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EDINBURGH AND EAST OF SCOTLAND
COLLEGE OF AGRICULTURE.

Economic Advisory Work in the College Area

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Economic Advisory Work in the Edinburgh College Area.

THE College, in common with the other two Scottish Agricultural Colleges, is collaborating with the Department of Agriculture for Scotland in a programme of investigation into the economic position of agriculture through the study of the financial accounts of farms. The objects of this work are to place in the hands of the Colleges material on which to base an economic advisory service for the benefit of the farmers in their areas, and at the same time to permit the Department to assess with some accuracy the economic status of the various forms the industry takes, with a view to the consideration of agricultural policy.

As an advisory method, such work is in its infancy in this country. It is being developed extensively in the United States of America, particularly in Illinois, and has been used, to some extent, in our own country in the Bristol province.

CONDITIONS FOR SUCCESSFUL ADVISORY WORK BASED ON FINANCIAL ACCOUNTS.

In work of this kind the net of the economist must be cast widely over farms of the type studied. Successful farms must be included in order that the causes which lie behind their success may be determined. Unprofitable ones, where presumably advice is needed, must be sought out. Accordingly the larger the number of farms dealt with the more likely is success to be attained.

If the work is to be of the fullest possible special benefit to farmers co-operating, as distinct from any general advantage accruing to the farming community as a whole, it is implied that there should be a fairly large variation in profitableness between the different farms from which records are obtained. Further, supposing that the methods of analysis adopted are such as to bring the causes of this variation to light, it is postulated that the farming practice on the unsuccessful farms *can be changed* so as to bring it into accord with that seen to be more profitable elsewhere.

Lack of success in farming, at a time when other farmers succeed, may arise sometimes from causes which are directly

under the control of the farmer. In such cases it may be possible to effect improvement without any radical change in the farming policy. Thus a particular farm may be less profitable than others of the same class because its occupier uses labour or manures more intensively, or less intensively, than is found, from study of accounts of similar farms, to be most profitable.

On the other hand, the cause of the lower profitableness may be something less immediately under the farmer's control. For example, a farm may fail to show the success achieved by its neighbours because its soil is too light or too heavy, or because its exposure is unsuitable for the type of farming practised. It is reasonable to expect, of course, that, in so far as such differences are permanent, they will be taken account of in the rental, but there may be indicated an abandonment or modification of the farming system, and the introduction in its stead of some method of management found, from perusal of the accounts of those farms where natural conditions are similar, to be more suited to the conditions. Thus heavy land in an arable district, unprofitable under cultivation, may, perhaps with advantage, be laid down to grass.

SPECIAL CIRCUMSTANCES IN THE EDINBURGH COLLEGE AREA.

As has been indicated, success in advisory work based on the analysis and comparison of financial accounts, can be expected, in greatest measure, where there is a large number of farms whose natural conditions are comparable, a condition very much more in evidence in America than in this country. If the only condition required for success were the existence of a considerable variation in profitableness between farm and farm of the same general type, the lot of an economist in the Edinburgh College area would be a happy one, since the most outstanding point about the farm accounts studied hitherto, taken as a mass, has been the almost startling size of such variations.

From the agricultural standpoint, the area is remarkable in that its farm organisation approaches more closely to that obtaining in industry than is the case with agriculture generally. The farmer in the South-East of Scotland is very much more of an "entrepreneur" responsible for the organisation of an extensive business employing much capital and many workers, than is the "family farmer" typical of, for example, the West Country or the United States of America.

The great variation in natural conditions in the area, and the large size of the usual farm unit, made it likely that difficulty would arise in securing sufficiently large groups of comparable farms. Accordingly it was decided to study,

at the outset, particular types of farming which were really important, in point of numbers, in the area.

As might be expected, it was found that systems of agriculture tend to be associated with certain conditions as regards, for example, location, climate, or soil, but it was noticed that the systems practised "cut across" these boundaries in unexpected ways. For instance, the type of Border farming considered in the first study, although apparently more suited to light or medium soil than to heavy land, is followed, in some cases, on heavy farms in the district where it is best known. On the other hand, the farming system being dealt with next, the six-course arable farm, commonly associated with East Lothian, is by no means universal there, and is found on suitable soils in Fife, Perth, and Angus.

THE FIRST GROUP OF FARMS STUDIED.

General Character of the Farms.

The first type of farming studied has been that carried on on a number of arable sheep farms, at comparatively low elevations, in the Border counties of Berwick and Roxburgh. The stocking centres round a ewe flock, generally "Half-bred," kept for lamb breeding. The flock is maintained commonly by buying in ewe lambs, but sometimes, to permit of a larger number of ewes being carried, gimmers are purchased. Suffolk tups are used on the gimmers, Oxfords usually on the older ewes. The ewes leave the farm, typically it would seem, as three-crop draft ewes (occasionally as four-crop drafts). A number of farms, in Berwickshire mainly, sell the ewes off fat at the fourth crop. The lambs are sold "store" or "fat" in varying proportions. In Roxburghshire apparently more of the lambs go as stores, in Berwickshire many of the farms send the whole crop away fat. The farms studied were not "early lamb" selling farms, the early lamb trade being carried on on higher-rented land than that of most of the farms included in the group dealt with.

Cattle are required to keep the grass sweet for the sheep, and to break down the straw into dung. They were found on all farms in the group. There may be a breeding herd, and, in fact, on lighter-rented land store-breeding may be carried on, but on the better class of land stores are commonly bought in, being sold fat off the grass or from courts. Cattle are, however, subsidiary to sheep in the farming economy, and the cattle policy varies. Neither pigs nor poultry are important.

The typical rotation on farms included in the group is a five-course one—(1) oats; (2) roots; (3) oats, barley, or wheat; (4) grass; (5) grass. The grass may be left longer

on the higher land, whilst the four-course rotation, with one year's grass, characteristic of a group of farms at higher rentals than those referred to here, may be followed on a proportion of the best soil. The rotation is, of course, not always a fixed one, and there is a tendency to leave the grass down longer than hitherto. All the farms include some permanent grass, although the proportion varies.

Excluding grass, oats, in area, forms the chief crop, but, owing to the quantity of grain fed, barley was the most important sale crop in the year under review. Some wheat is grown, and followed oats in importance as a sale crop, but wheat was not grown on all the farms. The "root break" is principally turnips and swedes, for cattle and sheep feeding, but potatoes may be fairly important. Sales of fodder are inconsiderable. On some of the farms the area available for grazing is increased by taking fields elsewhere.

Financial accounts, referring to the year 1928-29, in respect of a number of farms of this general type, were analysed. On consideration, nine of the farms were grouped together and average figures calculated. It is not suggested that this number is sufficient for the purpose in mind, and it is intended to increase the number considerably in future years. It may be mentioned that the average elevation given for the farms included ranged from 200 to 600 feet, and that the rentals varied from 24s. to 28s. per acre.

The comparatively large size of the farming unit is illustrated by the fact that the average area of the farms was 524 acres, and the average valuation of farm assets (stock on hand, implements, crops, and other tenant's property) was £6951. Twelve workers per farm, other than the farmer himself, found full-time employment.

The sales figures bring out the extent of the dependence of the farming system on livestock. Sheep sold accounted for 38·9 per cent; cattle, 34 per cent; and wool, hides, &c., a further 4·5 per cent of the total receipts. If adjustments are made for amounts carried forward in the valuations, and the cost of purchased livestock is deducted, the proportion of the whole "output" of the farm represented by these items becomes—sheep, 41·2 per cent; cattle, 23·6 per cent; wool, hides, &c., 6·9 per cent.

Variation in Profitableness of the Farms.

The farms showed very great variation in profitableness. Losses made on the unprofitable farms roughly cancelled out the profits arising on the remainder. The "average profit" was £8. 18s. 6½d. per 100 acres, this figure being the residue when losses amounting to £47. 9s. 8½d. per 100 acres of the whole area of the group were deducted from profits, made, of course, wholly on those farms whose accounts

showed profits of £56. 8s. 3d. Here, it would seem, is scope for economic advisory work, although it is necessary to exercise care in interpreting the results of a single season, which may be expected to affect very differently the various classes of soil.

A report was prepared, for farmers co-operating, comparing in detail for their own farms and for the group as a whole, expenses and income per 100 acres, crop acreages, stocking, labour employed, prices of stock and produce bought and sold, and "output." The "output," it may be mentioned, was taken to mean the sales adjusted for differences in the amounts carried forward in the valuations, and deducting purchases of live-stock but not cost of feeding-stuffs, seeds, or manures. Owing to the great variations in the amounts carried over from year to year, the "output" figures gave a more satisfactory basis for comparison than did the actual sales.

A trial calculation was made, deducting from the "output" of livestock and livestock products the expenses undoubtedly incurred in producing this output—*i.e.*, the cost of purchased feeding-stuffs and similar expenses. There was thus obtained a figure for each farm representing the direct contribution of the livestock to farming profits.

Similarly the expenses incurred wholly or mainly on account of crop production — cost of manures and seeds, power, implements, and horse costs—were substracted from the "output" of crops. In view, however, of the fact that a very large part of these expenses were incurred on account of the production of crops which did not find their way into the "output," being consumed on the farm (for example, the turnip crop), this latter process was abandoned in respect of the particular group of farms under discussion.

Causes of the Variation in Results.

With the object of determining wherein the success of the successful farms lay, the accounts were examined in detail to trace a possible connection between profits and any relevant factors.

The first noteworthy fact was that the total "output" of the farms did not appear to have any direct relation to profitableness. The total "output" ranged from £444 to £887 per 100 acres, with an average of £745, and, so far as could be seen, farms with a high total "output"—*i.e.*, farms whose production for sale was above the average, did not appear to be any more likely to be profitable than the reverse. Apparently, for what figures for a single season from nine farms are worth, "high farming" as such—*i.e.*, high production regardless of what is produced and of costs incurred, "is no remedy for low prices."

The "output" of sheep—*i.e.*, sales, less purchases and adjusted for changes in the valuations, was found to be directly associated with profitableness. Profits showed a steady rise with increased "output" of sheep. In fact, so close was this relation that one farmer whose method of valuation had affected the profit figure brought out by his accounts, was picked out by the fact that his farm alone showed a notable departure from the relationship between sheep "output" and profitableness.

There seemed little direct connection between "output" of cattle and profits. The most profitable four farms had a higher cattle "output" than had the least profitable four, but the difference was negligible. High feeding-stuffs costs were seen to accompany a high "output" of cattle, and apparently, in the year under review, absorbed the extra return resulting from the sale of the cattle, a point well brought out when feeding-stuffs costs and similar expenses were deducted from the stock "output."

A similar position arose in regard to crop "output." Farms with a high "output" of crops showed high costs for manures and implements, and even production per acre of saleable crops showed little connection with profitableness. It appears that for the season 1928-29, and at prices ruling then, the amount received for sale crops did not compensate for the expenditure on manures, implements, &c., necessitated.

It may be mentioned that labour costs, notwithstanding such a large difference in the "output" of individual farms, were comparatively stable. On the whole, they seemed lower on the more profitable farms, but as such farms were those concentrating on sheep to a greater extent, this was perhaps only to be expected. On the other hand, implement costs, and especially general expenses, showed wide variation.

A single year is not, of course, sufficient time to permit of conclusions other than ones entirely tentative being reached. The cropping season of 1928 (the year most affecting the accounts) was, for example, definitely unfavourable on some of the heavy land, and yields suffered. When farms described as "light" or "medium" were classified separately from those on "heavy" land, the former seemed more profitable. This result is, perhaps, not unexpected in a farming system so dependent upon sheep, but if there were any permanent difference of this kind it ought to be taken into account in the rental. Experience in future years, and with other types of farms, should tell us more about the matters discussed, and about others upon which it is sought to throw light.

Farmers, it may be mentioned in conclusion, have in all districts readily given access to financial and other records kept by them, and, in some cases especially, have gone to a good deal of trouble to supply the information desired.

ADVISORY WORK.

The College arranges for advice and assistance to be given by the staff to farmers in the Associated Counties as follows :—

As far as possible, questions will be answered and advice given on any points of doubt that may arise in agricultural practice relating to the tillage of the soil, the manuring and general treatment of crops, the breeding and feeding of livestock, and the management of the dairy.

Members of the Staff will be prepared, when desired, to visit farms to inquire into and report upon such matters as the failure of crops from disease or other causes, deterioration of pastures, the handling of milk, and the manufacture of butter and cheese.

A farm economics advisory service, based on the analysis and comparison of financial accounts, is available.

Plants may be sent to the College to be identified and reported upon as to their agricultural value. The Staff will advise farmers as to the best means of getting rid of different kinds of weeds.

Outbreaks of insects pest on crops, trees, bushes, or livestock will be promptly investigated and reported upon. Specimens of the insects causing the pests may be sent to the College for identification, and advice will be given as to remedial measures to be adopted.

Farmers desiring to conduct experiments are invited to consult the Staff of the College, not only regarding the plan of the experiments but also as to the manures and seeds to be used. For the purpose of such experiments farmers may have manures analysed and seeds tested and reported upon at specially low rates.

The College does not undertake ordinary commercial analysis, but under special conditions examinations may be made and reports issued on soils and manures, feeding-stuffs, milk, and other dairy produce. Agricultural seeds may also be examined and reported upon. On application a leaflet will be sent, giving instructions for taking samples, and indicating the terms and conditions on which this work is undertaken.