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

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Farm management - the dynamic approach

by

S.D. PARSONS*

As Milton Friedman has pointed out, the only crucial test of a theory is its predictive power; its realism *per se*.¹⁾ The farm management theories used in Southern Africa were developed largely in the United States of America with lesser contributions from Europe.²⁾ Of course numerous empirical studies have been undertaken in Southern Africa, but it is probably true to say that none of these have resulted in departures from the basic theories expounded by economists in the Northern Hemisphere. By and large economists would anticipate that the theories they employ are universal, provided that institutional and sociological considerations are equal.

To expect the theories which are applicable to the small highly capitalized farms of the U.S.A. and Europe to be equally applicable to the large, labour intensive farms of Southern Africa, may be an oversimplification of the fundamental differences which exist. As Ruttan says: "When the student from an underdeveloped country returns, he must be able to go beyond the received theory and "theorize" about the behaviour of his own economy. He needs to be able to combine economic and statistical theory in order to select, adapt or modify the appropriate tools - to search out the analytical techniques appropriate to a particular problem rather than to search out problems on which a particular technique can be employed."³⁾ The same line of reasoning should perhaps be extended to cover all countries whether developed or underdeveloped.

This paper outlines the point of view held by the author for some years that the accepted theories of farm management are too narrowly orientated to serve the requirements of farms in Southern Africa, or indeed, of large non-family farms in other parts of the world. Before proceeding further it is necessary with a subject of this nature to review the development of the discipline and to examine the factors which caused it to change.

HISTORICAL BACKGROUND

Historically the discipline of agricultural economics grew out of an interest in farm management on the part of the natural scientists. These scientists became interested in the overall operation of farm businesses and proceeded to develop a discipline of farm management through cost accounting surveys, without relating the new discipline directly to economics. As interests changed from a positive to a normative approach it was found that a lack of physical data seriously handicapped forward planning through budgeting. It was at this stage that agriculturalists trained in economics became interested in farm management, and they transferred theoretical economics to the emerging field of study of farm management. The substantial injection of economic theory into the field of farm management resulted in a problem solving orientation. Thus farm management became submerged in agricultural economics, and was viewed as a subfield of production economics which in turn was a subfield of general economics. The culmination of this economic orientation of farm management, which incidentally was resisted by early farm management workers, was the publication of Heady's *Economics of Agricultural Production and Resource Use*.^{4,5)} Thus we have the now familiar and inseparable fields of farm management and production economics within the field of agricultural economics. In this form farm management embraces the positive cost accounting and the normative forward planning techniques.

The "marriage" of farm management and production economics has done much to strengthen the understanding of the forces which determine resource allocation at the farm level. In addition the early studies of farm orientated research has given rise to the universally useful theory of production economics. Ruttan, writing in defence of production economic theory says: "Production economics has become pervasive. It is the synthesis of the micro-economic theory of the firm and the new developments in empirical methods that has made production economics such a useful tool for providing decision information for firms in commercial agriculture. This same synthesis has made production economics an essential component in the intellectual equipment of students interested in the production efficiency in other areas of applied economics."⁶⁾

* Department of Agriculture, University of Rhodesia, Salisbury

- 1) Friedman M., (1953). *Essays in positive economics*, Chicago, University Press of Chicago
- 2) Currie J.R. (1955). A review of fifty years' farm management research. *J. Agric. Econ* 11. 350-360
- 3) Ruttan, V.W. (1967). Issues in the evolution of production economics, *J.F.E.* 49, 1490-1499

4) Currie, J.R. *op. cit.*

5) Johnson, Glenn L. (1963). Stress on production economics, *Aust. J. Agric. Econ.* 7, 12-26

6) Ruttan, V.W. *op. cit.*

On this count there can be little disagreement. Production economics has focussed attention on the very real problem of risk and uncertainty which confronts the farmer. However, to quote Johnson: "Farm management research with production economics orientation has become increasingly -

- (a) less focussed on the practical problem of managing farms; and
- (b) more focussed on methodological and theoretical issues of less and less relevance to the solution of practical farm management problems."⁷)

In attempts to narrow the gap between normative and positive models at the farm level, attention has been focussed on the human element in production. Thus work simplification has been brought into the fold of farm management and at the managerial level decision making theory has been investigated.^{8,9}) Nevertheless, pleas are increasingly heard for broadening the field of farm management, from one which is essentially production economics orientated to one which also encompasses peripheral subjects such as sociology and psychology.^{10,11,12})

Economists are by no means unanimous that the scope of farm management should be broadened. Ruttan has written: "If, as I have suggested above, production economics has become a pervasive element in the training and intellectual equipment of all applied economists, what are the implications for its traditional symbiotic relationship with farm management? Part of the answer to this question centres around the question of the content of farm management as a field of academic enquiry. Clearly, the question of (a) whether farm management, as an academic field, should confine itself to the economics (or production economics) of farm management, or (b) whether production economics is simply one of the applied behavioral, social, biological and physical science disciplines upon which the field of farm management is based remains unresolved".

This brief account of the history of farm management serves to show that as knowledge has accumulated so the scope of the farm management discipline has changed. Whether one accepts that the field of farm management should be broadened, or retained as a more narrow production orientated discipline, depends upon the objectives that farm management personnel set for them-

selves. Such definitions of management range from Black's statement that: "When the economics of agricultural production is reduced to terms of the individual farm, it becomes what is ordinarily known as farm management. Any textbook on real farm management is a treatise on the economics of production of the individual farm",¹⁴) to the much broader industrial management concept of: "The work done to establish and attain objectives involving the effective use of people and objectives."¹⁵)

FARMING IN SOUTHERN AFRICA

Commercial farms in Southern Africa are unique in that they generally cover large acreages, are underdeveloped in terms of the potential of the resources available, and are labour extensive. In Rhodesia, in 1965, an average of just under 36 males were employed on a full-time basis per farm.¹⁶) By contrast the equivalent figures for the United Kingdom¹⁷) and the State of Indiana¹⁸) were just over 1 and 1.8 respectively.

In common though with countries in the Northern Hemisphere, Southern Africa has an agricultural adjustment problem, and her economists almost without exception advocate that inefficient farmers should relinquish their managerial positions. We exhort our farmers in the same way to "get big or to get out" and remind them constantly that "farming is a business and not merely a way of life". Not only has management been subjectively recognized as being a limiting factor but there is also evidence that management becomes more limiting as farm size increases.¹⁹)

Clearly economists, particularly those in Southern Africa, must contend with large and ever increasing size of the farm business, and it is with this end in mind that they should be thinking of improving the managerial function. As farm size increases and as more hired men are employed by a single farm firm, so the manager's time is spent less on manual labour and more on co-ordinating activities.²⁰) To be fair, this has been

- 7) Johnson, G.L. *op. cit.*
- 8) Johnson, Glenn L. and Hver, C.B. (1953). Decision making principles in farm management. Bul. 593 Kentucky Agric. Expt. Sta.
- 9) Johnson, G.L. *et.al.* (eds) (1961). A study of managerial processes of Midwestern farmers, Iowa State Univ. Press, Ames, Iowa
- 10) Davies, Albert J. (1968). The future of farm management research, J. Agric. Econ. 19, 23-26
- 11) Camn, B.M. (1968). The future of farm management research, J. Agric. Econ. 19, 27-30
- 12) Williams, Donald B. (1969). Production economics, farm management and extension. Amer. J. Agric. 51, 57-70
- 13) Ruttan, V.W. *op. cit.*

- 14) Black, J.D. (1953). Introduction to economics for agriculture, New York, The MacMillan Company, p.120
- 15) Smith, L.F.G. (1970). Practical management. A farm management course sponsored by The Rhodesian Cotton Growers Association, Leopard Rock
- 16) Agricultural production in Rhodesia (1965). Central Statistics Office, Salisbury
- 17) Compiled from figures presented in: Bul. 6 - Farm size adjustment, Agric. Adjustment Unit, Univ. of Newcastle on-Tyne, 1909
- 18) Purdue farm account summaries, Purdue University, Indiana, U.S.A. 1966
- 19) Swanepoel, G.H. (1969). Bedryfsekonomiese ondersoek na sekere boerdertypes in die Letabadiestrik. Unpublished M.Sc.(Agric.) thesis, University of Pretoria
- 20) Raeburn, John R. (1958). Economics of scale in farming, J. Agric. Econ. 13,72

recognized by economists as the increasing importance of decision making. But equally well it has been recognized that a limit exists in the degree to which managers can effectively diversify their activities.²¹⁾

Conversely it is known that greater specialization increases productivity.²²⁾ In Rhodesia it has been found that among farmers growing three competing summer crops (tobacco, maize and cotton) only 10 per cent could be considered to be growing all three crops efficiently. The remainder most commonly achieved high levels of efficiency with one crop, but average or low gross margins with the other two. In the absence of major differences in soil and weather factors the difference in results was ascribed to differences in co-ordinating ability of the farmers concerned. The crops for which good results were achieved were ones for which the farmers expressed a preference, and such preference was not necessarily correlated with the profit potential of the crop.²³⁾

Presumably, the advice that farmers should receive as the size of the farm firm increases is that they should specialize more and more. This would appear to be a necessary though unduly restrictive limitation on normative farm plans. The alternative is to determine why the span of management should decrease as farm size increases.

"In the industrial field considerable attention has been paid to the role of management; how it can be effectively organized within the business, and how the skilled executive motivates his subordinates. In small organizations no multi-state management hierarchy exists; all decisions from those of the broad policy nature down through the most rigid routine are made by the proprietor who executes the decision himself or directly supervises those who carry out the action."²⁴⁾

INDUSTRIAL MANAGEMENT CONCEPTS

Industrial management personnel generally recognize that six broad fields of activity need to be accomplished in any organization. These are technical, commercial, financial, security, accounting and managerial. The managerial activity in turn, is considered to consist of the four functions of planning, organizing, motivating and control.²⁵⁾ Most farm management texts, while stressing the importance of planning and, to a lesser extent control, have largely ignored the functions of organization and motivation. This is fully un-

derstandable in countries where the only worker who needs to be motivated and organized is the proprietor himself, and perhaps his immediate family. Generally this does not involve the highly complex organization and motivational procedures required in industry or large labour extensive farms.

Most farmers in Southern Africa consider labour supervision to be their most important function. As a consequence, little time is spent on the other functions of management, so that typically our farmers move from crisis to crisis. To be sure there are exceptions, but closer examination usually reveals that the better farmers have delegated much of the routine work and spend more time on policy decisions.

ORGANIZATION

As farm size increases it becomes increasingly difficult for the sole proprietor to:

- (a) Accomplish with the assistance of family labour, all the daily chores associated with the expanded enterprise. This is particularly so in countries where machinery is relatively expensive and labour relatively abundant and inexpensive.
- (b) As the labour force expands, supervise the tasks of each hired employee.

The tendency for close supervision of a relatively unskilled and uneducated manual labour force has only recently begun to erode. Generally all but the most menial manual tasks are still largely undertaken by the proprietor. Thus workshop repairs, all forms of construction, and in some cases even machine operation are considered to be the province of the farm manager.

As a consequence the most common form of organization found on these farms, particularly the smaller ones is the two tier form where every instruction is issued by the manager, and all employees are responsible directly to him.

Fig. 1 - Two-tier organizational structure

In this form of organization there is little or no specialization of function. In direct contrast the larger farms through force of circumstances, have delegated specific tasks. On these farms there are men as, or even more skilled than, the manager in ploughing, fencing, plumbing and a host of similar activities. Yet even on these farms the organizational structure has developed in a haphazard manner with no formal guidance.

Organization considered in the context in which it is employed here can be defined as: Determining what activities are necessary for any purpose or plan, and arranging them in groups which may be assigned to individuals. Thus organization involves people and activities. Management theory

21) Harrison, J.E. (1968). This is the age of specialization. Rhodesian Farmer, Salisbury, December 6

22) Johnson, Glenn L. (1960). The labour utilization problem in European and American agriculture, J. Agric. Econ. 14, 73-78.

23) Marshall, C.R. & Parsons, S.D. (1971). Factors affecting crop production profitability. Unpublished student research project. University of Rhodesia

24) Davies, A.J. op. cit.

25) Kazmier, Leonard J. (1969). Principles of management, McGraw-Hill Book Co., New York

Fig. 2 - Organizational chart of a Rhodesian farm

has developed an organizational chart, or schematic layout which represents the division of activities among personnel. The chart shows who reports to whom, and serves to describe the vertical channels of communication which link the manager to the operative level in the organization. The most critical part of organization on farms is deciding how the various activities on the farm should be grouped, who should be assigned to particular tasks, and to whom he is responsible. This is a particularly difficult task on most farms because of the seasonal nature of agricultural activities, but it can be achieved and generally results in great savings of managerial time.

For example, Figure 2 shows the organizational chart of a Rhodesian farm after reorganization from an essentially two-tier form of the type shown in Figure 1.

The farmer in this case communicates directly with only four men. Together with these men he plans the activities of his three main enterprises giving these men the authority to carry out the plan. Each foreman in turn, assigns authority for particular tasks to the men under him. Responsibility for the manner in which the job is conducted flows up through the chain of command to the manager who, of course, must bear full responsibility for the success or failure of the business.²⁶⁾

Since activities may be organized and assigned on the basis of product, territory, function or number there can be no ideal form of organization applicable to every situation. In fact, much research is required to determine how the principles of organization and delegation can best be applied to farms. In particular the question of farm labour training requires urgent investigation.

MOTIVATION

The motivational function of management, which is also largely ignored by farm management, plays a vital role because of the importance of people

in the successful attainment of any organization's objectives. Since motivational theory relies heavily on psychology it is even more foreign to agricultural economists than the theory of organization.

Early management workers discovered that non-monetary incentives (working conditions and social factors) were as critical in motivation as the more usual monetary incentives.²⁷⁾ As a result managerial interest in employee morale has developed and much research effort has been devoted to this aspect of management. Two theories most commonly quoted in this context are McGregor's theory X and theory Y²⁸⁾ and Herzberg's motivation - maintenance theory.²⁹⁾ Under McGregor's theory X it is assumed by managers that most people have an inherent dislike of work, and therefore to achieve organizational objectives it is necessary to coerce people. Conversely in theory Y McGregor suggests that people do not inherently dislike work but work to satisfy basic motives.

Herszberg *et al* suggest that there are two sets of motivational factors; those which, if not satisfied at a minimum level will lead to job dissatisfaction (i.e. maintenance factors concerning the work environment) and factors such as achievement, recognition and responsibility which are positive (motivational).

Clearly the importance of motivation cannot be excluded from any general deliberations or farms management where large labour forces are involved. Additional problems may arise because

27) Mayo, Elton (1933). The human relations of an industrial civilization, Cambridge, Mass., Harvard University Press; as quoted by Kazmier *op. cit.*

28) McGregor, Douglas (1960). The human side of enterprise, New York, McGraw-Hill Book Company

29) Herzberg, Frederick, Bernard Mausner, and Barbara Snyderman (1959). The motivation to work, New York, John Wiley & Sons

26) Parsons, S.D., An approach to management No. 5. Modern Farming Publications, Salisbury, July 1971

of differences in the race, culture and educational level of Southern African farm labourers. However, research similar to Herzberg's has recently been completed among industrial Bantu workers in South Africa which could form a useful basis for application at the farm level.³⁰⁾

CONTROL

Though farm management has devoted much time and effort to record keeping, it would seem that the direction of such activities has been geared more to providing information for economists than to assisting the farm manager achieve his objectives. The industrial management definition of control is: "Ensuring that the operations of the business are conducted in accordance with the plans that have been adopted, the policies laid down and the orders given."³¹⁾

Control is achieved by setting standards of quantity, quality, cost and time and comparing performance against these standards. Since determination of standards requires more than an arbitrary decision, the control process cannot be divorced from planning. Planning, by definition, involves the determination of standards, and control, though the need for corrective action leads to further planning. For this reason comparison of what has occurred against the standard must be timely. Unfortunately most farm recording services seldom make provision for predetermined standards, nor do they provide the farmer with a completed analysis until well after the production year. Thus farm records are probably more valuable to the economist intent on a ready source of survey data than the farm manager intent on a sensitive control technique. To resolve this problem farm managers should probably be encouraged to play a more positive role in the planning and control of their operations while looking to economists only for occasional guidance and assistance.

30) Verwey, F.A. (1968). The attitudes, job expectations and motivation of Bantu employees in industry. Report on a survey, C.S.I.R., National Institute of Personnel Research

31) Urwick, L. (1947). The elements of administration. Pitman and Sons, London

CONCLUSION

Since farming in Southern Africa depends to a large extent upon the co-ordinating ability of the farm manager, the broader management approach adopted by industry deserves greater attention than it has received till now. Particularly as the size of the business increases, and farms diversify to fully utilize available resources, farm managers will become more remotely involved with daily detail. They will depend more upon sound personnel management principles, and will require more sophisticated control techniques.

Organizational and motivational problems are already being encountered on many farms. Though agricultural economists probably touch on these subjects when dealing with labour management they can only be considered amateurs in this field. In consequence the farmers are turning increasingly to industrial management personnel for solution of their problems.

In short form management appears to have become overly involved with positive descriptions of agricultural adjustment problems³²⁾ and sophisticated, normative planning techniques for the solution of these problems. We have devoted insufficient attention to how the plan is to be achieved. This is not to deny that much of the information provided by production economists is useful to the farmer. The basic production economic theories are essential at the decision making level, but sooner or later these decisions need to be implemented. It is at the level of implementation that farm management has abdicated its responsibilities.

In the course of its development farm management spawned the infant subject of production economics. Perhaps the time has now arrived when the demanding infant should be weaned so that its progenitor can continue with its original objective, viz., the improvement of management at farm level.

32) C. Johnson, 1963, *op. cit.* p. 26