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GIATHUNI FOUNDATION OF AGRICULTURAL ECONOMICS

THE WEST OF SCOTLAND AGRICULTURAL COLLEGE

(ECONOMICS DEPARTMENT)

# DAIRY FARM FINANCIAL RETURNS

FARM ACCOUNT AVERAGES, 1951-52

Ву

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(1951 Lamb Crop and Wool Clip.)

#### DAIRY FARM FINANCIAL **RETURNS** — 1951-52

#### ACCOUNT **AVERAGES** FARM

#### FOREWORD.

This report contains some results of an analysis of farm financial accounts collected from a number of dairy farms in West-Central and South-West Scotland. It relates to the year 1951-52, i.e., the financial results largely represent the profitability under the scale of milk prices ruling from April, 1951, to March, 1952, and it continues a series of reports which have been prepared periodically in recent years. It does not do more than present general and group averages, since the restricted size of the sample precluded any widely applicable conclusions being drawn from it.

The farms with which the report is concerned closed their financial year in the period from November, 1951, to May, 1952, but mainly at March, 1952. There were 159 dairy farms in all, but of these, 35 were considered unsuitable for inclusion in the sample—either they did not receive the Attested and T.T. bonuses or they were not typical of ordinary commercial dairy farms. The report deals, therefore, with only 124 farms receiving T.T. and Attested bonuses. They are commercial farms and do not in any way represent a specially selected sample.

Although all the farms were strictly dairy farms, in so far as the production of milk was by far the most important single enterprise, they differed considerably in size and also in the importance of side-lines in their economies. Some farms concentrated almost exclusively on milk production but others supplemented milk production with the sale of crops or of livestock. To allow comparisons of the various types to be made figures are given of the farms grouped according to size and type. The three main type groups are as follows:—

- Dairy (Mainly Milk) Farms.—On these farms sidelines provided a very small proportion of revenue. The income from sales of milk and from stock incidental to dairying, such as calves and cast cows, amounted to 80% or 90% of total revenue. There were 63 such farms.
- Dairy (Milk with Stock) Farms.—On this type of farm sales of stock and their products—poultry and eggs, sheep and wool, pigs and young dairy stock (where important)—contributed from 15% to 30% of revenue. In this group there were 51 farms.
- Dairy (Milk with Crop) Farms.—This was a small group of only 10 farms. The sale of crops was of some importance, accounting for 10%-30% of total revenue.

Grouping according to size was made on the basis of the size of the cow herd as judged by the average of the numbers on hand at the opening and closing valuations. The six groups were as follows:-

Less than 20 Cows (Group 1). 20-30 Cows (Group 2). 30-40 Cows (Group 3). 40-60 Cows (Group 4). 60-80 Cows (Group 5). 80 Cows and over (Group 6).

#### ACCOUNTING METHOD.

Definitions of the various terms used in the report and of the accounting method followed are necessary here:— All accounts were prepared on a tenancy basis. Trading Expenditure and Trading Revenue relate to all the normal tenancy out-goings and income on the farms, but exclude any purchases or sales of new capital equipment, or any expenditure on capital improvements such as new byres, cottages, etc. All expenses and revenue arising out of Ownership are excluded, as are all payments of Income Tax.

Total Expenditure and Total Revenue include all normal tenancy outgoings and income and also all expendi-

ture on new equipment or structures, or income from sales of implements, cars, etc.

**Depreciation** was given on all equipment on hand at the date of opening valuation, and also on all new equipment and structures bought or erected during the year. The rates used for machinery are those allowed for incometax purposes (5% plus one-quarter, 10% plus one-quarter, etc.), while for new structures an annual allowance of one-tenth of net outlay was applied. It is to be noted, however, that "initial" allowances on new equipment were not charged among depreciation. The gross charge for depreciation was offset by the value realised for any equip-

Stock and Crop Valuations at the opening and closing dates of the financial year were generally on a conservative basis, either of market value or estimated cost of production.

Net Profit represents the balance between Trading Revenue and Trading Expenditure, less the charge for depreciation, plus or minus any increase or decrease in the Stock and Crop Valuations during the year.

Regarding the figures of Net Profit several points require to be noted. At this stage, no charge has been made for any manual work done by the farmer or his wife, nor has any charge been made for interest on the capital invested in tenancy of the farm. Expenditure charged includes all actual payments for, or estimates of, the cash value and perquisites of all hired and family or partnership labour excepting only farmer and wife. Revenue includes all grants and subsidies, also a share of rent against the dwelling-house, an estimate of the value of produce taken for the house or given as perquisites, and certain shares of car-running, labour, etc., transferred to the domestic account.

Surplus.—This term has been used more commonly throughout the report as a measure of profitability than has Net Profit or Net Loss. To obtain this figure of Surplus there was added to Expenditure an estimate of the value of the manual work done on each farm by the farmer; the basis of the calculation being on a scale rather higher than the minimum rates for specialist workers as scheduled in the Wage Board Orders. In addition a charge was made for the value of the work done by the farmer's wife. This assessment of the extent to which the work of farmer and wife augmented the labour of hired or family workers was possible only on an approximate basis, but was considered necessary in view of the importance of the farmer's work, especially on the smaller farms in this area.

Neither the figures of Net Profit nor of Surplus make any allowance for interest on capital invested in tenancy.

Adjusted Acres.—Where reference is made to Adjusted Acres an allowance has been made for certain farms having some area of rough grazing, by calculating the farm acreage with 4 acres of rough grazing as equivalent to 1 acre of ordinary grazing.

Certain figures are given "per cow" or "per cow carried." The calculation is based on an average of the numbers of cows at the opening and closing dates.

#### GENERAL AVERAGE.

The following figures are general averages of the whole group of 124 farms:—

#### AVERAGE NET PROFIT AND SURPLUS—124 FARMS.

Average size of farm (including Rough Graverage size of farm (adjusted acres)  Average Cows per Farm			174 acres. 150 acres. 39 cows.
	Per Farm.	Per adj. acre.	Per Cow Carried.
Trading Revenue Exceeded Trading Expenses by Deduct Depreciation on Equipment	£1134 299	£7 II/- 2 0/-	£29 I/- 7 I3/-
Add Increase in Stock and Crop Valuation	£835 157	£5 11/- 1 1/-	£21 8/- 4 1/-
NET PROFIT	£992	£6 12/-	£25 9/-
Deduct average of charges for farmer's manual work  Deduct average of charges for wife's	284	I 18/ <del>-</del>	7 6/-
manual work	66	o 9/-	1 14/-
Surplus	£642	£4 5/-	£16 9/-

Thus, on average, Trading Revenue exceeded Trading Expenses by £1,134 per farm. When a deduction had been made for depreciation on equipment and an addition made for the difference in value between the opening and closing valuations of stock and crop the net profit amounted to £992 per farm, or about £25 per cow carried. From this an estimate of the value of the manual labour of the farmer and his wife was deducted leaving a surplus of £642 per farm, or of £16 per cow. This represented the sum out of which interest on capital would be met and the reward of the farmer in his organising and managerial capacity.

When compared with a similar, but not identical, group of accounts for the previous year, *i.e.*, 1950-51, the excess of Trading Revenue over Trading Expenses was greater in 1951-52 by £134 per farm. After adjustments had been made for depreciation on equipment and increases in stock and crop valuations the average net profit per farm in 1951-52 was £992 as compared with £790 in 1950-51, and the surplus was £642 as against £438.

The figures given above are general averages and as a result do not indicate the quite wide variations which existed from farm to farm. For example, although on average there was a net profit of £992 there were 12 farms, out of the total of 124, where net losses were made.

Further details of the farms to which the above general average figures relate are:—

Number of dairy farms		•••	•••	124
Average size of farm (adjusted acres)				150
Average number of cows carried				39
Average adjusted farm acres per cow	•••	•••	•••	4
Average gallonage sold per cow	•••	•••	•••	660
Average gallonage sold per adjusted acre		•••	•••	172

#### GROUP AVERAGES.

When the 124 farms were grouped according to type and size the following figures were obtained:—

#### Dairy (Mainly Milk) Farms.

In this group there were 63 farms which relied on the sale of milk, calves and cast cows for the bulk of their income. The table gives some averages relating to the farms when grouped according to size.

### AVERAGES PER FARM, PER COW AND PER ACRE BY SIZE GROUPS.

#### DAIRY (MAINLY MILK) FARMS.

	Less than 20 Cows.	20–30 Cows.	30–40 Cows.	40-60 Cows.	60-80 Cows.	80 Cows and over.	Group Average.
Number of Farms  Average Size of Farm—Actual  Average Size of Farm—Adjusted Acres  Average Number of Cows Carried	10 152 86 17	26 98 82 24	10 152 130 36	11 183 164 49	234 234 65	2 300 293 100	63 145 121 34
Farm Acres (Adjusted) per Cow Gallons Sold per Cow Gallons Sold per Acre	5·1 576 64	3·4 636 159	3·6 602 141	3·3 647 173	3·6 727 202	2·9 640 214 219	3·5 640 151 181
Gallons Sold per Adjusted Acre Net Profit per Farm Net Profit per Cow Net Profit per Adjusted Acre	£387 £22 15/- £4 10/-	190 £420 £17 10/- £5 2/-	165 £709 £19 14/- £5 9/-	193 £1082 £22 2/- £6 12/-	202 £1808 £27 16/- £7 15/-	£2109 £21 2/- £7 4/-	£718 £21 2/- £5 19/-
Surplus per Farm Surplus per Cow Surplus per Adjusted Acre	*£12 *14/- *3/-	£56 £2 7/-	£323 £9 0/- £2 10/-	£708 £14 9/- £4 6/-	£1553 £23 18/- £6 13/-	£1924 £19 5/- £6 11/-	£355 £10 9/- £2 19/-

The variability of net profit per farm is well illustrated in this table, ranging, as it did, from £387 to £2,109. Although the net profit per cow did not seem to be related to the size of the herd the size-group averages of profits and surpluses per farm naturally were increasing steadily with the size of the cow herd. In this connection, for the farms in Group I (less than 20 cows), the average net profit per farm was not large enough to cover the charge for the manual labour of the farmer and his wife. But the low gallonage sold per cow (576 gallons) should be noted. It is important to bear in mind, however, that even in each size-group there were wide variations in the profitability of the individual farms. In Group I, for instance, although on average there was a deficit, there were three farms able to show a surplus per farm of £100 or more.

Other points of interest about this "Mainly Milk" group are that it contained a preponderance of the smaller cow herds—57% of the farms having less than 30 cows, and that for the group as a whole, the net profit per cow was £21 as compared with the general average, given above, of £25.

The composition of total revenue for this group of farms was as follows:-

Milk sales		•••	•••	77%
Cattle and Ho	rse sales		•••	8%
Pig sales	•••			2%
Poultry and E	gg sales	•••	•••	3%
Crop sales	•••	•••	• • •	3% 2%
Subsidies and	Grants	•••	•••	2%
Miscellaneous	•••	•••	•••	5%
				100%

#### Dairy (Milk with Stock) Farms.

The next table gives a similar tabular statement for the 51 farms which supplemented dairying with the sale of other stock and their products.

#### AVERAGES PER FARM, PER COW AND PER ACRE BY SIZE GROUPS.

#### DAIRY (MILK WITH STOCK) FARMS.

		Less than 20 Cows.	20-30 Cows.	30–40 Cows.	40–60 Cows.	60–80 Cows.	80 Cows and over.	Group Average.
Number of Farms		5	9	14	11	8	4	51
Average Size of Farm—Actual		68	93	188	266	290	427	211
Average Size of Farm—Adjusted Acres	•••	66	91	163	208	257	381	182
Average Number of Cows Carried		16	26	36	49	64	97	44
Farm Acres (Adjusted) per Cow	•••	4.1	3.5	4.5	4.2	4.0	3.9	4-1
Gallons Sold per Cow		645	635	676	767	628	716	688
Gallons Sold per Acre		156	181	128	140	140	162	144
Gallons Sold per Adjusted Acre	•••	159	185	148	179	158	181	167
Net Profit per Farm		<i>£</i> .406	£,622	£1005	£1162	£1857	£3057	£1199
Net Profit per Cow		£25 8/-	£23 18/-	£27 18/-	£23 14/ <del>-</del>	£29 0/-	£31 10/-	£27 5/-
Net Profit per Adjusted Acre		£.6 3/-	£6 17/-	£6 3/-	£5 12/ <del>-</del>	£7 4/-	£8 0/-	£6 12/-
Surplus per Farm		£103	£234	£631	£816	£1587	£2688	£860
Surplus per Cow	•••	£6 9/-	£9 0/-	£17 11/-			£27 14/-	£19 11/-
Surplus per Adjusted Acre	•••	£1 11/-	£2 11/-	£3 17/-	£3 18/-	£6 3/-	£7 1/-	£4 14/-

These farms differed in one or two respects from the "Mainly Milk" group. For every size-group in this sample the average "Milk with Stock" farm was more profitable than the average "Mainly Milk" farm, both in net profit per farm and when profit was measured on a "per cow" basis. As a result, the Surpluses remaining after the manual work of farmer and wife had been charged were larger, in the small as well as the large size-groups.

In this sample the "Milk with Stock" farms tended to be larger farms both in terms of acres per farm and of the proportion of farms in the larger cow-herd groups. Their average size in adjusted acres was 182 acres as against 121 acres, the average cow numbers per farm, for the group as a whole, were 44 as compared with 34, while only 27% of the farms carried a herd of under 30 cows (57% in the previous group).

For the group as a whole total revenue was obtained from the following sources:-

Milk sales	•••	•••		53%
Cattle and Horse	sales	•••		17%
Pig sales	•••	•••	•••	12%
Sheep sales	•••	•••	***	5%
Poultry and Egg	sales	•••	•••	5%
Crop sales	•••	•••	•••	3%
Subsidies and Gr	ants	•••	•••	1%
Miscellaneous	•••	•••	•••	4%
				100%

## Dairy (Milk with Crop) Farms.

The third group of farms—" Milk with Crop"—was only a small one (10 farms), and was too small to divide into size-groups. The following table is given, however, to complete the picture of the total sample of 124 Dairy Farms.

# GROUP AVERAGES PER FARM, PER COW AND PER ACRE.

#### DAIRY (MILK WITH CROP) FARMS.

Number of Farms	···· ·	•••	•••	10
Average Size of Farm—actual	•••	•••	•••	173
Average Size of Farm—Adjusted Ad	cres	•••	•••	170
Average Number of Cows carried	• • •	•••	•••	44
Farm Acres (adjusted) per Cow	•••	•••	•••	3.8
Gallons Sold per Cow	•••	•••		6o7
Gallons Sold per Acre	•••			154
Gallons Sold per Adjusted Acre		•••	•••	157
Net Profit per Farm			•••	£,1,662
Net Profit per Cow		•••	•••	$f_{.37}$ 15/-
Net Profit per Adjusted Acre	•••			£9 15/-
Surplus per Farm	•••	•••		£1,333
Surplus per Cow			•••	
Surplus per Adjusted Acre	•••	•••	•••	£30 6/-
outplus per riajusted fiele	•••	•••	•••	£7 17/-

#### The revenue of this group of farms was made up as follows:—

Detailed tables of the revenue, the expenditure and the cropping acreages for each of the three groups are given in the Appendix.

The values of the equipment depreciation and of the increase in stock and crop valuations are also given.

#### Acknowledgments.

Acknowledgment is gratefully made of the continuing assistance of the farmers who place their farm accounts at the disposal of the College, of the help given by professional accountants in this connection and of the work done, both in the field and in the office, by other members of the staff.

TABLE I.

124 DAIRY FARMS—FINANCIAL YEAR 1951-52.

Average Revenue Per Farm By Groups.

		(	Dairy Mainly Milk).	Dairy (Milk with Stock).	Dairy (Milk with Crop).	General Average.
Number of Farms			63	51	10	124
Average Size (Adjusted A	cres)	•••	121	182	170	150
Average Number of Cows Revenue from:—	Carried	•••	34	44	44	39
Horses	• • • •	•••	£16	£11	£13	£13
Cattle	•••	•••	~ 446	1,065	<b>5</b> 68	711
Sheep		• • •,	30	546	36	243
Pigs	•••	•••	32	193	16	97
Poultry	•••	•••	<u></u>	<u> </u>	9	13
TOTAL LIVESTOCK	•••	•••	£533	£1,834	£642	£1,077
Milk			Co. 066	C+	Co 0	C
Chassa	•••	•••	£3,266	£4,313	£3,855	£3,744
	•••	•••	89 82	154	287 100	132 108
Eggs Wool	•••	•••	83 2	141 65	100 I	28
Other Livestock Prod	 uce	•••	I	65 1	<u></u>	. 20 . I
		•••				
TOTAL LIVESTOCK	PRODUCE	•••	£3,441	£4,674	£4,243	£4,013
Wheat	•••,	•••		£2	£iii	£10
Barley	•••	•••	<u> </u>		26 - 26	2
Oats Potatoes	•••	•••	£45	76	196	70
Roots and Forage	•••	•••	43	54 2	755	105
TTare	•••	•••	3 5	13	4 40	11
Straw	•••	•••	8	6	27	9
Grazing	•••		38	23	52	33
Other Crops	•••		7	11	20	10
TOTAL CROPS	*	•••	£149	£187	£1,231	£252
Calf Subsidy	•••	•••	£11	£19	£17	£14
Fertility Subsidy	•••	•••	30	55	55	42
Drainage Grant	•••	•••	7	7	12	8
Marginal Land Grant	•••	•••	7	I	•	4
Attestation Grant Other Grants	•••	•••	I -0	10		5
	•••	•••	18	56	33	35
TOTAL SUBSIDIES	•••	•••	£74	£148	£117	£108
Contract Work	•••	•••	£2	£4	£6	£3
Miscellaneous	•••	•••	22	17	186	32
Cottage Rents	•••	•••	6	11	II	10
Produce to Labour Produce to Farmhouse	•••	•••	13	23	19 62	17
Private Share of Car		•••	53 25	54	63 19	54 28
Rental Value of House	e	•••	16	33 18	19	17
TOTAL "OTHER"	Revenue	•••	£137	£160	£323	£161
Total Trading I	Revenue	•••	£4,334	£7,003	£6,556	£5,611
Equipment Sold	•••		£56	£157	£113	£102
TOTAL REVENUE	•••	•••	£4,390	£7,160	£6,669	£5,713
Increase in Stock Valuation	AND CR	OP	£129	£163	£310	£157

TABLE II.

124 DAIRY FARMS—FINANCIAL YEAR, 1951-52.

#### Average Expenditure Per Farm By Groups.

		Dairy (Mainly Milk).	Dairy (Milk with Stock).	Dairy (Milk with Crop).	General Average.
Number of Farms		63	51	10	124
Average Size (Adjusted Acres)		121	182	170	150
Average Number of Cows Carried		34	44	44	39
Expenditure on:—					
Horses		£14	£13	£2	£12
Cattle	• • •	89	142	130	114
Sheep		25	244	20	115
Pigs		15	60	28	35
Poultry	•••	17	44	18	29
TOTAL LIVESTOCK	•••	£160	£503	£198	£305
Concentrates	•••	£1,114	£1,510	£1,119	£1,277
Bulk Grain	•••	4	II	Į	7
Hay	•••	67	114	86	88
Grazing		48	34	46	42
Sundry Livestock Expenses	•••	56	99	52	73
TOTAL FOODS, ETC		£1,289	£1,768	£1,304	£1,487
Seeds		£101	£171	£227	£140
Fertilizers*	•••	~ 324	~498	~598́	~418
Sundry Crop Expenses		13	20	44	.18
TOTAL CROP EXPENSES	•••	£438 ———	£689	£869	£576 ———
Total Labour**	•••	£831	£1,389	£1,480	£1,112
Implement Repairs and Tools	•••	£146	£246	£200	£191
Contract Work	•••	38	59	63	49
Fuel, Light and Power	• • •	140	230	223	184
Building, Drain and Fence Repair	rs	97	123	99	108
Farm Rent	• • • •	146	219	232	183
Other Annual Rent	•••	4	19	3 3	10
Rates as Occupier	•••	13	24	17	18
General Insurances	•••	18	27	29	22
Car Running	•••	101	110	101	104
Interest on Overdraft	•••	6	21	11	13
Haulage	•••	23	39	37	31
Miscellaneous	•••	66 	105	<u>————</u>	84
TOTAL "OTHER" EXPENSES	•••	£798	£1,222	£1,104	£997
TOTAL TRADING EXPENSES	•••	£3,516	£5,571	£4,955	£4,477
New Structures, etc		£105	£165	£8o	£127
New Implements		~178	328	497	265
New Car	•••	8́о	300	116	174
Trom Car III					
TOTAL NEW EQUIPMENT	•••	£363	£793	£693	£566
Total Expenditure	•••	£3,879	£6,364	£5,648	£5,043
DEPRECIATION ON EQUIPMENT	•••	£229	£396	£249	£299

<sup>\*</sup>During 1951 and 1952 prices of fertilizers were rising rapidly and many farmers bought and stored greater quantities than usual in an attempt to anticipate the increases. The expenditure on fertilizers shown here is probably higher, therefore, than would be expected normally.

<sup>\*\*&</sup>quot; Total Labour "includes all cash wages, insurances, perquisites, board and lodgings, etc., for all farm labour, hired and family, excluding farmer and wife.

TABLE III.

# 124 DAIRY FARMS—FINANCIAL YEAR, 1951-52.

# Average Cropping (Acres) Per Farm By Groups.

		Dairy (Mainly Milk).	Dairy (Milk with Stock).	Dairy (Milk with Crop).	General Average.
Number of Farms		-	51	10	124
Average Size (Adjusted Acres)	•••	121	182	170	150
Average Number of Cows Carried	•••	34	44	44	39
Wheat		0.2	0.3	4.6	0.6
Barley			0.2	0∙6	0.2
Oats		18.9	29.2	29.1	23.9
Mashlum		1.5	1.7	5.2	1.9
Beans			0.9	0.2	0.4
Dredge Corn			0.1		0.1
Potatoes: Early		0.2		0.3	0.1
Main		0.7	1.2	9.2	1.6
Arable Silage	•••	0.5	1.2	1.0	o∙8
Turnips and Swedes		4.9	7:9	6.8	6·3
Mangolds		0.4	0.2	0.3	0.4
Rape	•••	0.3	0.4	0.5	0.3
Kale	•••	0.4	1.2	0.9	0.9
TOTAL CROPS	•••	28.0 (19%)	45·1 (21%)	59.3 (34%)	37.5 (21%)
Rotation Grass Mown	•••	14.9	21.3	25.8	18•4
Rotation Grass Not Mown	•••	49.8	81.2	71.9	64.5
Total Rotation Grass		64.7 (45%)	102.5 (49%)	97·7 (57%)	82.9 (48%)
Timothy	•••	2.7	4.1	2.3	3.2
Permanent Grass Mown	•••		2.3		I·7
Permanent Grass Not Mown	•••	-/-	18.7	10.1	16.8
TOTAL PERMANENT GRASS	•••	20·3 (14%)	25.1 (12%)	12.4 (7%)	21.7 (12%)
Rough Grazing	•••	32.0 (22%)	38·3 (18%)	3.8 (2%)	32·3 (19%)
TOTAL AREA	•••	145.0 (100%	211.0 (100%)	173·2 (100%)	174·4 (100%)
TOTAL ADJUSTED ACRES	•••	121.0	182.3	170.3	150.2