Management techniques and their application on the farm

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AT the outset one must recognise that the application of business management to farming is not of recent origin. Over the years the success of many outstanding individuals has been due to their expertise in this sphere. In general, however, farmers have tended to concentrate on the husbandry and technical aspects of farming, and it is only recently that increasing economic pressures have compelled greater attention to business management.

This is understandable when one considers the recent history of agricultural development. Initially farming was an art in which the success of the individual was largely dependent on his ability as a husbandman. More recently this art has been explained and widened in scope by agricultural technology. This technical revolution has had a dramatic effect upon the industry. Vast production increases have been achieved, while manpower has been halved, and as systems become more intensive and complex, agriculture has become a capital intensive industry and is thus more vulnerable to increasing economic pressures. Today, the continuing escalation of costs and declining Government support suggest that future success will increasingly depend on the managerial and commercial expertise of the farmer, although sound husbandry and technical competence will remain important.

The basic aims of the farmer in employing such techniques can be summarised as follows:—

1. To understand the farm business more fully and intimately
2. To make decisions logically
3. To control the business more effectively.

Business management techniques which have been developed with such aims in mind can be considered in the following categories:

(a) Assessment of efficiency

(b) Planning

(c) Implementation of policy.

In this paper we will discuss the factors which limit application of industrial management to agriculture, the application of those techniques from which we are deriving benefit on our farms in Sussex, and we shall attempt to specify the future management needs of the industry and suggest how these needs can be fulfilled.

Particular problems of applying business management to agriculture

Before detailed consideration of these techniques, it is necessary to appreciate the particular problems of agriculture as these have close bearing on the acceptance and practice of the techniques.

1. Small size of farm business

Half the farms in this country are one man units and three-quarters employ two men or less. In the majority of cases, therefore, the farmer is primarily occupied with physical work and has a relatively small proportion of his time available for management. With a heavy burden of operative duties, the majority have little time, ability, and scope for sophisticated business management techniques. It is essential, therefore, that if their management is to be effective, the techniques should be of a simple nature. There is, however, need for more sophisticated management practices to maintain effective control of the larger and more complex farm businesses.

2. Inflexibility of many farming systems

Capital in agriculture tends to be committed for long periods, thus it is difficult to maintain fluidity of capital, and to effect change once committed to a particular course of action. Physical considerations of soil and climate also limit the number of enterprise alternatives, leaving the farmer to strive for maximum productivity from a small number of inflexible enterprises.

3. Slow turnover of working capital

In industry, and in the retail business, profit can often be maximised by rapid turnover at minimum margins. This is not so in farming, where turnover is slow and the margin cycle must be maximised.

4. Limited control over inputs and outputs

There is always a high proportion of constant expenditure over which no control can be effected. Many fixed cost items, such as labour and machinery, can only be partly or very marginally controlled by management. For example small labour forces are indivisible. Many costs are inevitable once the system of production has been established.

The controlled margin of costs, therefore, needs to be very closely watched because herein may lie the difference between profit and loss. In the intensive livestock enterprise, for instance, the level of feed economy is the most important variable cost factor in determining profit.

Business management techniques

In examining these techniques we will consider both their broad application and our experience in their practical use, grouping them under the headings of assessment of efficiency from past results, planning and budgeting, and the implementation of policy.

The principal drawback of these techniques for assessment of efficiency from past results is that they are based on past performance. However, they are valuable in indicating strengths and weaknesses of a business and supply useful data upon which plans and budgets can be formulated. While they reveal weaknesses too late for remedial action, they form a valuable means of appraising capital utilisation.

These techniques are considered under the following headings:—Analysis of trading accounts, covering (i) comparative farm account analysis, (ii) cost accounting, (iii) gross margin accounting; and short term spot-checks.

Analysis of trading accounts

These are essentially diagnostic techniques and their value is dependent on the recognition and understanding of their individual limitations.

(i) **Comparative farm account analysis.** This is of particular value in showing the outline characteristics of the business by comparing total outputs and inputs on an acreage basis, and by the use of comparative efficiency factors. While indicating the fundamental problems of the business its use is limited by the inability to reveal the relative profitability of the component enterprises.

(ii) **Cost accounting.** This ought to be the complete answer, but unfortunately it is not, for although output and variable costs can be allocated to each enterprise, there is little basis for accurately apportioning the remaining two-thirds of total costs (i.e. the fixed costs) to the individual enterprises. Final enterprise margins are so dependent on the allocation of fixed costs that they are little better than guess work, and can therefore be only of limited use as a basis for management decisions. We are not currently using this technique, as we are very sceptical of any results achieved and regard it as too costly to operate in practice.

(iii) **Gross margin analysis.** The gross margin of an enterprise can at least be accurately calculated, provided that the essential basic records have been properly kept. It is of value in planning and budgeting, provided that it is not regarded as a measure of profit, and that the method of calculation is fully understood. It is essential that the individual enterprise gross margins should reconcile with the trading account. It is all too easy to make these calculations in isolation, but the results are never reliable until proved.

The gross margin should not be considered in isolation, but as a combination of the controllable factors of production; its interpretation should be related to detailed consideration of these individual factors. It must also be interpreted in relation to the total farm business, recognising the dangers of examining enterprise gross margins alongside fixed costs per acre, and using them as a basis for budgeting without appreciating the implications of change upon the fixed cost structure.

Short term spot-checks

Calculation of efficiency factors on a short term basis can give a useful indication of the current and immediately past performance of enterprises, particularly those concerning livestock. Long term effects of valuation changes, depreciation, etc., must be ignored for these purposes, and one is primarily concerned with the ratios of output to controllable costs. Such factors as margin of milk sales over concentrates and cost per pound liveweight gain can be easily calculated on a short term basis, but once again great care needs to be used in interpreting such factors, since the short term costed period is only a small part of a long production cycle. There is always a danger of not seeing the 'wood for the trees' when basing management decisions on a very close focus examination, as the overall aims and perspective of the operation can easily be lost.

e.g. Margin/Concs. in early autumn
Cost/lb. LWG store cattle

Once the policy is agreed, efficiency of production and the control of variable costs will be the major factors controllable by management. Spot checks indicate the efficiency of this control and enable immediate remedial action to be taken when productivity becomes inefficient.

The value and effect of the spot-checks are greatly enhanced if allied to long-term projection of anticipated performance.

Planning and budgeting

These are methods of assessing the financial effects of future policies. No plan, however well conceived, can be regarded as permanent in a changing environment and frequent modification is often required to maximise margins and make best use of all resources.

(a) **Complete budgeting.** A complete budget, based on a forward prediction of income and expenditure over a future period, not only enables credit planning to be more effective, but also gives a useful indication

of future profitability and the effect of cost and price changes upon net farm income. At Lee Farm a complete budget is formed annually and used as a basis for budgetary control.

(b) **Partial budgeting.** Where the need for policy changes are indicated, their financial effects are most suitably assessed by the use of a partial budget.

(c) **Linear programming.** A highly sophisticated form of complete budget involving the use of a computer which is designed primarily to show the optimum combination of enterprises to obtain maximum return from any given combination of resources.

Implementation of policy

Having decided upon a course of action, it is now necessary to implement the plan efficiently. Successful implementation of policy involves the following phases:—

(i) Record

(ii) Analyse and compare with plan

(iii) Account for divergence from plan

(iv) Take necessary remedial action

(v) Check remedial action has been effective.

(i) **Record.** An accurate and up-to-date set of records is essential for all stages of analysis and control. These need to be kept to a minimum and concern only those items which can be controlled by management. Stock numbers and all items of output and variable costs must be carefully recorded, allocated to their appropriate enterprises, and accurately reconciled with purchases, sales and valuations. Where fixed costs items (e.g. machinery) are a particular problem, detailed recording and analysis of expenditure may prove invaluable in spotlighting areas of excessive expenditure.

A well designed physical recording scheme should be so arranged as to enable unskilled clerical staff to prepare and produce management data at the right time. It is essential that all stocks are counted and checked at weekly intervals or even more frequently where necessary, so that accurate allocations can be made. Having stated this, one must also recognise that there is no virtue in recording for its own sake; the information recorded must be used efficiently by management.

(ii) **Analyse and compare with plan.** This can be considered in four forms:—

(a) **Budgetary control of whole business.** This shows how the entire business is measuring up to plan, but it is of limited value in the short term due to the problem of checking creditors and debtors at the end of the month. In practice it is always a month out of date and does not therefore give timely indication of increases.

(b) **Budgetary control of separate enterprises as part of a total plan.** A forward plan of output and allocated expenses for each enterprise can be prepared in great detail in advance (e.g. ICI Dairymaid projections). As no interval is necessary for clearing accounts this can give excellent end of month check on performance and reveal detrimental trends in time for early remedial action to be taken.

(c) **Use of very simple factors based on fundamental productivity ratios within enterprises.** This should be identified in advance as key factors affecting profit, and appropriate targets set. These can then be checked in the very short term, i.e. weekly or even daily, and if properly assessed can be of immense value in enabling quick remedial action to be taken.

e.g. lb. concentrates fed per gallon produced.
% cows in milk.
gallons per cow in milk.
daily liveweight gain at constant feed input.

When viewed in isolation, some of these factors can be misleading; hence the need for their interpretation to be based on the objectives built into an overall long term plan.

(d) **Fixed cost checks.** As fixed costs generally account for two-thirds of total inputs, and since many of these items are anything but fixed, more attention needs to be directed towards analysing and checking the main fixed cost items.

e.g. Where machinery costs are escalating, the various component costs of repairs, tyre replacement, etc. should be analysed and allocated to the individual machines. Such items may be difficult to isolate and treat objectively, but where this is possible they may indicate opportunities for economies to be effected

e.g. hardfacing of plough shares to extend working life,
purchase of less expensive welding rods without sacrifice of job quality.

These costs must be kept under constant review so that excessive increases can be identified and control ling action taken wherever possible.

(iii) **Account for divergence from plan.** All factors responsible for any divergence from the overall plan must be identified so that appropriate remedial action can be taken.

(iv) **Take necessary remedial action.** Having decided upon the most effective remedial action, it is of fundamental importance that this is communicated clearly to all concerned with its implementation.

(v) **Check that remedial action has been effective.** It is very necessary to ensure that the objective has been achieved, and if not, then further investigation is necessary to identify the reasons for failure.

Practical application

Since the need for greater appreciation of business management techniques in farming has been recognised, a number of organisations with vested interests have tried, with varying degrees of success, to produce various business management services for the farmer. e.g. MAFF, NAAS, MMB, BRA, PIDA, MLC, manufacturers of feeds, fertilisers, sprays, etc., private consultants, secretarial agencies, etc.

The U.K. Government's Farm Business Recording scheme 1965 offered £100 per year for three years to encourage farmers to keep satisfactory records, and in turn accelerated the interest of independent organisations, all anxious to exploit this financial aid. Unfortunately, many of these concerns failed to be of any real assistance to the farmer, for the following reasons:—

1. Basic information of input-output data was frequently incomplete due to insufficient attention being paid to initial recording and reconciliation of stocks and accounts.
2. The work was frequently carried out by personnel with little or no formal training in farm management or in accountancy, usually by husbandry technicians graded up for the job. e.g. NAAS, LCP.
3. Basic pro-forma for providing efficiency measures from trading accounts were in some cases hopelessly inadequate. e.g. MAFF MA4.
4. Lack of agreement on specific management terminology makes interpretations of management data very difficult. e.g. With net farm income and management investment income, interest charges may or may not be included, similarly gross output may or may not include livestock replacement, and there is virtually no limit to the number of combinations used in the calculation of the percentage return on capital. These terms need to be standardised immediately.
5. Unsuitable presentation of farm trading accounts by accountants having no real understanding of agricultural management and its problems.

Future developments

Undoubtedly more attention will have to be given to the development of better techniques for examining and controlling those items of fixed costs that can be affected by management, particularly labour and machinery costs.

In general greater use will be made of mechanised accounting services to remove the drudgery involved in programming and maintaining effective budgetary control. With changes in the National Agricultural Advisory Services, there is now enormous scope for private farm management consultants, who can provide a costing and accounting service, and stimulate a more objective approach to individual management by offering facility for discussion with a third party not directly involved in the farm. Anyone entering this field, however, will need to offer a better service than has been provided to date by either the Ministry or the commercial firms. If he can develop a first class service giving accurate control from basic recording to providing properly reconciled enterprise accounts, together with complete budgetary control system and programmed monthly recording targets, and then be able to interpret the results and discuss them intelligently with the farmer—he will be assured of success!

MANAGEMENT TECHNIQUES

DISCUSSION SUMMARY

1. Mr. D. G. Watson (New Zealand), opening the discussion, made two main comments. The paper gave an exposition of why farmers and managers in the past have been successful but had not said what the successful manager of the future might be doing. In addition, too much emphasis had been given to money and not enough to man. Management was concerned with men, money, materials and machinery. Besides the techniques discussed, there were other vital aspects of management—delegation was essential and management of time should receive more attention.. The need for delegation was re-emphasised later in the discussion; without it a manager would have a frustrated staff and no time to consider management techniques.

2. Many speakers from the floor were critical of the apparently sweeping condemnations, towards the end of the paper, of all agencies providing business management services for farmers in the UK. The review of management techniques was felt to be dated, not recognising developments made in the past 15 years, and it was argued that the last section of the paper did a disservice to farm management and to the speaker. Exception was taken to the remarks concerning the Government service and and those working in private organisations. These had a high professional standard and the Farm Management Association itself had made a valuable contribution to this. What evidence was there that those entering the field needed to offer a better service? A tribute was paid to the former NAAS; this was unexcelled anywhere. It was unfortunate that the speaker should have been apparently badly served in the past. One contributor suggested that although Mr. Coote had not been impressed by a linear programming exercise on his farm business, he should not expect miracles and should regard it as a compliment that the solution was very similar to the plan at present followed.

3. Replying to these criticisms it was emphasised that the authors had quoted their own experience in running particular farms. What they wanted was a better service than had been available to date.

4. Consideration of fixed costs featured in a number of contributions. Was there a conflict between the statement that "there is a high proportion of constant expenditure over which no control can be effected" and "fixed costs should be analysed and checked"? . . . "If you expect fixed costs to make up two-thirds of total cost they will." . . . "In re-examining fixed costs is the best way of effecting improvements to reorganise enterprises?" Experience from New Zealand was that sophisticated procedures had not proved very worthwhile for practical cases; most problems were income problems and not due to costs—"examination of accounts and balance sheets will generally show this".

5. Near the end of the paper the authors stated that there was lack of agreement on specific management terminology. While this had been a problem in the past it was pointed out that the MAFF had, in 1970, issued a revised booklet called "Terms and Definitions Used in Farm and Horticultural Management". Mr. Coote thought this was an excellent handbook and implored all concerned to stick to the standard definitions.

6. Asked for an outline of the structure of the business with which he was concerned, he replied that five farms were looked after for the Duke of Norfolk by Dr. Dickson and himself. There were two large arable farms each with a foreman, and another farm had a large dairy herd under a head herdsman. They had a farm secretary and now a costings agency was employed for costing, cash flow and budgetary control. In reply to other speakers, Mr. Coote felt that more would be achieved by tackling fixed costs than by pushing gross margins a little further, having achieved a good technical standard; fixed costs needed attention because they were escalating. He agreed that rules of thumb were inappropriate; there was a need to find out which costs could be controlled, which were excesssive and why. He had developed records for examining machinery costs, which were too high. He also agreed that delegation was essential and stressed that efficient communication was vital to avoid mistakes in the running of their farms.