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EDINBURGH AND EAST OF SCOTLAND
COLLEGE OF AGRICULTURE.

"SOME FACTORS IN SUCCESS"

No. 2 - East of Scotland arable farms in 1929-30.

by

E. Whittaker, B.Sc., N.D.A. (Hons.).

Advisory Officer in Agricultural Economics.

Edinburgh, 13, George Square.

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FORWORD. * (1).

In an area where many of the farmers keep accurate financial accounts, economic research, very properly, has commenced with an investigation of these accounts.

Research is being done by the Edinburgh College upon two distinct types of agriculture - (a) semi-arable sheep farms in the Border Counties, and (b) arable farming for the production of crops for sale in the Lothians and counties north of the Forth. The present report deals with holdings of the latter type.

Some farmers are more successful than others. The object of the investigation is to discover wherein the "goodness" of the "good farmer" lies. Some of the factors in success may be under the farmer's control, for example in a livestock district he may be able to increase the proportion of sheep carried by his holding if sheep prove to be more profitable than cattle. Alternatively a factor may be something the farmer himself cannot change. Thus, if heaviness of soil is a cause of non-success the farmer cannot "by taking thought" alter this, although he may seek a rent reduction or change his farming system. Accordingly, even at a time when, in certain types of arable farming, "successful" men are merely those whose failure is less disastrous than that of their neighbours, no apology is made for the title chosen for the present series of reports.

GENERAL DESCRIPTION OF THE FARMS STUDIED.

Arable farms, having the production of sale-crops as a primary objective, characterise a good deal of the low ground in the East of Scotland. The farms are large, those investigated having an average area of 328 acres, with a staff averaging 9 men and 3 women and boys in addition to the farmer himself.

The potato crop - notoriously subject to wide seasonal variations in profitableness - is an important source of income. Wheat, barley, and oats are sold, together with varying amounts of hay and straw. Except on suburban farms, soil fertility is maintained by stock-feeding. The ordinary farm carries few breeding stock. Store cattle, mainly Irish, are bought in autumn for court-feeding, and to a less extent in the spring to go on to grass. Some farms, in addition to feeding cattle, purchase store lambs to utilise the turnip crop, whilst breeding stocks of sheep - generally small and experimental - appear on some holdings. Occasionally, particularly near Edinburgh, herds of pigs are kept. Livestock, however, although important, are definitely subsidiary to crops in the economy of the farm and intended, mainly, to keep up soil fertility.

* (1) Reprinted, with minor amendments, from "Some Factors in Success - Border semi-arable sheep farms in 1929-30" May 1931.

CLASSIFICATION OF THE FARMS.

30 farms were studied in respect of the year 1929-30. They were grouped as follows:-

1. East Lothian (a) 11 farms for which the East Lothian
type of farm. six-course rotation - roots, barley, hay, oats, potatoes, wheat - is typical. This rotation is, of course, by no means confined to its name-county, and a proportion of the farms were drawn from Fife and Perth. Elevations ranged from near sea level to about 300 feet. The average size of the farms was 356 acres, of which 70 per cent was in crops other than grass (all the farms having some grass in addition to the normal rotation area). Rentals were around £2 per acre. "Net production" * (ii) in 1929-30, as calculated for comparative purposes, averaged £11.15s.2d. per acre, being made up as follows:-

"Production" of cattle.	26.1	per cent of "net
" sheep	6.3	" production"
" pigs, livestock	2.4	"
" produce, &c.		"
" crops	76.3	"
	<u>111.1</u>	
Less purchased feedingstuffs.	<u>11.1</u>	
"Net production"	<u><u>100.0</u></u>	

- (b) 5 farms of similar general type, but showing differences of such importance as to make it unreasonable to regard them as strictly comparable with the 11 farms above.

* (ii) "Net production" is calculated as follows:-

The "production" (which corresponds to what many farm accountants call "gross profit") of each kind of livestock or crop is calculated by subtracting from sales any purchases of the same kind of thing (e.g. purchases of cattle are deducted from sales of cattle, purchases of seed wheat are deducted from sales of wheat). If the valuation has increased, the increase is added. Conversely any decrease is deducted. (Money values are taken in all cases).

The "production" of each product is added to obtain "total production". From "total production" the cost of purchased feedingstuffs is subtracted, as shown above, to give "net production".

(An adjustment of the sale price of maincrop potatoes of the 1929 crop was made in comparing the "net production" of different farms).

It is recognised that this method of calculation differs from the usual one. The reasons for adopting it were indicated in "Some Factors in Success - Border semi-arable sheep farms in 1929-30".

2. Suburban type of farm.

5 farms in the Edinburgh district, having practically no livestock other than work-horses, or, in some instances, pigs. A four-course rotation is followed - oats, potatoes, wheat, hay - the order varying. All produce is marketed, and dung purchased from adjacent dairies or from Edinburgh. Elevations vary, but are nowhere great. The farms averaged 306 acres in area, 68 per cent of the land being in crops other than grass. The average rental approached £3 per acre. "Net production" in 1929-30 averaged £13.9s.4d. per acre, being almost wholly drawn from crops, and made up as follows:-

"Production" of cattle.	3.1 per cent of "net
" sheep.	.5 " production"
" pigs, livestock	5.7 "
" produce, &c.	92.1 "
" crop.	101.4
	1.4
Less purchased feedingstuffs.	100.0
"Net production"	

3. Farms similar to the East Lothian type but producing a higher proportion of livestock.

6 farms scattered over the area - in Mid and East Lothian, Fife, and Perth, producing the same kind of sale crops and livestock (except that in some instances more breeding stock may be carried) as the East Lothian type of farms. Elevations are similar. The farm areas average 327 acres, of which 49 per cent is in grass and 51 per cent under other crops. Rents averaged about £2.5s. per acre. "Net production" in 1929-30 averaged £9.8s.4d. per acre, including a much higher proportion of livestock than in the case of the East Lothian type of farm. Thus:-

"Production" of cattle.	33.5 per cent of "net
" sheep.	16.0 " production"
" pigs, livestock	5.4 "
" produce, &c.	59.8 "
" crops.	114.7
	14.7
Less purchased feedingstuffs.	100.0
"Net production"	

4. 3 miscellaneous farms not grouped.

ADJUSTMENTS TO MAKE THE RESULTS OF DIFFERENT FARMS COMPARABLE.

To ensure that financial results were comparable between different farms certain adjustments were made:-

(a) Labour. No charge was made for the labour of the farmer or that of his wife. All other labour, including that of sons employed at home, was charged.

(b) Interest. Each farmer was assumed to possess sufficient capital to operate his farm. All interest paid on money borrowed, or received for capital lent, was eliminated.

(c) Valuation of growing crops. On farms where growing crops are valued annually, the fall in prices during recent years has resulted in a loss on this account. If the valuation is made on sound lines it is undoubtedly better to value growing crops than to carry them at a fixed value from year to year. Most farmers, however, adopt the latter practice. Accordingly, so that results may be comparable, growing crops have been kept at a fixed value in all cases.

(d) Date of Valuation. Most farm accounts in the East of Scotland are made up to the May Term. Those studied, therefore, represent the production and utilisation of the 1929 crop. In accounts made up to other dates, crop sales have been dissected so as to include the whole of, but no more than, the 1929 crop.

(e) Potatoes sold in ground. The cost of lifting (actual or estimated) has been added to receipts for the crop, and to wages paid.

COMPARISON OF THE FINANCIAL RESULTS OF DIFFERENT FARMS.

I. GENERAL FACTORS AFFECTING ALL THE FARMS IN THE YEAR 1929-30.

The business of 21 of the 30 farms was studied for both 1928-29 and 1929-30. In 1928-29, after the adjustments mentioned above had been made, the farms showed an average profit of £284 per farm (= 16s.4d. per acre). In 1929-30, the same 21 farms showed an average profit of only £23 per farm (= 1s.4d. per acre). These figures are averages only, as shown by the following:-

	<u>Year 1928-29.</u>	<u>Year 1929-30.</u>
Farms with profits.	15 farms had an average profit of £647 per farm.	13 farms had an average profit of £362 per farm.
Farms with losses.	6 farms had an average loss of £617 per farm.	8 farms had an average loss of £528 per farm.

11 out of the 21 farms had a worse year financially in 1929-30 than in 1928-29, and 10 farms a better year. Plainly such facts call for explanation.

(a) Maincrop potato prices.

The chief factor causing the lower profitableness of the farms as a whole in 1929-30 was, of course, the very low/

/low price received by most farmers for maincrop potatoes of the 1929 crop. £15.15s.3d. per acre was received for the 1929 crop as compared with £27.15s.4d. for that of 1928. Had the 1929 crop brought the same price per acre as was received the previous year, the 21 farms would have made, in 1929-30, an average profit of £546 (much better than in 1928-29), and only 3 out of the 21 farms would have shown losses. Evidently, apart from maincrop potatoes, the farms had a better year in 1929-30 than in 1928-29.

- (b) Other crops. 1929 was a season of excellent yields, increased quantities of wheat and barley sold compensating for lower prices received:-

	<u>Money value of sales per acre *(iii).</u>	
	<u>1928 crop.</u>	<u>1929 crop.</u>
Wheat.	£11: 1: 4	£11: 6: 9
Barley.	11:12: 0	12: 5: 7

Sales of oats, apparently due to increased feeding of the crop, declined from £6. 0s.9d. per acre in 1928-29 to £5.10s.7d. in 1929-30.

- (c) Livestock. On the whole, livestock appear to have been at least as profitable in 1929-30 as in 1928-29.
Thus:-

	<u>1928-29.</u>	<u>1929-30.</u>
"Production" per acre of:-		
cattle.	£2:15: 8	£2:13: 1
sheep.	1: 4: 7	1: 1:10
pigs & livestock	4: 8	4: 6
produce.	4: 4:11	3:19: 5
Less cost of purchased feedingstuffs.	1:16: 0	1: 1: 4
Balance available for)	<u>2: 8:11</u>	<u>2:18: 1</u>
other expenses & profits.)		

The fall in money values of cattle and sheep "production" was due to smaller margins between buying and selling prices:-

	<u>1928-29.</u>	<u>1929-30.</u>
Average price of fat cattle sold.	£29:17: 2	£28:11: 3
" " store " bought.	19: 8: 4	19: 4:11
Margin between these.	<u>10: 8:10</u>	<u>9: 6: 4</u>
Average price of all sheep sold.	2:18: 4	2:18: 9
" " " " bought.	2: 1: 7	2: 6: 9
Margin between these.	<u>16: 9</u>	<u>12: 0</u>

The fall in cost of purchased feedingstuffs was accounted for by lower prices, and increased home-feeding of oats. It is thought/
* (iii) Figures comparing sales in 1928-29 and 1929-30 have been adjusted to allow for changes in the amounts carried over in the valuations.

/thought that the increased home-feeding of oats may have accounted for about 3s. per acre of the fall in feedingstuffs costs. If this amount is deducted from the balance arising on stock-feeding in 1929-30, £2:15: 1 per acre, against £2: 8: 11 in 1928-29, remains to meet expenses other than purchased feedingstuffs, and for profits.

- (d) Expenses. Expenditure (other than the cost of purchased foods already dealt with) fell from £11.10s.6d. per acre in 1928-29, to £10. 3s.10d. per acre in 1929-30, the decrease being spread over all the main items of expense.

II. COMPARISON OF FINANCIAL RESULTS OF FARMS OF EAST LOTHIAN TYPE.

This group of farms was the only one of three dealt with which was considered to include sufficient holdings to make profit comparisons of more than very doubtful validity. Even here, since only 10 farms have been studied for more than one year, conclusions must be regarded as somewhat tentative.

In 1929-30, 4 of the farms showed losses averaging £545 per farm (= £1.10s.5d. per acre) and 7 made profits averaging £494 per farm (= £1.7s.10d. per acre). The figures were examined to discover reasons for such a variation.

- (a) Relation between
intensiveness of
production and
profits.

It cannot be said that the data revealed any noticeable connection between the intensity of production and profits. Certainly, when adjustment had been made for varying maincrop potato prices, there was little difference between the "net production" per acre of the farms showing best, and those giving worst, financial results.

- (b) Relation between
marketing conditions
for maincrop potatoes
and profits.

The 7 farms showing profits sold maincrop potatoes for £18.8s.1d. per acre (after deducting purchased seed) against £10.18s.1d. on the 4 farms with losses. The difference is largely accounted for by the fact that prices fell steadily throughout the season. The highest prices were received by (i) farms selling early in the season (e.g. in the ground) and (ii) farms with a considerable proportion of the variety "Golden Wonder" grown on suitable soil. This variety maintained its price better than others. If the 4 farms sustaining losses had received the same price per acre for maincrop potatoes as did the 7 farms making profits, their average loss would have been reduced from £545 to £104 - still, however, a loss against a profit on the other holdings. Luck or judgment in forecasting markets after acreages under the crop had been decided upon was, apparently, insufficient to/

/to account for the wide variation in results. In this connection it may be worth mentioning that, if the 10 farms whose accounts were examined for both 1928-29 and 1929-30 had been grouped into a "most profitable 6" and a "least profitable 4" in each year, only 2 farms would have been grouped differently in the two years, and these are the two holdings which were, in 1929-30, nearest to the no-profit border line.

- (c) Relation between type of product and profits. (i) Proportion of land under first early and maincrop potatoes. It has been mentioned that farms concentrating on the first early potato crop have been excluded from the study. A number of general farms, however, grow a certain area of this crop. Having regard to market conditions for the 1929 potato crop it is not surprising to find that the farms with profits had a greater area of first earlies, and a smaller one of maincrops, than had the farms showing losses. Thus:-

	<u>7 farms with profits.</u>	<u>4 farms with losses.</u>
Percentage of farm area under first early potatoes.	3.5	1.0
maincrop do.	12.7	17.1

The 1928-29 (dealing with the 1928 crop) gave a similar result. In mentioning this it is, of course, not intended to imply that first early potatoes could necessarily have been grown successfully on much of the land planted with maincrop varieties.

It may be said that, even if maincrops had sold for the same price as first earlies in 1929-30, although the difference in results between the two sets of farms would have been greatly reduced, the 7 "profit" farms would still have had over £1 per acre more profit than had the 4 "loss" holdings.

- (ii) Type of grain produced. As with 1928-29, the more profitable farms had more barley and less wheat than had the less successful. This may be seasonal, but it has lasted for at least these two seasons. It is, of course, not suggested that the same land is equally suitable for wheat as for barley.

	<u>7 farms with profits.</u>	<u>4 farms with losses.</u>
Percentage of area under wheat.	8.3	12.2
" barley	17.1	10.3

- (iii) Type of livestock fed. As was the case with the low-ground Border farms the feeding of sheep does not appear to have been more profitable in 1929-30 than the feeding of/

/of cattle; farms with profits, and those showing losses, producing cattle and sheep in similar proportions.

	7 farms with profits.	4 farms with losses.
"Production" per acre		
of cattle.	£3: 3: 0	£2:18:10
" sheep.	14: 6	15: 4

In 1928-29, as was pointed out in the report for that year, sheep-feeding seemed to have paid better than cattle-feeding. Relative to cattle, sheep paid less well in 1929-30 than in 1928-29. Thus:-

	4 farms which were <u>more</u> profit- -able in 1929-30 than in 1928-29.	6 farms which were <u>less</u> profit- -able in 1929-30 than in 1928-29.
"Production" per acre		
of cattle.	£3:13: 7	£2:13: 9
" sheep.	6: 6	19: 5
	(only 1 of these farms had any considerable number of sheep).	(4 of these farms had a considerable number of sheep).

Notwithstanding other factors, there were only two exceptions to the general rule that farms of the East Lothian type which feed a considerable number of sheep did less well, and those feeding a small number or none did better, in 1929-30 than in 1928-29.

- (d) Relation between proportion of land under cultivation and labour costs and profits.

This aspect of the 1929-30 results is dealt with below.

III. SUBURBAN TYPE OF FARM.

The 5 farms of this type studied showed an average profit, in 1929-30, of £218, 4 holdings having a profit and 1 a loss. None of the figures were, however, very large. Similar results were, it will be remembered, obtained in 1928-29. Costs obtained from one farm indicated that, in this case at least, a considerable amount of the profit shown was accounted for by pigs.

IV. FARMS PRODUCING
A HIGH PROPORTION
OF LIVESTOCK.

The 6 farms included in this group were spread over a wide area. The chief reason for attempting an analysis of their results was to see if light could be thrown upon the problem of whether farms of the ordinary arable type would be more profitable if the proportion of grass were increased. It was stated on page (3) that these farms are not unlike the East Lothian type except that they have more grassland and a comparatively greater livestock production. In some instances this represents, in part at least, the deliberate policy of the farmer, who intends thereby to obtain greater profits. The 6 farms were not, however, in 1929-30, any more profitable than were the holdings with more arable land. It may be, of course, that these 6 farms would have been less profitable still had they had more arable land, but this is not known. Certainly they could not be called profitable. In 1929-30, 3 of them made profits (averaging 13s.9d. per acre), and 3 showed losses (of £2.11s.11d. per acre), the net result being a loss of 15s.11d. per acre. It should be mentioned, however, that the figures are thus because of an exceptionally heavy loss sustained by one farm. If this holding were omitted there would have been a minute average profit on the remaining 5 farms, but even so it could not be said for 1929-30, that the group gave higher profits than did the more arable East Lothian type of farms. It may be mentioned that some of these 6 farms, situated in the Edinburgh district, pay rents which presumably reflect an opportunity to sell roots and forage which is not taken advantage of if stock farming is carried on.

V. RELATION BETWEEN THE
PROPORTION OF LAND
UNDER ARABLE CULTIVATION
AND LABOUR COSTS.

The question most commonly asked concerning labour costs is not "how do my labour costs compare with those on other farms of similar type?" but "how do my labour costs compare with those on other farms of similar type which have the same proportion of arable land?" To answer this question, without expressing any opinion on its merits, a table has been prepared on the same lines as that issued in connection with the report on Border farms. It includes both the farms of the East Lothian type and the allied group producing a higher proportion of livestock:-

	Percentage of land under crops other than grass.	Cost of labour per acre of farm area.
2 farms with most arable land.	78.1	£6:16: 6
3 " next most "	75.0	4:12: 8
3 " " "	70.0	4: 6: 6
3 " " "	64.2	3:19:11
3 " " "	55.3	4: 1: 4
3 " least "	46.6	3:15: 1

The first figure is plainly, exceptional, both holdings being farmed very intensively.

The present report is the second of its series. The first appeared in May 1931, and dealt with Border farms. Anyone interested can obtain a copy of this on application.

The information given is presented in the hope that it will prove useful, or at least interesting, to farmers. The appreciation of the Economist is expressed for the assistance, given so readily by farmers and accountants, without which the study would be impossible.
