed by the family workers;
- (c) the quantity of hired labour used during the period.

Table XIV shows the number of persons, other than hired workers, constituting the farm-households during 1942-43.

In rural districts, children usually leave the national schools when they are about 14 years of age. At about that age, too, children usually begin to make effective contributions to the ordinary work on the farm, particularly to the less laborious types of work, e.g., caring for calves, pigs, and poultry, carting milk to the creamery milking cows and light harvest-work. In this table, therefore, the persons living on these farms have been classified according as they were under or over 14 years, and according as they were males or females. This classification helps to give a reasonably comprehensive picture of the reservoir of family labour available on these farms in 1942-43.

TABLE XIV  
*Number in Households. Excluding Hired Workers*

Size of Farm	MALES		FEMALES		TOTAL PERSONS			NUMBER OF PERSONS	
	Over 14	Under 14	Over 14	Under 14	Over 14	Under 14	All Ages	Per Farm	Per 100 Acres
(Acres)	(No)	(No)	(No)	(No)	(No)	(No)	(No)	(No)	(No)
Under 40	27	8	27	6	54	14	68	4.0	14
40 — 60	28	5	26	—	54	5	59	3.5	7
60 — 100	40	10	26	9	66	19	85	4.0	6
All Farms	95	23	79	15	174	38	212	3.9	7

The average number of family-members per 100 acres ranged from 14 on the farms under 40 acres to 6 on the farms 60-100 acres with an over-all average of 7. The average size of the households, however, was comparatively uniform in all size-groups at about four persons per household. Of the total number of persons (174) over 14 years, twelve could not be expected, because of infirmity or old age, to make effective contributions to the farming operations. There were, accordingly, 162 persons—88 males and 79 females—available for work on these farms—an average of 3 "potential" workers per farm as against an average of 4 persons per farm-household.

Between 1938-39 and 1942-43, 26 persons left these farms permanently because of death (10), marriage (2), and a variety of other causes (14). In the same period, 18 new members were added to the households as a result of births (11 on 6 farms), marriage (2), and other reasons (5). There was, therefore, a net outward movement of 8 persons in the four-year interval. These changes were confined to about half the farms in question.

The extent to which the "potential" workers did, in fact, participate in the operation of these farms in 1942-43 is measured in term of "units" of labour, in Table XV. In this, and subsequent tables, a "unit" of labour represents the equivalent of an adult worker fully engaged for 12 months, e.g., an adult casual worker employed for 4 weeks is, for the purpose of this paper, equated to one-thirteenth of a "unit". Table XV shows also the extent to which the family labour was supplemented by hired labour, the number of hired workers again being expressed in terms of "units" of labour.

TABLE XV

*Total Units of Hired and Family Labour by Size of Farm*

Size of Farm	FAMILY LABOUR		HIRED LABOUR		TOTAL LABOUR		Family Labour as % of Total Labour	Male Labour as % of Total Labour
	Male	Total	Male	Total	Male	Total		
Acres Under 40	units 20 50	units 27 03	units 4 68	units 4 84	units 25 18	units 31 87	% 85	% 79
40 — 60	21 38	26 93	8 60	9 00	29 98	35 93	75	83
60 — 100	34 26	41 31	19 76	22 68	54 02	63 99	65	84
All Farms	76 14	95 27	33 04	36 52	109 18	131 79	72	83

As a rough summary of the contents of this table taken in conjunction with Table XIV it might be said that —

- (1) Eighty-seven per cent of the male family-members from whom effective contributions of work might be expected, did participate fully in working these farms.
- (2) The female family-members devoted 24 per cent of their time to farm-work, as against household-work.

- (3) About 72 per cent of the total labour required was supplied by the family-workers. The proportion decreased uniformly from 85 per cent on the farms under 40 acres to 65 per cent on the farms 60-100 acres.

Measured in terms of "units" of labour, the changes taking place in the size of the labour-force between 1938-39 and 1942-43 were small, but they should be considered against the following background —

- (1) These farmers, through their co-operative society, were in a relatively favourable position as regards the supply of tillage and harvesting machinery. The creamery operated tractor-ploughs and cultivators, corn-binders (tractor-driven), corn-drills, horse-sprayers, and a separate threshing-set for each creamery unit. These co-operatively-owned facilities were augmented by a few privately-owned corn-binders (2 tractor-driven), and at least two privately-owned tractor-ploughs with cultivators.
- (2) Difficulties appeared to be generally experienced in securing extra hired labour at rush-periods, particularly during the harvest. As a consequence the working-day for all classes of labour had to be extended. When comparing the number of units of labour used in 1942-43 and in 1938-39, it was found impossible to allow for this extra work, which, in the case of the family workers in particular, must have been fairly substantial.
- (3) A greater number of "juvenile" workers (under 20 years), were employed in 1942-43 than in 1938-39. In some cases, these took the place of the adult workers employed in the pre-war years. When expressing the number of these "juvenile" workers in terms of units, the scale of conversion used is that implicit in the Schedule of wage-rates laid down for the different classes of workers in the Wages Orders of the Agricultural Wages Board.
- (4) As previously mentioned, there was a substantial decrease in the volume of output of farm-yard products since the pre-war year. This decrease naturally reduced, to a certain extent, the amount of farm-work falling to the female workers.

The changes occurring in the size and composition of the labour-force on these farms between the two periods can be briefly summarised as follows —

*Total Labour* Over the whole group of farms, the number of labour-units used in 1942-43 was almost exactly the same as in 1938-39. Decreases of 7 per cent and 3 per cent occurred in the case of the farms under 40 acres, and between 40 and 60 acres, respectively, while an increase of 5 per cent took place on the farms over 60 acres.

*Total Male Labour* The quantity of total male labour used, remained practically unchanged in the group as a whole. On the farms under 40 acres, a decrease of 2 per cent took place, on the farms between 40 and 60 acres no change occurred, while on the farms over 60 acres an increase of 2 per cent was recorded.

*Total Female Labour* Female labour of all kinds decreased by

5 per cent in the group as a whole. Reductions amounting to 15 per cent and 20 per cent, respectively, took place in the size-groups under 60 acres, while an increase of 18 per cent took place in the size-group over 60 acres.

*Ratio of Male to Female Labour* Over the whole group of farms, the ratio of male to female labour remained practically unchanged at about 4:1, slight increases on the farms under 60 acres being counter-balanced by a slight decrease in the case of the farms over 60 acres.

*Ratio of Family to Hired Labour* Over all the farms the family workers' contribution was practically the same in both years—72 per cent in 1942-43 as compared with 74 per cent in 1938-39. The farms under 60 acres were responsible for the slight reduction.

*Male Family Labour* In the case of male family labour, there occurred a slight over-all reduction of 2 per cent. A decrease of 5 per cent on the farms under 60 acres was almost offset by an increase of 4 per cent on the farms over 60 acres.

*Female Family Labour* On the farms under 60 acres, the contribution of the female family workers decreased by about 20 per cent, while on the farms over 60 acres, an increase of about the same took place. The nett change on all the farms was a reduction of 9 per cent.

*Male Hired Labour* Male hired labour increased by 15-20 per cent on the farms under 60 acres, remained unchanged on the farms over 60 acres, and increased by 6 per cent in the whole group of farms.

*Female Hired Labour* In this case the number of units involved was insignificant, but there was a slight over-all decrease between 1938-39 and 1942-43.

A more practical picture of the labour-force, especially from the view-point of the individual farmer, is given in Table XVI, which shows the number of labour units (family and hired) used (a) per 100 acres and (b) per farm.

TABLE XVI

*Labour Units (a) Per 100 acres (b) Per Farm*

Size of Farm	Total Labour Units per 100 acres			Family Labour Units per farm		Hired Labour Units per farm		Total Labour Units per farm		
	Family	Hired	Total	Male	Female	Male	Female	Family	Hired	Total
Acres	Units	Units	Units	Units	Units	Units	Units	Units	Units	Units
under 40	5.58	1.00	6.58	1.21	0.38	0.28	—	1.59	0.28	1.87
40 — 60	3.25	1.09	4.34	1.26	0.32	0.51	0.02	1.58	0.53	2.11
60 — 100	2.71	1.49	4.20	1.63	0.34	0.94	0.14	1.97	1.08	3.05
All Farms	3.36	1.29	4.65	1.38	0.35	0.60	0.06	1.73	0.66	2.39

The contents of this table might be broadly summarised as follows:—

- (1) According as farm-size increased, the total number of labour "units" per 100 acres decreased. The average for the whole group of farms was  $4\frac{2}{3}$  units.
- (2) Increase in farm-size was accompanied by a decrease in the number of family labour units and an increase in the number of hired labour units per 100 acres. As far as hired labour was concerned, however, it was only when the 60-acre mark was reached that the increase became noticeable.
- (3) The female family labour-force per farm was practically the same in all size-groups at about one-third of a unit per farm. The male family labour-force per farm, on the other hand, increased according as farm-size increased, but it was only when the 60-acre mark was reached that the increase became really noticeable. This type of labour ranged from about  $1\frac{1}{2}$  units per farm in the size-group under 40 acres to about  $1\frac{3}{4}$  units in the farms 60-100 acres.
- (4) Only relatively small amounts of female labour were hired on these farms, the amount increasing according as farm-size increased. It was only on the farms over 60 acres, however, that any noticeable opportunity for the employment of this type of labour seemed to exist.
- (5) The average number of hired male workers per farm increased according as farm-size increased, from about one-quarter of a unit per farm in the size-group under 40 acres, to almost a full unit in the farms 60-100 acres.
- (6) Total labour-units per farm ranged from slightly less than 2 on the farms under 40 acres to slightly more than 3 on the farms 60-100 acres. The over-all average in this respect was about  $2\frac{2}{3}$  units per farm. The over-all average number of family labour units employed per farm was about  $1\frac{1}{2}$ .

Between 1938-39 and 1942-43 the total number of labour units used per farm decreased slightly in the size-groups under 60 acres (by 0.13/0.07 units) and increased slightly in the size group over 60 acres (by 0.14 units per farm). On the farms under 60 acres, there was a slight decrease, and on the farms over 60 acres, a slight increase, in the number of family labour units used per farm. In all the size-groups both male and female workers were involved in these changes.

The number of units of hired labour per farm increased slightly on the farms under 60 acres, and decreased to a very slight extent on the farms over 60 acres. The increase in the case of the farms under 60 acres was almost entirely attributable to an increased use of male labour. In the case of the farms over 60 acres, the quantity of hired male labour remained the same as in 1938-39, and the slight increase in total hired labour was due to a slightly greater use of female labour.

Before leaving this section it may be desirable to connect the previous tables concerning the volume and value of output with these tables relating to the labour-force used. The necessary link is provided in Table XVII, which shows (1) the gross output, (2) the nett output, (3) the output of land-products, and (4) the output of farm-yard products, per unit of labour.

TABLE XVII

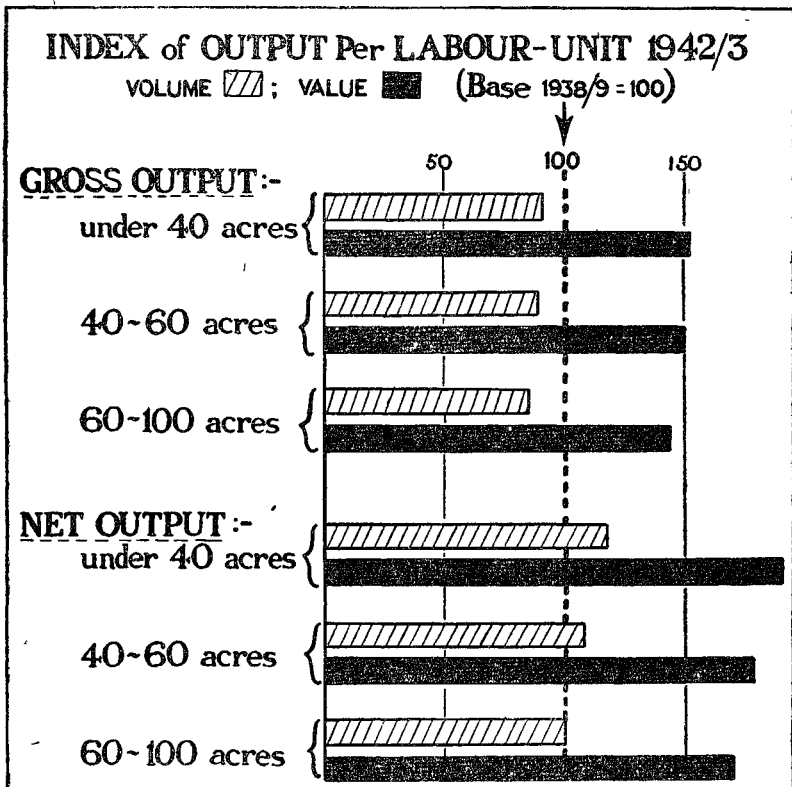
*Value of the Output per Labour-Unit*

Size of Farm	Gross Output	Nett Output	Output of Land Products	Output of Farm-yard Products
Acres	£	£	£	£
Under 40	191	173	150	41
40 — 60	219	206	167	52
60 —100	231	214	184	47
All Farms	218	202	171	47

In Fig 9, the percentage changes since 1938-39 in the volume and value of gross and nett output per labour unit by size of farm are diagrammatically presented

On the average gross output per labour-unit declined in volume by 12 per cent, but increased in value by 48 per cent since 1938-39.

FIG. 9



On the other hand, the nett output per labour-unit increased in volume by an average of 6 per cent and in value by 76 per cent

The output of "farm-yard" products per labour-unit decreased in volume by an average of 54 per cent but increased in value by an average of 21 per cent since the pre-war year. In the case of "land-products", the output per labour-unit increased in volume by an over-all average of 3 per cent while in value the improvement amounted to 58 per cent

### Remuneration of Labour.

Table XVIII indicates how the "total labour-income" was divided between the hired workers and the family workers. The information is presented (a) in relation to the farm as a business unit, so as to give the picture as it might be viewed by the individual farmer and (b) in relation to each unit of labour used, so as to give the picture from a community view-point. (Unless otherwise stated, all calculations concerning the remuneration of labour take into account the value of the farm-produce appropriated for domestic consumption at prices as nearly as possible equivalent to what the produce would have fetched, if it had been sold off the farm.)

TABLE XVIII

Total Labour-Income (a) per Farm (b) per Unit of Labour

Size of Farm	Total Labour Income per Farm	Cost of Hired Labour per Farm	Total Family Labour Income per Farm	Total Labour Income per unit of Labour (Hired and Family)	Income per unit of family Labour	Total Labour-Income if value of Produce used in Farmers' Homes were excluded	
						per Farm	per unit of labour
Acres	£	£	£	£	£	£	£
Under 40	260 97	26 41	234 56	139 21	147 52	181	96
40 — 60	349 56	46 83	302 73	165 39	191 10	267	126
60 — 100	527 90	94 60	433 30	173 24	220 27	419	137
All Farms	390 27	58 76	331 51	162 87	191 39	298	124

The contents of the above table might be briefly summarised as follows —

- (1) The "total labour-income" per farm ranged from about £5 per week on the farms under 40 acres to about £10 per week on the farms 60-100 acres, with an over-all average of about £7 10s per week per farm. The comparable over-all average in 1938-39 was about £3 18s per farm, so that there was an improvement of about 92 per cent in "total labour-income" per farm since before the war. The improvement was very uniform in all size-groups at about the above-mentioned percentage.
- (2) The "total cash labour-income" per farm, varied from about 70/- per week in the size-group under 40 acres, to 160/- per



week in the size-group 60-100 acres, with a general average of about 115/- per farm per week. The latter figure represents an improvement of about 87 per cent on the comparable figure for 1938-39 (61/- per farm per week)

- (3) After the costs of hired labour had been met, there remained as remuneration for all the family workers, about 128/- per farm per week (Range 90/- to 166/- according as farm-size increased) In this respect there was an improvement of 100 per cent since 1938-39
- (4) If no distinction were made between hired and family labour, the wage which each unit of labour could have received, would have averaged 62/- per week, varying from 54/- per week on the farms under 40 acres, to 67/- per week on the farms 60-100 acres. The pre-war overall average in respect of this item was 32/6
- (5) The overall average earnings of the family workers per unit amounted to 74/- per week (Pre-war figure 34/6 per week) The range in this respect was from 57/- per unit per week on the farms under 40 acres, to 85/- per unit per week on the farms 60-100 acres

#### Some of the Physical Factors of Production.

The "total labour-income" in each of the years in question was determined by two factors (a) total output and (b) operating costs. Total value of output was a compound of the level of prices and the volume of physical production. Some of the important factors underlying the volume of production of milk and calves are outlined in the following paragraphs

*Cows Not Fully Productive* During 1942-43 all the cows in the herds on 1/5/42 were not fully productive, the proportion being as follows —

TABLE XIX

Size of Farm	1942/43	1938/39
Under 40 acres	% 5	% 4
40—60 ..	6	6
60—100 ..	8	8
ALL FARMS	7	6.4

The comparable overall percentage for this district in 1937-38 (98 farms), and again in 1938-39 for the 93 farms from which the above 55 were abstracted, was 8 per cent, while in the case of 61 farms surveyed in West Cork in 1940-41, the comparable figure was 9 per cent.

The number of cows not fully productive in 1942-43 was the same as in 1938-39, while the same number of farms (25), but not the same farms, were involved in each year. This applied to the distribution by size-groups, as well as to the total for all the farms.

In 1938-39, abortion took place only on the farms 60-100 acres, and affected 10 cows distributed over 5 farms. In 1942-43, all size-groups were affected by this disease—1 farm in the case of each of the size-groups under 60 acres, and 3 farms in the size-group 60-100 acres. One of the latter farms suffered severely in this respect, 9 out of 22 cows becoming affected.

*Changes in Dairy Herds* For many reasons, changes had to be made in the dairy herds during 1942-43. These changes, which have already been referred to *in globo*, are indicated in somewhat greater detail in the following Summary —

TABLE XX

*Cows Drafted Out as percentage of Cows in Herds at start of Account-Period*

Size of Farm	1942/43			1938/39		
	Sold	Died	Total	Sold	Died	Total
Under 40 acres	% 13	% 2	% 15	% 15	% 2	% 17
40—60 ..	14	1	15	10	4	14
60—100 ..	18	1	19	12	3	15
ALL FARMS	16	1	17	12	3	15

In 1938-39 herd replacements averaged 5 per cent less than discards, in 1942-43 replacements exceeded discards by 4 per cent. In 1938-39, on the farms under 60 acres, replacements were less than discards, but, on the farms over 60 acres, the opposite position existed. In 1942-43, on the farms under 60 acres, replacements exceeded discards while, on the farms over 60 acres, discards exceeded replacements. As already stated, the number of cows in the combined herds on 30th April, 1943, exceeded by 6 the comparable number on 1st May, 1942.

When replacing discarded cows in 1942-43, a slightly different policy to that in operation in 1938-39 was adopted in the farms under 60 acres. This change is indicated in the following analysis:

TABLE XXI *Home-reared Heifers as Percentage of Total Replacements*

Size of Farm	1942/43	1938/39
Under 40 acres	% 33	% 22
40—60 ..	59	12
60—100 ..	37	38
ALL FARMS	42	30

On the farms under 60 acres there was a noticeable tendency to rely more on home-bred heifers in 1942-43 than in 1938-39, while on the farms 60-100 acres no change in pre-war policy occurred

*Milk Yields* The quality of the herds, as measured by the yield of milk per cow, was of fundamental importance in determining the total output of milk per farm. An estimate of this factor is given in Table XXII

Milk fed to calves is not taken into account, as this portion of the total quantity of milk produced, having been used for further production on the farm, did not contribute to the "output" of milk, as defined in this paper. Accordingly, the figures in the table are the "effective" and not the "gross" yields per cow

Owing to the impossibility of calculating the extent to which the yield of milk was less than normal in the case of the cows classified as "not fully productive", and also because it rarely happens that a herd as a whole achieves full productivity in any year, the total number of cows in the herds on 1st May, 1942, and 1938 has been used as the basis for making the estimate given in the table. Most of the cows sold during the period under review were disposed of towards the end, or at the end of their 1942 lactation period, and were usually replaced in the early spring

TABLE XXII.

*Distribution of "Effective" Milk Yields, by size of Farm (1942/43)*

"Effective" Milk-yield per Cow	Farms Under 40 Acres	Farms 40—60 Acres	Farms 60—100 Acres	All Farms		
				1942/43		1938/39
(Gals.)	(No)	(No)	(No)	(No)	%	%
Under 350	2	1	—	3	5	7
350—400	2	7	7	16	29	15
400—450	7	6	8	21	39	20
450—500	3	3	2	8	14	33
500—550	3	—	4	7	13	16
550—600	—	—	—	—	—	9
—	17	17	21	55	100	100
Average	438	406	432	426	—	—
"Effective" Yield per Cow						
1942/43	450	437	474	460	—	—
1938/39						

*Calf-mortality* The rate of calf-mortality on the 55 farms in 1942-43 and 1938-39, is given in the following table. In its construction the calendar years 1938 and 1942 have been substituted for the accounting years 1938-39 and 1942-43 hitherto used. This change has been made in order that the mortality-rates may be simply

expressed in relation to each production-season's crop of calves. In each of the periods compared, most of the calves were born between the second week of March and the 1st May. Calves which were dead when born or which died at birth, have been excluded from account.

TABLE XXIII  
*Calf-Mortality by Size of Farm*

Size of Farm		Calves Died as Percentage of Calves Born Alive	
		1942/43	1938/39
Under 40	Acres	% 18	% 23
40—60		22	21
60—100		28	25
ALL FARMS		24	23

For the 98 farms surveyed in this district in 1937-38, the calf-mortality rate (1937 crop of calves), calculated on the same principles, was 33 per cent, for the 93 farms (which included the above 55), re-surveyed in 1938-39, the rate (1938 crop of calves) was 23 per cent, and for the 1939 crop of calves calculated to July, 1939 (by which date in each year most of the losses seem to have occurred), 22 per cent.

The above table is amplified by the following analysis of the inter-farm variations in the incidence of calf-mortality between 1938-39 and 1942-43.

TABLE XXIV  
*Number of Farms showing Changes in Calf-Mortality Rate, between 1938/39 and 1942/43*

Size of Farm	Number of Farms Showing		
	Increase	Decrease	No Change
Under 40	(No) 5	(No) 6	(No) 6
40—60	7	7	3
60—100	10	7	4
ALL FARMS	22	20	13

The inter-farm variations in the mortality-rate, and the percentage range of the mortality-rate itself, are indicated broadly in the following summary.—

TABLE XXV.

Number of Deaths as percentage of Live Births	Percentage of Total Farms Involved	
	1942/43	1938/39
Nil	% 22	% 11
5—20 per cent	24	49
21—30 „ „	31	15
31—40 „ „	11	15
Over 40 „ „	12	10
—	100	100

## APPENDIX

### 1 *Valuation of Products Appropriated for House*

New Milk—At Creamery prices plus twopence per gallon to allow for the skim milk content

Skim Milk—At 2½d per gallon

Potatoes—At 9d per stone for the quantities actually boiled. These quantities appeared to be normally about 33½ per cent in excess of the actual personal requirements of the household, particularly during the period of flush supply. The price of potatoes sold off these farms in 1942-43 averaged 1/- per stone. Accordingly, in an effort to adjust for the estimated excess quantities boiled, I have assumed a value of 9d per stone.

Cabbage—At 1d per head

Turnips—At ½d each

Carrots } —At 1/- per stone

Parsnips }

Onions }

Pigs }

Eggs }

Poultry }

Wheat—At 3/- per stone

2 *Turf* Turf was not available on these farms. In some cases it was cut in a nearby bog of relatively poor quality (one sod in depth), in other cases it was obtained in a bog of average quality about 10 miles distant from the locality. The gross value of the former type of turf has been calculated on the basis of the farmers' valuations. In all cases, it is the nett value of the turf, i.e., gross value less cost of banks, special labour employed for cutting, etc., and special haulage-charges, that appears in these accounts. Although the turf was not produced on the farms, it seemed more desirable, under the circumstances, to bring it into account in the manner stated, than to omit it, and try to make appropriate adjustments for the ordinary farm-labour employed in turf-winning.

3 *Farm-improvements* Receipts and expenditure under the Farm-improvements Scheme were, strictly speaking, of a capital nature. For convenience, however, they have been treated as revenue items. As the amounts involved were relatively small, this procedure does not in any material way affect the financial results as presented. Any difference between the grants received and the *special* costs incurred in the purchase of materials, e.g., gravel, cement, etc., or in the employment of special labour to qualify for the grants has been either credited or debited under the heading "Sundries", according to the nature of the balance.

4 *Female Hired Labour* The quantity cost of this item, as far as permanent female workers were concerned, has been calculated as follows.—An estimate was obtained of the total number of

hours per day devoted by the female hired workers to farm work, as against household work, and the percentage of the total wages to be charged against the farm was then calculated. The average number of hours worked per day (on farm, and in the house) was taken to be 12. The cost of female casual labour has been calculated at the cash wages paid, plus an allowance (at the statutory rate for male workers 17-18 years), for such perquisites as were allowed.

- 5 *Female Family Labour* The quantity of female family labour chargeable against the farm has been calculated in the same manner as the quantity of female hired labour.
- 6 *Male Family Labour* Male family labour has been equated to "units", on the basis —1 male worker employed wholetime for 52 weeks=1 unit. Where necessary, adjustments for male family labour under 20 years of age have been made according to the scale implicit in the Agricultural Wages Board's Orders.
- 7 *National Health Insurance* The proportion of the National Health Insurance contribution payable by the farmer has been included as part of the cost of labour, W C A insurance has been charged under the general heading, "Insurances", as part of the ordinary operating costs.
- 8 *Herd Replacement Costs* These have been calculated as follows —(Value of cows on 1/5/42+cost of cows bought during the account-period+value of home-bred heifers transferred to herd) minus (value of cows sold+value of skins of cows that died+value of cows on 30/4/43).

### 9 *Live-stock Inventories*

*Cows* Cows on 1/5/43 have been included at a "standard" valuation of £20 per head. This was the average of all the individual valuations given by the farmers concerned. Cows bought and sold have been accounted for at the prices actually paid or received. When valuing the herds on 30/4/43, cows bought during the period or heifers transferred in, were taken at their actual purchase or "transfer in" value, i.e., they were not reduced to the "standard" valuation.

*Cattle and Calves* These were included at the farmers' valuations as on 1/5/42 and 30/4/43.

*Sows and Pigs* Sows were taken at a "standard" value of £9, which represented the average of the farmers' valuations. Sows sold during the period, were accounted for at their actual sale-price. Sows slaughtered for domestic consumption, were included at their estimated sale-value. Opening and closing inventories of pigs were priced in accordance with the farmers' valuations.

*Poultry* The following "standard" valuations were applied to "stock" birds —Hens, 6/-, Ducks, 4/-, Geese, 13/-, Turkeys, 29/- Sales of stock birds were accounted for at the actual prices received.

### 10 *Depreciation*

The following were the rates of depreciation charged —

	£	s	d
Horse	1	13	0
Pony or Mule	0	17	0
Plough	0	7	0
Harrow	0	5	0
Mower	1	0	0
Wheel-rake	0	15	0
Hay-cart	2	0	0
Swath Turner	1	0	0
Pulper	0	7	0
Creamery Can	0	5	0
Horse-cart	1	0	0
Pony-cart	0	15	0
Donkey-cart	0	15	0
Harness	0	7	0
	0	6	0
	0	4	0

Other less important items of machinery and equipment were depreciated on a similar scale. Owing to the impossibility of arriving at a reliable estimate, no depreciation has been charged on buildings. Depreciation written-off carts has been assumed to be sufficient to cover the renewal of wheels.

11 *Wage-rates* During 1942-43 wage-rates per adult male workers were —1/5/42 to 1/2/43 33/- per week, 1/2/43 to 30/4/43 36/- per week

12 The manner in which the balance existing in the composite price-structure applicable to these farms in 1938-39 had altered by 1942-43 may be roughly estimated from the following table —

*Percentage of Total Farm-Income contributed by Different Products in 1942/43*

Product	Actual Percentage	Theoretical, i.e. if the 1938/39 Inter-Product Balance of Prices had persisted to 1942/43
	%	%
Milk (New)	43.7	46.5
„ Skim	1.5	1.2
Calves	18.3	18.2
Cattle	5.3	5.7
Pigs	8.3	6.8
Poultry	9.5	6.9
Crops	13.4	14.7
	100	100

The 1938-39 balance had, by 1942-43, shifted slightly in favour of pigs and poultry, slightly against crops and milk, and had remained unchanged in the case of calves and cattle.