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REQUIREMENTS FOR CONTRIBUTIONS

Articles in the field of agricultural economics, suitable for publication in the journal, will be welcomed.

Articles should have a maximum length of 10 folio pages (including tables, graphs, etc.) typed in double spacing. Contribuitions, in the language preferred by the writer, should be submitted in triplicate to the Editor, c/o Department of Agricultural Economics and Marketing, Pretoria, and should reach him at least one month prior to date of publication.

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Micro-resource planning and adjustment

by

J.E. HARRISON,
Urwick, Lugg and Gould (Pty.) Ltd.,
Pietermaritzburg

The title of this paper includes the word "development" and most of the development that will be discussed, refers to overseas innovation, since it would seem as if the South African farming community in general has yet to accept the necessity for any change. Organised agriculture has stressed the need for change in some public pronouncements, but in its day to day activities appears to be more concerned with the maintenance of the status quo, especially where numbers of farmers are concerned.

It would seem to be purposeless to criticise individual organisations or individual farmers in a paper of this nature and it is intended therefore to discuss the benefits which both can anticipate if they accept the need for change and relied somewhat less on benevolent government protection. It is always sensible to look over the wall and see what others are doing and the farming community in South Africa is no exception. It needs no emphasis here to underline the precarious state in which much of the farming population finds itself today. With some 50 per cent earning less than what can be described as a living wage in the form of profit, the need for urgent improvement can hardly be questioned. It is unfortunate that the need for change in management is appreciated least of all by this 50 per cent. In fact changes that are taking place in agricultural management and organisation seem likely to make their position even worse, and nothing that is said at this conference is likely to improve their lot to any major degree. It is worth mentioning that what is happening in Southern Africa, has happened before in all other Western countries and there is no reason for supposing that the pattern will be any different here.

One of the major problems facing legislators at a time when change and adjustment are needed in the farming scene, is the paucity of studies carried out in South Africa relating to farmer response to price or other movements. It is one thing to fall back upon economic theory and to discuss the expected response to cost or output price changes, the opportunity for substituting manual input by machinery input, or manual input by chemical input and so on; it is quite another thing to be able to state definitely what the farmer's response will be. It is commonly asserted that an increase in the cost of an input item will generate more intensive farming in terms of higher output per unit. This is probably not correct as far as existing farms and farmers are concerned, although it may be valid for newcomers to the industry. Most farmers believe (wrongly) that they are operating for maximum potential profit and do not increase their efficiency as a result of price changes. Compared with most industries, more of farming's resources are fixed, rather than variable, and farmers are therefore automatically less responsive to economic change. It must also be noted that a resource fixed on one farm may be variable on another, resulting naturally in apparently opposite reaction by different farmers to specific price movements.

A changing economy affects the individual farmer as an alteration in the relationship between financial variable input and financial output. This alteration may be due to amended prices or technical changes, or both. These can be understood by studying the data in Table 1 and the examples which follow.

TABLE 1 - Relationship between input and output and marginal reserve

Variable physical inputs of A	Total physical output of B	Marginal reserve	
		B = R1	B = R2
		R	R
7	119.2	25.6	51.2
8	138.0	18.8	37.6
9	151.9	13.9	27.8
10	161.1	9.2	18.4
11	167.2	6.1	12.2
12	170.9	3.7	7.4
13	172.3	1.4	2.8

1. The effect of a change in variable input price. If A costs R6, and one unit of B is worth R1, then it will pay to use 11 units of the variable input, this being the nearest point at which marginal revenue equals marginal cost. If the price of A falls to R3, it will pay to increase the amount used to 12 units of A.

2. The effect of a change in output price. If the value of output B increases to R2 per unit with input prices stationary, then it will pay to use 12 units of A instead of 11. If output prices rise, it pays to use more variable input, but less if the price falls. The marginal revenue curve is unaffected if a subsidy or higher price is provided for a fixed level of production per farm. Government could well

take note of this if it is really interested in maintaining farmer numbers, since it has the merit of raising incomes without increasing the volume of production or diverting resources from more profitable uses. It could possibly be used justifiably in both the maize and dairy industries at the present time, at least as a short term benefit.

3. The data in Table 1 can also be used to illustrate input - input or product - product substitutions as well as for changes in physical input-output relationships.

What do we know about farmers' reactions to changed conditions in practice, as opposed to the aforementioned theory? Great difficulty is found in obtaining any data by which this question could be dealt with. It is difficult enough even to get information for the industry as a whole. For example, what has happened in the milk production field over the past 20 years and why has it happened? The approximate changes are shown in Table 2. Over this 19 year period total production increased by about 70 per cent, fresh milk consumption by only about 45 per cent, leaving a surplus for the manufacturing market which increased from about 50 per cent of total production to 63 per cent of total production. Cow numbers have increased considerably but production per cow has improved little. Producers' margins per litre have declined but not to the extent they themselves would lead one to believe.

TABLE 2 - Approximate changes in the milk production industry, 1950-1969

Item	1950	1969	Percentage increase 1950-1969
Production (litres)	1 769 million	3 035 million	71
Liquid milk consumption (litres)	827 million	1 197 million	45
Fresh milk price (per litre)	4.8c	7.5c	59
Butterfat price (per kg)	67.5c	94c	39

Fresh milk producer numbers increased by about 20 per cent, but the number is allegedly now falling. The numbers of fresh milk producing dairy cows increased by about 40 per cent, but the total number of dairy cows remained more or less constant. The profit per litre of milk produced has apparently fallen from about 1.5c - 1.3c per litre.

Producers have undoubtedly been exposed to severe economic pressures during this period. Costs have risen faster than output prices. Producers have maintained their profits in total, but not in real terms. Some producers will have increased milk production, others decreased it, and others terminated it, but no one knows how or why they did it. Herd size and yield per cow on average have risen, but individual dairymen will have done both, or either, or neither, and where they have reacted they will have done so at varying rates.

The Department of Agricultural Economics and Marketing provides a mass of information in "Crops and Markets" and in its "Abstract of Agricultural Statistics" to indicate how the farm economy as a whole is changing, but there is no literature dealing with the reaction of the individual farmer to the changing economy. What would happen if maize prices were reduced by 50c a bag, but a bonus of R1 per bag paid for the first 1 500 bags sold per producer? What effect would a minimum wage of R18 per month have on (a) farm costs and (b) the number of workers employed in the industry. However, until we are in a better position to deal with questions of this nature, we can hardly expect anyone to operate an "agricultural policy" with any success. Much of what is presumable going to be dealt with in the next paper in the field of macro-planning and adjustment, will have practical value only if this field of uncertainty can largely be eliminated.

What are the developments in the management field which hold such promise for those who deign to take note of them? Few impinge directly into the actual technical field of production. Farmers everywhere are capable of producing sufficient in general for the markets demand, although, because production is unco-ordinated, occasional shortages and rather more frequent surpluses do arise. Drought or exceptional rains are usually blamed for these market upsets, which simply serves to emphasise one sphere in which management improvement should be profitable.

Farmers have two targets to aim for in the future, namely, to produce at a lower cost per unit and to provide what the consumer requires, presented in such a form that it will command the highest possible price. Even the acceptance of these aims would represent a revolution in thought for the farming community, since far too many producers believe that the consumer should buy what they produce and in whatever form they happen to produce it. If the consumers' appetite is satiated, then in their view it is up to Government to buy the surplus, possibly to sell at a low price to less fortunate countries, or even, if necessary to destroy. Because nature can possibly be rather more cruel to the farming community than to other production sectors, some Government intervention at times of extreme stress can be justified. Logically in future it should be considered the exception to the rule rather than the rule, as has been the case hitherto.

The most obvious trend in agriculture outside South Africa over the past 20 years has been the application of management techniques first learnt

in industry. The basic criteria of good management, both in industry and farming, are the same. The good manager is the person who succeeds in making the most efficient and profitable use of the resources in his charge, with the major criterion being profit. Agriculture has no more specialised management problems than has any other industry and farming should not be looked upon as unique in its management problems. Although some distinction is justified if subsistence farming is being considered, it certainly is not valid for the developed sector of the agricultural community.

Of course, farming differs in some details from many other industries. The scale of farming is still relatively small, although increasing fairly rapidly in some sectors. Most farmers not only manage (or believe they do), but also act as tractor drivers, bookkeepers, labourers and veterinaries; and frequently also as mechanics. Because so many farms are small and because their problems are not complex, there are dangers in suggesting that every farm business should be viewed in the same light as some large corporations. Particularly in England and America, enthusiasts have waxed merrily with sophisticated techniques involving slide rule and computer and transformed the simple problem into a major calamity. In criticising the "status quo", one must be careful to replace it by something worthwhile.

In comparison to commerce and industry, changes in the approach to the organisation of farming have only just started in South Africa. The past 30 years have seen a very rapid development in the resources put into decisionmaking in most sectors of the economy. From the one-man business managed by a single owner-operator who made all the decisions, today most businesses are large and ecomplex organisations using very highly specialised management services. The introduction of the specialised management sector has only been made possible by providing for highly developed channels of information. Probably about one quarter of the industrial work force is concerned in one way or another with the production and the processing of information and it is said that nearly half of the cost of running a modern economy is the cost of collecting, storing and analysing information. At least we cannot criticise the farming community for spending this amount of time and money in record keeping and interpretation!

Changes in market demand and, more important, changes in the techniques of producing crops and livestock, are making it essential for farms to become larger, or at least for the production of each farming unit to increase. New methods of obtaining and dealing with information and new planning techniques are making it feasible to exercise management control over the larger quantities of resources needed for the bigger farming units.

These changes are bringing in their van very serious problems to farmers. The capital requirements related to economies of scale are vast and are made greater by the inflationary trend in land prices. As the older farming families pass away, new generations are finding their capital requirements too onerous to accept. Assets of this magnitude can seldom be acquired during one lifetime and death duties are making it less easy to pass wealth on from one generation to the next. It is hardly surprising therefore to find a considerable entry of corporate capital into farming in many parts of the world. The lease-back system, in its infancy in South Africa as yet, is just one example of this type of development.

The lease-back needs to be examined very carefully by any farmer looking upon this as a method of financing his expansion programme. Reluctantly, some farmers have given up some of their independence and sold their farms on a lease-back basis, arguing convincingly that by this method the enormous amount of capital which has hitherto been tied up in their land, can be released and used in other ways to give them a far better return while they themselves can continue in farming as before. There are other factors which must be taken into account.

Wealthy individuals and financial institutions are only anxious to invest in land because they are convinced it is a safe investment and the best hedge against inflation. They know that land values will continue to rise because of the relative scarcity of land, and they undoubtedly hope for estate duty relief in the future. These benefits, which are attracting outside investors, should not willingly be given up in exchange for hard cash and every owner occupier should consider his overall position very carefully before he takes any irrevocable steps. Many farmers finding themselves in a position apparently justifying selling on a lease-back arrangement, would be better advised to sell up altogether.

These days the business world often does not purchase the specialised equipment it uses, whether this be vehicles or office equipment. It leases this equipment because of the taxation advantages, the whole of the payments made being treated as revenue expenditure for tax purposes, whereas in the case of purchase, only the depreciation allowance, and interest, if any, arising on the funds used for purchase can be charged as bone-fide expenses. Depreciation is of course charged on a percentage basis on a decreasing sum, and on a discounted cash flow basis, may provide a far less valuable taxation allowance than the straight leasing charge. Farmers overseas acquire not only tractors and cars but also expensive lines such as combine harvesters and processing plants by the leasing method. Similar facilities are available in South Africa although very seldom utilised. Although leasing is undeniably more expensive than buying on a bank overdraft, the latter may not be available, or may be required for working capital requirements. Restriction of available capital can play havoc with the development of a worthwhile programme and leasing should be utilised far more frequently.

Two aspects of contemporary business organisation which are already in evidence in farming circles in the Republic are those of vertical and

horizontal integration. Timber, sugar and poultry farming provide good examples of this type of organisation, although this does not mean that it has necessarily been carried out very efficiently. Personal knowledge of the sugar and timber industries suggests that it has not been and much that one hears about the poultry industry suggests the same. All of these industries could probably make better use of management techniques since their co-ordination, not only as far as actual production is concerned, but in their use of capital also, has been exceedingly poor in many respects. Integration in both directions can be justified as long as the resulting units are large enough to pay for the levels of management skills required and as long as these specialists are required. The large margins of profit available on the processing or manufacturing side have resulted in companies still obtaining high profits even though the production side of their operations have been most inefficiently controlled. Because of the opportunities for profit making on the off-farm activities, there is certain to be a continuing interest in vertical integration albeit uneconomically. Both developments would be anathema to the average farmer but must be anticipated to continue on a greater scale in the future.

The dangers of the injection of what was previously non-agricultural capital into agriculture, should not be overlooked. Most of the benefits accruing from agricultural change in the past have been seized by people or companies outside of agriculture, because farmers themselves have been too slow to take those steps necessary to capture these advantages for themselves. If there is to be any improvement in this sphere in the future, then farmers must take the initiative in setting up the infra-structure which will make these benefits available to them and this will only be feasible if farmers show a greater willingness to get together with one another in order to pool either their requirements or their products, or both. The entry of a large concern into the vegetable marketing field taking on an operation and reaping the profits from something which the farming community itself could well have organised, illustrates what will happen if farmers do nothing about improving organisation themselves.

There is much to be learnt in this respect from the changes occurring in British agriculture at the present time. Stimulated admittedly by a 50 per cent subsidy, many groups of farmers are applying themselves to the reorganisation of specific aspects of their activities. It may be milk production and processing, it may be potato growing, grading and packing and marketing or it may be the organisation of quality lamb or pork production. By being able to specialise, sometimes to the extent of employing a specialist in one field who operates on each of the members' farms, they are able to produce at the lowest possible cost and to handle and market large enough quantities of each grade of product throughout the marketing period, so as to be able to make sound financial contracts with supermarket chains. It is not at all unusual for the profit of an individual product to be trebled by arrangements of this nature. A subsidy for the initial examination of projects of this nature is surely easier to justify than one which merely provides so much per bag of maize, for instance, without any accompanying improvement of any kind whatsoever to the community (other than possibly to maintain in existence non-viable farming units). Once a project inquiry of this nature has been completed and suggested beneficial financial results, it is seldom indeed that the necessary capital for development cannot be found, for banks in particular are anxious to lend for ventures of this type.

Because of the tremendous advantage, not only in financial terms, to be obtained by farmers grouping one or more aspects of their activities, it might be advantageous to go into some detail using an example from British experience.

In 1967 a group of seven farmers, all farming within a radius of 12 miles from a centre point, became interested in growing vining peas to act as a break crop to replace some of their barley, which was the least profitable of their enterprises. By English standards they were large farmers, farming a total of some 6 000 acres of arable land, and five of them had at an earlier date formed a buying group, having appreciated the advantages of their joint bargaining strength. They obtained considerable success in purchasing requisites such as fertiliser, sprays, seed and fuel at very competitive prices. With the aid of a government grant a feasibility study was carried out by a firm of management consultants into the economics of growing and marketing vining peas. The conclusions reached were that the growers should grow about 600 acres of peas to be harvested by mobile viners. The study also illustrated the fact that no additional regular labour would be needed by the member farmers, compared to their previous organisation of farming as individuals, and in fact the labour requirement distribution during the year would be better than hitherto. It had noted the advantage in bargaining power that the group would hold with processers. As a result of the study the seven growers decided to go ahead and obtained contracts for freezing and for canning peas based on about 600 acres, limited admittedley to a one-year contract in the first place.

The growers formed a limited company and appointed an experienced individual to act as the specialist manager for the pea growing exercise. Finance was raised from the bank and partly from the grant provided from the Ministry of Agriculture. During the past three years this particular group has been extremely successful with its co-operative operations and has now expanded to 1 000 acres of peas. Although the members themselves are responsible finally for growing the crop and have an incentive to produce a good crop through the bonus payment scheme devised, the specialist appointed has proved very valuable in ensuring that members grew the best possible crop by carrying out cultivations and spraying operations at the most effective date and by keeping a close watch on the growing crop up to harvest time. Obviously with the experience gained through growing a number of crops at the same time, the specialist is placed in an extremely good position to spot pests

and diseases at an early stage by comparing the many different fields. The main reason for the success of the group is believed to be the fact that all the farmers involved in the company are of a similar age and all have taken a very keen and active interest, this being extremely important when problems have arisen, such as key men being ill or tractors breaking down. It has been found simple to switch workers and equipment from one farm to another as required, with naturally compensating payments made from one member of the group to another.

The opportunity for friendly competition between individual members has provided quite an incentive and stimulated interest in this particular aspect of their business activities. Nevertheless there has been of necessity a degree of pooling of costs and returns, which has encouraged everyone to be sufficiently interested in the overall financial results and not only their own.

As a result of the success of the pea product, other areas for group co-operation have now been developed. A new company has been formed to grow and market potatoes co-operatively. Apart from the aim of increasing the returns for potatoes, it was also soon appreciated that acquiring harvesting equipment to operate on the combined potato acreages grown by the group, offered the opportunity for very considerable economies. At the same time it has been found possible to obtain quality seed potatoes in bulk at the right time at very reasonable prices. Most of the equipment used for harvesting is owned by the group and the members meet weekly during the potato harvesting season to agree on a plan of campaign for the following week. By using the varied storage facilities of each of the members, potatoes can be sold either fresh from the field or from storage during approximately ten months of each year. A number of group contracts for potatoes for processing have now been obtained and it is hoped before long that all members' potatoes will be sold through group contracts of one kind or another.

One of the more important necessities of a group such as this particular one, luckily realised at an early date, was that of keeping accurate records and costings and to continually check that forward budgets were being adhered to as far as possible. One of the frightening aspects of this type of operation is the ever increasing amount of paperwork which can accumulate and it is essential at an early stage, as in any business, to operate an efficient office system. Forms have been kept to the absolute minimum and as simple as possible, in order to provide for rapid interpretive use. An example of this has been a card for each pea field, which at a glance could tell the growers the physical and financial details of the crop at any stage of its growth. This particular group of growers, in particular their specialist field manager, realised soon after they had started their operations that their knowledge of business management was not particularly great. With the smaller distances involved in England it was no great problem for a number of members of the group to attend evening classes in neighbouring town, dealing with the rudiments of business management and the necessary recording. This was obviously a very logical move, providing specific training in the field where it had been lacking grievously in the past.

Of course, clearly defined objectives were established by the group in the first place and these are very important in the field of co-operation where different individuals are combining a number of their resources in a common aim. As in any business, the elements of risk and luck still play their parts and can affect the outcome of objectives, which therefore require constant revision by a manager as an essential part of his job.

This farmer-involvement in business is important because it is not envisaged that farm organisation will eventually be comparable to companies manufacturing television sets or cigarettes. It is still accurate to assert that the differences arising between the production and marketing of milk and of cars make it highly impossible that this will occur. It is not realistic if for no other reason than that the necessary management skills are not available in large enough numbers to establish intricate and vast farm production structures. It is, however, realistic to provide farmer controlled services for the industry, not only in the marketing field, but also in the provision of information channels and control services.

The major requirements for most farmers today in the management field is the supply of information. The importance of lack of knowledge lies in its effect on economic efficiency. This may take two forms. The first is connected with the measures which farmers take to meet uncertainty, resulting in less than the optimum combination of resources and products. The second results from the fact that plans are based on expectations which do not come to pass. Without information the thought of forward planning is of little value, although this admittedly is the existing position. Quite obviously farmers need information related to technical innovation that can only be supplied off the farm, but this is practically useless without sufficient data, albeit very historical frequently, detailing what has happened on the farm. Past-performances may be compared with information relating to achievements on other farms, but the really important requirement is the data obtained from the farm. In the past, and indeed in most cases still today, the only use made of any form of recorded information on the farm has been for taxation purposes or occasionally for the pedigree trade in livestock, but these are somewhat negative uses for data which could be of vital importance for profit maximisation. Without an analysis of farming information diagnosing strengths and weaknesses, identifying the factors preventing resources being used more productively, there is little opportunity for rational planning. Improvements in management control must enable the specialist adviser or the educated farmer to be able to diagnose and to plan. The greater the use of

contemporary techniques to minimise the qualified labour content of the diagnosis, the more effective the use that can be made of the planner.

The apparent complications of effectively applying management on the individual farm are somewhat illusory. Although it is frequently asserted that no two farms are alike, there is no doubt that this does not apply to management problems. Many and difficult though these may appear to be, they can quite easily be classified under a very few headings. Fairly well defined and much tested techniques are available to deal with these problems, and it is certainly reasonable to suggest that most farm management problems can be solved today. Despite the existence of these techniques, it is equally safe to state that few farm problems in South Africa are being solved by their use because of the inadequate supply of information. Admittedly some of these methods require a computer in order to avoid an unduly high labour content in solving the problem and computers have not been readily available nor have they been programmed to deal with farm requirements. All too often the farmer requiring a management answer has been provided with a package answer which may or may not (usually not) have been modified to take into account his and his farm's peculiarities.

What are the main classes of management problems faced by a farmer today? They are:

Resource use,
capital investment,
contingency needs, and
objective establishment.

If one cares to think about farm problems it will be found that virtually all fit into one or other of these categories. Admittedly farmers frequently look at their problems from the wrong side of the equation. For instance: What should I grow, rather than what can I grow. In other words, they decide to grow wheat and then look at the resources needed: Land, labour, capital, management ability, whereas they should look at these resources first of all in order to decide what could be grown on their farms.

Development of management on the farm should rely to a far greater extent than in the past on the use of computers. Although obviously the amalgamation of computer and uneducated farmer will not produce many beneficial results, the greater use of computers will considerably increase the output of a specialist. What is required urgently and what is so obviously lacking throughout most of our farming community, is expanded education of farmers in management thinking. That there is a desire for this form of training, cannot be doubted, as shown by the number of farmers who attend seminars dealing with business management, even though they have to pay to attend. But all too few are held. Why not a subsidy to cover part of the cost of running business management courses for farmers? The cost would be minute compared to government intervention in other spheres of farming activity which show no particular evidence of beneficial social result.

The value of farm management as an occupation, apart from farm ownership, has yet to be accepted in South Africa. Possibly more so than in other Western orientated countries there is an urge here not only to get back to the land, but to own it as well. Quite why, is difficult to quantify, since there is apparently no secret about the fact that land currently offers a return of only 2 to 3 per cent on capital. And it is not land value appreciation which stimulates the drive to own land. The absence of a real managerial farming ladder in this country provides one major reason for young people wishing to own land, and this is most unfortunate, resulting in a gross waste of managerial talent, quite foreign to the industrial world.

In Europe and America it is accepted that the highly paid manager of a large scale farming unit is just as much to be admired or envied, as the case may be, as the independent farmer doing a good job. The opportunities for advancement in the former position will eventually be much greater than in the latter, but will of course depend upon the provision of proper professional management training. The days should be passing when seats of learning are more interested in training all-round farmers rather than specialists in one field or another, including the management field. One requirement in South Africa in this respect is that managers should be paid far higher salaries. Although top farm managers earn regal sums, the rank and file farm manager is paid far too little to generate enthusiasm for a lifelong occupation. With the introduction of modern management techniques, higher paid management will be quite essential. There is certainly a serious lack of opportunity for most South African farm managers to keep abreast of modern developments and probably there is a real need for formal organisation to fill this gap. Too many of the good managers are isolated, operating in a vacuum and not infrequently deteriorating into second-class managers.

It is hardly surprising that farm management is still in its infancy in South Africa when one realises that there is not one chair of farm management in the whole country. Comparison with the overseas position soon illustrates how far South Africa is behind in this respect and it has the compounding effect at every level of agricultural education. Every agricultural economics university department in Britain has a senior member of staff designated as a farm management specialist. In New Zealand there are chairs of farm management at each university with an agricultural department and the same development has followed in Australia. In the United States one loses count of the numbers of chairs in farm management. Admittedly some professors of agricultural economics spend considerable time working in the farm management field and more staff are being appointed with a direct interest in farm management, but the fact remains that farm management itself is still considered by far too many

administrators in agricultural educational circles as unimportant.

A major innovation in farm management overseas has been the willingness to investigate new non-farming business management developments at an early stage, rather than to adopt a wait and see attitude for perhaps a couple of decades. The adoption of "management by objectives" as a farming tool almost before the ink was dry on the originator's text book dealing with its industrial and commercial uses, must therefore be noted as something of a record. For the uninitiated "management by objectives" is described as a disciplined and coherent process of thinking which can be shaped and adapted to any type of business. It demands a continual and clear examination of the aims and objectives of business, the development of a broad strategic plan to achieve those objectives, the preparation of immediate tactical plans within certain sectors of the business, together with communication and identification at all levels to ensure that everyone understands clearly the parts that they can play in the achievement of the objectives.

Some or all of those techniques are, of course, already being employed in some farm businesses, but if the technique can be formalized, the assumptions examined with penetration and perception, the objectives quantified and given the right order of priority, and foremen and managers given guidance and adequate rewards for performance, "management by objectives" can create a vitality that has to-date been lacking in a great number of businesses.

How then to determine and examine the objectives? This can only be done by asking a number of questions and making a number of assumptions. What sort of business are we in? This could well be the first question. There are a number of instances where the answer to this simple question has brought about tremendous changes in the posture of large and small businesses. For instance, the leaders of the Hollywood film industry ran into difficulties because they assumed that they were in the film business, not realising that they were in a much broader entertainment business. Consequently television was seen as an enemy to be fought off, instead of as an ally and a vehicle to develop and widen the market for films to a new and wider public. More recently, shipping companies which had long assumed that they were in the transportation business and were meeting increased composition from the airlines, found a new lease of life when they realised that they were not in the passenger transport business but in the new and growing leisure business. In farming situations we should be asking ourselves whether we are still clinging to the way of life concept, or whether we are in farming to optimise profitability. Is current income our main need, or are we searching for capital growth? This could well determine as to whether we should be seeking to rent additional land or sell on a lease-back basis. Are we intending to establish a farming dynasty? If so, how are we proposing to deal with to deal with the inheritance problem, whether it be by death duties or passing on the farm tenancy?

Where are our particular strengths in the business and where are we fighting against the natural limitations of the geographical environment in which we farm? Are we, and this in the experience of the management consultant is frequently the case, applying high value resources to low profit areas, i.e. applying scarce capital and skills to enterprises such as beef or maize which however well they are done can only provide a relatively low growth output? The answers to these questions must be conditioned by certain assumptions. Is Britain likely to be in the Common Market within the next five years? To what extent will we be allowed to increase or even maintain our exports of agricultural products to the countries to the north of us? Will the technical progress that has been such a feature of the last two decades of farming continue to move at the same rate over the next decade? Can we look to raising yeilds and increasing the level of technical performance to the point at which additional costs can be carried, or if, as seems more likely, technical performance is likely to level out, should we be paying more attention to cost-cutting techniques? How are land values likely to move over the next five years? This must influence our views as to whether we should be expanding through the addition of acreage or through the intensification of existing enterprises. These are but a few of the questions that need to be posed in developing the objectives of a business, and particularly a farm business.

Having established the objectives, the next stage must be to develop a strategic plan, so that the objectives can be realised within an agreed period, say, four years. How much additional capital will the plan demand? How could it be obtained and how best can it be phased into the business- over the period? If the plan involves an expansion of scale, what economies of scale are we looking to? If more land is required, what area are we looking for and where, and how is it intended to acquire it, i.e., through amalgamation, through purchase, or through renting? If we are seeking intesification, what investment needs to be made in buildings? Which enterprises on the farm are weakest and may need attention in order to ensure that they play their part in the development of the plan? How best can everyone on the farm be informed and, most important, be enthused with the part that they can play in achieving the objectives. It is, of course, all very well to discuss management in theory, but we all know what long-term plans are worth. It is true that a plan is produced for say five or ten years ahead and if no attempt is made to bring it up-to-date as further information and experience becomes available, then it will very soon get out of date and bear no relation to real life. There must be a continuous revision of the objectives as and when necessary. It is usually desirable to have an agreed period for up-dating plans, say, for instance, every six months.

Unless some long term plan is produced, decisions are taken under pressure and may well be bad decisions. Where an attempt has been made to plan for the future, the key problems have been isolated. The manager also has had time to satisfy himself that actions taken in the short

term do not prejudice the long term well being of the business. It will ensure that growth, an essential to any thriving business, can be planned and phased in harness with the resources and capital available. It can also relieve the volume of decisions which a manager has to take at short notice and so give him more time to control the business and to keep the plan continuously under review. There is the added advantage that having applied the technique to the farm business, the manager is much more likely to make good decisions because he has had time to analyse the problems and his conclusions are therefore based on all the available information. No manager of a business of whatever kind can continue to take decisions on todays problems without taking a long and hard look at the long term development of that business. Those who do not do so will stand still, or start going downhill, and will miss opportunities to develop new profit areas ensuring the long term stability and profits of the business it is their job to run.

Perhaps the greatest asset of "management by objectives" is the fact that every manager is put through a process of self analysis, people start to manage and manage in a truly professional manner. They concentrate on the key tasks. "Management by objectives" identifies the company improvement objectives and translates them into personal action for every member of the organisation. It also provides a discipline and it provides the opportunity to bring conflict areas into the open. Descussion and final agreed action must follow, they cannot be shelved. It is the same with other types of suggestions for production or marketing improvements; it is vital that action is taken on them, either adopted, referred or turned down with good reason.

In industry "management by objectives" apparently begins to show benefit after the first review has been held. It is obviously easier to review progress at more frequent intervals than is the case in farming, but exactly the same procedure is adopted. It is done by identifying reasons, agreeing improvement action where standards previously agreed were not met. It also assists in identifying those aspects of managers duties where some additional training or experience is probably required in order for them to give of their best. It co-ordinates the work force into a team with everyone knowing what the objective is and what their part in attaining this objective should be. There is the opportunity for continual assessment of obstacles preventing further progress, either in production or in sales. Obviously objectives change through time and the analysis of results and the organisation's structure are reviewed regularly in the light of changing objectives.

Finally, an example of farming based on "management by objectives" might help to illustrate its application. The example is one of dairy farming in the United Kingdom.

1. Purpose - to establish a 100 cow dairy unit on a rather heavy soil type virtually all grass farm.

2. (a) Objectives - To make a profit of R15 per acre by 1970/71 and thereafter R20 per acre.

   (b) All additional capital invested to show a 20 per cent return before tax.

   (c) Organise the system to be run by a farmer and five additional workers.

   (d) Expand the existing herd of 70 cows to 85 by the end of the first year and 100 by the end of the second year.

3. (a) Goals - Improve grassland by:

   (1) Draining low lying pastures
   (2) Re-seeding 25 acres
   (3) To regularly re-seed between 15 and 20 acres per annum.

   (b) Correct low lime and phosphate status by effective applications of both minerals.

   (c) Increase present stock density by 40 per cent.

   (d) Cull out all dairy cows giving less than 850 gallons per annum.

   (e) Purchase in-calf heifers from dams with a minimum of 1 100 gallons.

   (f) Restrict home rearing of calves to ten per year selected from high yielding cows.

   (g) Use artificial insemination for herd improvement.

   (h) The method of conservation to be silos with facilities for self-feeding. Facilities must be provided within six months.

   (i) Erect a suitable herring bone parlour immediately.

   (j) Introduce immediately a recording system for management and financial control.

   (k) Join the local milk producers union dairy management scheme and introduce cow charts for control pruposes.

It might be argued that the list of goals or objectives is no different form that already carried out by the average farmer. This, however, is a myth and in nine times out of ten at least one would be wrong. The average new farmer, or the average farmer establishing a new enterprise, is nothing like as coherent in his thought as is envisaged for this particular dairy farm. It would be perfectly true to suggest that in most cases the farmer involved will probably have vague ideas about achieving all of these goals, but his thoughts and actions would not be co-ordinated in the manner just detailed. He would tend to go into a farm and to acquire cattle to start milking and more or less to accept whatever arises, cer-

tainly not establishing the standards of performance or targets which can be used at a later date in order to examine and criticise the progress achieved. Of course an example of this nature does tend rather to simplify the procedure involved, but it should give some idea in outline of what needs to be done. Perhaps most important, it establishes a routine system for measuring performance and provides all the data required as well as the control measures needed, in order to ascertain first of all why performance has not been achieved and secondly to see that it is in future.

Generally speaking, the problem of deciding what to do about low yields, whether of crops or of livestock, are not considered until they actually arise and normally considerable time elpases because of the lack of information before effective remedial measures can be contemplated. "Management by objectives" by its establishment of routine systems of thought and action means that the majority of problems which will arise in management can be dealt with expeditiously with as little waste of time and money as possible.