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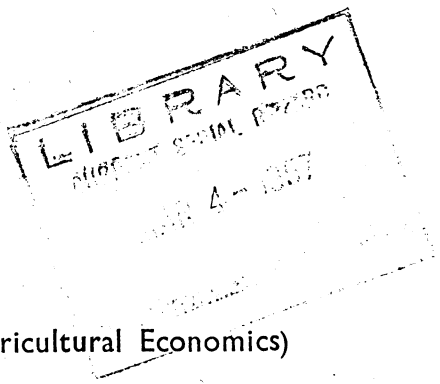
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# THE INDIAN JOURNAL OF AGRICULTURAL ECONOMICS

(Organ of the Indian Society of Agricultural Economics)

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## GLEANINGS

### ALTERNATIVE METHODS IN FARM MANAGEMENT ANALYSIS\*

For the purpose of analysis, farm management is considered to encompass the micro aspects of production economics. Functionally, farm management is concerned with (1) the derivation of market relationships as they affect the firm, (2) determining production relationships, (3) bringing (1) and (2) together according to the principles of rational choice and (4) the physical application of technical knowledge. It is considered here how well do the alternative methods of farm management analysis meet the responsibility of solving farm management problems. The problem of resource allocation and administration will have to consider the physical (technical), economic and institutional factors. Major lines of approach or methods available in farm management analysis are (1) factors affecting farm profits, (2) the general production function and (3) the budget approach.

The evolved form of the method which enquires into factors affecting farm profits usually employs tabular analysis with stratifications by various items assumed to be causal in nature with calculations made for the average of some other item assumed to be independent. Less frequently, correlation analysis is also used. The method is not particularly well adapted to testing the economic desirability of new techniques until they are fairly well established since it relies on either survey records or farm accounts as a source of data. In many cases, the samples used have not been entirely satisfactory. The lack of the application of rigorous production logic before computations and determination of relationships is begun, is its greatest weakness. However, all aspects of this method are not unfavourable. The procedure is simple and it has made great contributions in farm management analysis toward exploring and determining which variables are associated with farm profit. In addition, the process of collecting the data provides an important contact with individual farmers and, as well, provides an important educational process for the interviewer. This contact directly with the practical problems faced by the farmer, together with the later analysis, is of high value in providing a basis for re-emphasis in the direction of research.

The application of the general farm production function is based on production theory. The prime objective of general production function which is a logical development of multiple correlation analysis, is to determine the earning capacity of individual resources. In this method, concern is centred upon the output response from changing quantities and ratios of input factors and is not concerned with the degree of association between, say, profits and some input and output ratio, as is often the case with correlation analysis. The method is still exploratory. Although it does derive individual productivities and the general level of earning capacity of broad groups of resources, it does not explain why differences in earning capacity exist nor does it explain what techniques to use to obtain adjustments in the directions indicated. The Cobb-Douglas type function has been used as the algebraic form of the equation for most of the production functions. Though it is not an "ideal function" it exhibits many properties which make it very useful for studies of this type. Its usefulness in the approach to pro-

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\**Canadian Journal of Agricultural Economics*, Vol. III, No. 1, 1955. "Alternative Methods in Farm Management Analysis" by H. R. Shaw and P.A. Wright.

blems of optimum resource utilization consists in providing an estimate of the general level of productivity of agriculture by geographic areas or type of farming areas and to study the nature of returns to scale. If care is taken in interpretation, the function may be used also to provide a reasonable estimate of the productivity of individual resources in an area, to detect general misallocation of resources and to determine the direction of adjustment required in the long run to improve the level of economic efficiency in the area by resource allocation. The results of such analysis are probably most useful in comparisons of productivity of individual resources for the area as a whole and for between area comparison.

The budget method of farm management analysis attempts to anticipate cost and returns in several possible alternative lines of action with a view to selecting the one which yields the greatest satisfaction to the farm operator. Realistic budgeting tries to determine the accuracy of farmers' expectations and reduces the error component of their expectation function. The four major functional groups or areas of study which derive these production relationships are (1) Crop yield response to fertilizer and the fertilizer-rotation complex in crop production, (2) machinery-labour substitution and requirements in crop production, (3) output-feed relationships in livestock production, and (4) the equipment-labour-building complex in livestock production. These four groups provide the basis for treating agricultural production on a technical-unit basis.

The problems connected with each of these areas of study may be different according to regions of the country because of differences in soil types, rainfall, location with respect to markets, etc. In any event, emphasis would be placed on capital-labour substitutions and the economics of scale. Even though the problems in these groups are reasonably independent of each other they still must be brought together and integrated into a consistent farm plan with recognition of existing quantities of factors and other resource limitations. With this data optimum combinations might also be found by linear programming or the simultaneous equation approach. The advantage of having information by these groups separately is that innovations and price changes usually affect only a single area directly. This will improve the confidence of farmers in their own estimates. Such segmentation brings problems down to workable sizes, not only for the research worker but for application by the extension services. Certain of the relationships also have a very much wider application than others. Much of the value of this form of information is in establishing research methods so that data is comparable, not only between products but between areas. The chief advantage of this approach is that with the physical data available in marginal form the best alternatives can be easily reselected by applying the new prices as the market situation shifts. But lack of fully developed methods for deriving certain types of the necessary information specified for production theory, lack of trained personnel and the normal resistance to the adoption of new techniques constitute its drawbacks. There is also a serious lack of adequate experiments and other satisfactory sources of accurate physical data.

It is desirable to consider, in view of the continually increasing effect of dynamic factors on agricultural production and the increasing rate of innovations and changes in techniques, the most efficient means and organization of research to co-ordinate efforts to provide a research product in farm management of a more flexible nature.

### THE EFFECT OF LANDLORD-TENANT RELATIONSHIP ON CONSERVATION FARMING\*

Although the Governments of the United States and Canada have consistently followed a policy to promote farm-operator ownership, the importance of tenancy has continued to grow. It has followed an upward trend, punctuated at intervals by temporary declines. In the United States, the percentage of full tenant farms increased slightly from 35.3 per cent in 1900 to 42.4 per cent in 1930 but declined to 26.8 per cent in 1950. In Canada the proportion of farms operated by straight tenants increased from 8.6 in 1900 to 12.9 in 1940 but dropped back to 7.2 per cent in 1951. While this is so, the most important change in the current land tenure pattern has been in the part-owner part-tenant group. In the United States, part-owner farmers increased by 34 per cent during 1940 and 1950, and accounted for 15 per cent of all farms in 1950. In Canada, part-owner farmers followed a similar trend. While the size of fully-owned farms in the U.S. did not change materially and averaged about 135.6 acres in 1950, partly-owned farms and tenant farms more than doubled in the same period and averaged 506 acres and 146.8 acres respectively.

The growth of tenancy and the uncertainty in the period of tenure in the U.S. and Canada have tended to affect farming efficiency adversely. A tenant whose period of occupancy is short, cannot plan as far into the future as an owner in making investments, in starting new enterprises or in adopting improved practices. Again, the type of rent paid affects production on rented farms. The risk in connection with a possible lowering of prices and yields during the production period has to be borne by a cash tenant. As a result, a cash tenant usually prefers short-term low-risk enterprises for his farm, and selects farms with a lower annual rents in order to keep their fixed commitment to a minimum. This tends to create a rental premium for farms of small size and lower productivity in terms of the income which they may be expected to produce. From the standpoint of an optimum combination of resources there is a tendency for cash tenants to apply large amounts of labour relative to land and mobile capital. In the case of share rented farms, the efficiency in the use of resources may be influenced by the manner in which costs and returns are shared.

The prevailing system of tenancy has long been held generally responsible for much of the difference between actual practices in soil use and practices that would further long-term national interest. Certain studies on the effects of rental arrangements on conservation farming in Iowa, revealed that on farms operated by tenants who were not related to the landlord, the degree of erosion was much more serious, while conservation practices on the farms of tenants who were related to the landlord did not differ greatly from owner-operated farms. Farms operated under a crop-share lease had fewer livestock and a higher percentage of their land was in soil depleting crops than farms under a livestock share lease. This meant that soil resources were most seriously exploited under the crop share than under the stock-share lease. Another study revealed that in Iowa, share renters followed a cropping pattern which was not conducive to soil conservation. A tenant farmer who has no stability of tenure or who himself is ready to move to another farm at

\* *The Economic, Annalist*, Vol. XXVI, No. 2, April 1956. "Land-lord-Tenant Relationships and Effects on Conservation Farming" by S. C. Hudson.

any given opportunity, naturally has a different attitude towards the soil than the owner-farmer. Soil conserving practices may not greatly affect the immediate income of the user of the land, but they are of vital concern to future generations. By contrast, in England and Wales 65 per cent of the agricultural holdings are occupied by tenants. One of the features of tenancy in England is stability of tenure, which was accomplished by a series of Agricultural Holdings Acts. These Acts lessened the powers of landlords as to provisions in tenancy agreements, and tenancy is not a factor contributing to problems in conservation farming. It is essential that obstacles to the optimum use of resources from the standpoint of long-term returns should be removed from landlord-tenant agreements.

The conclusion is that under present conditions, tenancy in the United States and Canada is not conducive to conservation farming. As a result of the increasing capital investment required to establish a farm business of economic size, the partnership of the private and corporate investor as landlord on a risk-sharing basis with the farm operator as tenant will become even more important in the future than it has been in the past. An essential step towards making farm tenancy in the U.S. and Canada profitable, stable and respectable lies in the adaptation of those legislative measures which have been found useful as a result of centuries of experience in tenancy in England and other countries.

#### CREDIT FOR AGRICULTURAL LAND PURCHASE IN ENGLAND AND WALES\*

The re-emergence of owner-occupation, which showed an increase of 24 per cent during the first half of the present century, as an important tenorial from in the agriculture of England and Wales has highlighted the question of the provision of capital for land purchase. The owner-farmer and the tenant-farmer who buys his holding have to solve two types of credit problems. Under owner-occupancy, the problem of credit for land purchase arises because the function of providing fixed as well as working capital is vested in the owner-farmer. The size of the problem for the individual farmer may be seen from the high proportion of the total capital, viz., 60 to 75 per cent invested in the holding which must be found by the land-owner. In the case of a tenant-farmer who decides to purchase his holding, part of the finance is found in his capital items. When he becomes an owner, the additional funds required to pay the purchase price are provided either by his own resources or by borrowing. The concern here is when his own resources are insufficient, who will provide the additional funds for land purchase and how the new owner-farmer repays the borrowed amount?

The main form of land purchase credit available in England, is mortgage. In the case of a tenant-farmer buying his farm, sources of borrowing are relatively easy provided his own resources are sufficient to finance upto one-third of the purchase price. The difficulty in the repayment of the loan is mortgage instalments do not vary with agricultural prosperity nor are they subject to postponement or remission in bad years. This is a serious matter for the farmer as farm incomes

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\* *The Farm Economist*, Vol. VIII., No. 3, 1955. "Credit for Agricultural Land Purchase in England and Wales" by S. G. Sturmev.



cannot be estimated for a period ahead owing to hazards of weather. In periods of falling incomes, the farmer, will have to choose between the alternations of defaulting on his payments and losing his farm or using working capital to maintain his debt payments. The latter course will lead to a depreciation of the holdings and its future earning power. To a certain extent, uncertainty in farm incomes is minimised by price fixation, whereby compensation may be granted in the form of slightly higher prices in a subsequent year, if the previous year was one of low income. This method, however, does not solve the problem of the indebted farmer as default in one year can lead to fore-closure on the mortgage. The solution of this problem is to be sought in the farming system itself. The farmer whose income has fallen should change his production pattern in agriculture.

The credit problem of the tenant-farmer who becomes an owner-occupier is predominantly one of possible over-indebtedness. The problem of fixed annual repayments and fluctuating incomes of the tenant-farmer would disappear, if he could obtain a loan without having to make any contract respecting annual repayments.

In respect of new entrants to agriculture, the credit problem is twofold : (1) the problem of borrowing sufficient to buy land at a price of about double that of tenanted land ; (2) the problem of the relation between fixed annual instalments and fluctuating incomes. The nearer a solution to the first problem of getting credit, more serious does repayment become.

In England and Wales credit for land purchase is provided by the Agricultural Mortgage Corporation Ltd., set up in 1928, to make first mortgage loans of up to two-thirds of the valuation of agricultural land for periods not exceeding sixty years. The Corporation was an immediate success. By 31st March 1955, the Corporation had loaned over £44 million on mortgage of which over £25 million was outstanding.

In the initial stages of its development, majority of applications for loans were for repaying existing indebtedness, 60 per cent of the business transacted being of this nature. Applications for loans have to go through a branch of a share holding bank. For this reason, the attitude of the banks towards long-term agricultural loans is crucial to the Corporation. In periods where loans were called in by the banks, the Corporation experienced an increase in activity.

However, it is felt that despite a fundamental change in the fortunes of the Corporation since its inception, it has not succeeded in establishing itself as the dominant lender for land purchase. This is due to its high interest rate policy. Judged in terms of the Agricultural Credits Act, 1928, the performance of the Corporation is a failure ; but as lender of last resort, it is a success. The sad performance of the Corporation in terms of the Act of 1928, is due to the fact that mortgage credit is not the most satisfactory credit for farm land purchase since the mortgage system discriminates between farming types and encourages a concentration on less capital-intensive types of farming. Secondly, the lending limit of two-thirds while appropriate with some farms, is inappropriate with others. The comparative rigid policy of the Corporation does not go even part way towards finding a solution to the credit problem of the new entrant to farming. The in-

flexibility of the repayment terms is its main drawback. Two other defects in the present working of the Corporation relate to (1) the system of using branch offices of the share-holding banks for loan applications which makes the Corporation remote from farmers ; (2) the Corporation indulges in a negligible amount of publicity, and many farmers unaware of its existence resort to alternative unsatisfactory sources of credit.

With the continuing increase in owner-occupation, with the demand from farmers and landlords for credit for permanent improvements the need for an agricultural credit institution has rarely been greater. Despite its weaknesses, the Corporation represents the main approach to a solution of the credit problems of owner-farmers.

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