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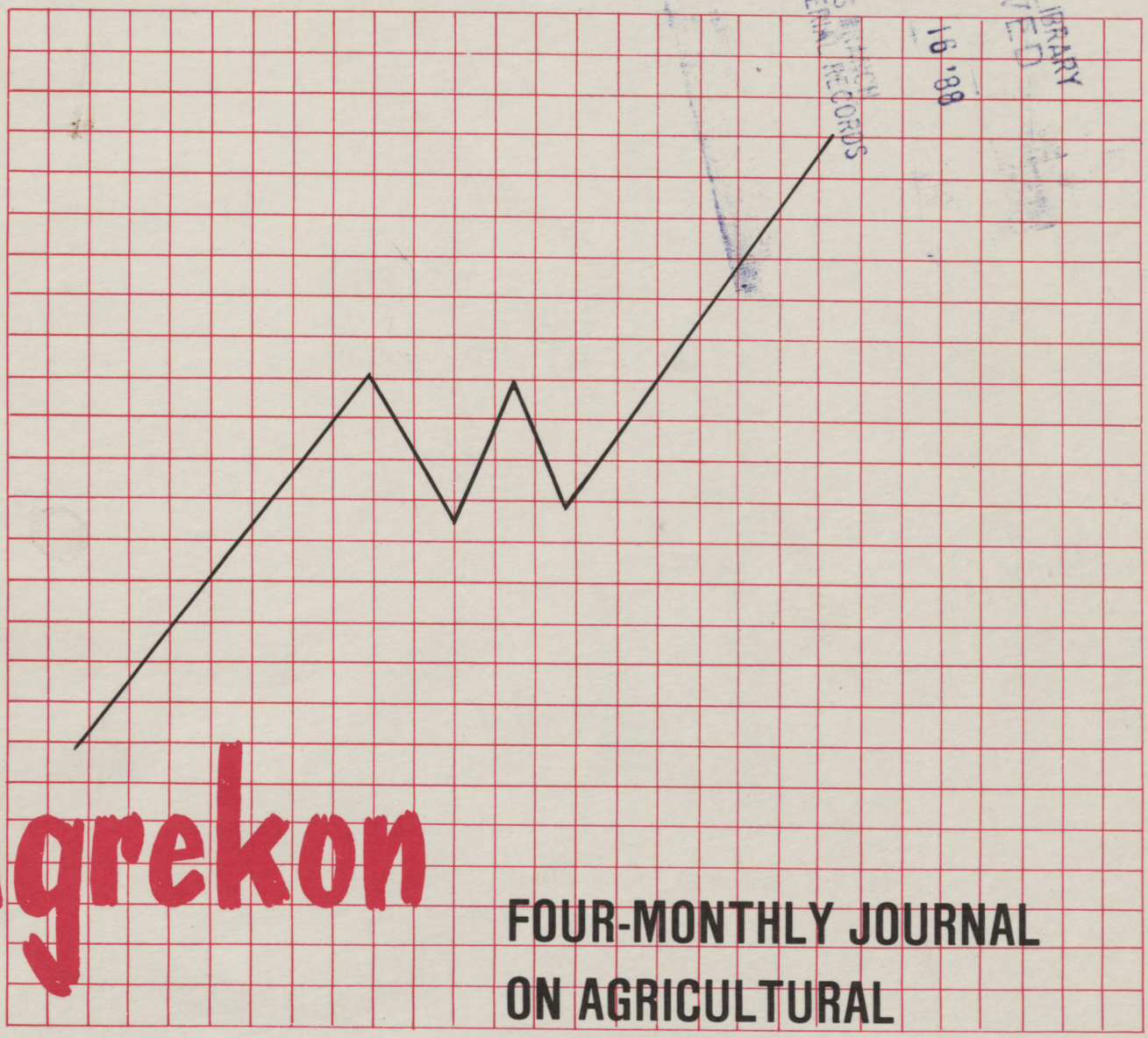

Agrekon

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FARM MANAGEMENT IN SOUTH AFRICA: THE STATE OF THE ART*

by L. KLOPPER OOSTHUIZEN** ***

ABSTRACT

The purpose of this article is to evaluate the present situation of farm management (FM) in South Africa in its professional context. The evolution of FM in the USA, the UK and Australia has been used as the norm to evaluate the progress of FM teaching and research in South Africa.

In order to review the development of FM in South Africa over the past 60 years, the period has been divided into three phases. The outstanding feature of FM in Phase I (1925 - 1950) was its multidisciplinary nature in contrast with the dominating role of production economics in FM in Phase II (1950 - 1970). The last 15 years (Phase III) in the evolution of FM is typified by the greater role played by management science in FM.

As in the USA, the UK and Australia, it can be said that FM is regarded basically as FM economics (narrower approach) in South Africa today, but attempts are being made to integrate the various disciplines. As far as FM teaching is concerned, the integration is accomplished in two alternative ways. In contrast to the case in the USA, FM research was given the highest priority than other fields of agricultural economics during Phase III. The progress made in FM in SA over the past 15 years was satisfactory on the whole. However, the progress was far from ideal, because there were no strong international leaders in FM during this period. FM will remain a key field of agricultural economics in future, but it can be expected that the relative importance of FM will decline as it did in the USA.

INTRODUCTION

The field of farm management

In the latest and most comprehensive book on farm management (more than 800 pp.) that is on the market today, Boehlje and Eidman (1984) do not go to any great trouble to define farm management (FM). Indeed it is a difficult and perhaps an impossible task. They prefer to describe the management principles, instruments, concepts, functions and responsibilities.

The contents of the book, however, delineate the field of FM to a great extent.

If required to give a short definition of FM, I would choose from the many good definitions like those by Giles and Stansfield (1980) and Nix (1979), the one by Dillon. To date he has given the most concise, but also the most comprehensive definition. Dillon (1980, p. 258) defines FM as "the process by which resources and situations are manipulated by the farm manager in trying, with less than full information, to achieve his goals". In contrast with other definitions of FM this definition emphasises the following aspects better than existing definitions:

(i) FM (i.e. what farmers do in their managerial role) is not FM research, teaching or consulting.
(ii) The farm firm system and its environment are dynamic by nature.
(iii) The farmer is confronted with resources as well as situations.
(iv) It emphasises the active role of manipulation as against the more passive role of organising and control.
(v) The uncertain nature of the farmer's decisions-making, thereby implying attempted rather than sure achievement of objectives.

Importance of the subject

Almost everyone realises today that "management" is an important determinant in the satisfactory accomplishment of the objectives of a firm. Therefore it is essential to evaluate the professional progress in FM from time to time and to indicate the path that was followed up to the present situation.

Objective and points of departure

The purpose of the article is to evaluate the progress in FM in South Africa in its professional context.

In accordance with Dillon (1965 and 1979), the basic point of departure in this article is to discuss FM in its professional context only. This means that adequate distinction must be made between the activity of the farmer, i.e. practical farm management (fm) and the professional activity, namely FM. FM is based on tertiary education of a professional nature. Furthermore, FM is a career activity (or a component thereof) that is directed at the rendering of a service to agriculture. Therefore,

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***University of the Orange Free State, September 1986

this article is not concerned with practical fm and what practising managers should do within the context of their particular farm. Naturally the two activities are related to such a degree that, only at its professional peril, can FM ignore practical fm.

In order to evaluate the present situation with regard to FM in South Africa, it is necessary to determine what developments in FM took place in countries outside South Arica that significantly influenced the development of FM locally. Thereafter the evolution of FM in South Africa over a period of sixty years, from about 1925 to 1985, will be reviewed. In the third section I shall evaluate the present FM situation. Finally a few comments on future challenges will be expressed.

SHORT REVIEW OF THE SITUATION OF FM IN THE USA, THE UK AND AUSTRALIA

Although it is difficult to determine when FM as an academic discipline began, there is general agreement that FM was born in the USA in the late nineteenth century. Approximately thirty years later, according to Currie in 1913, FM began in the UK. Approximately a decade later FM began in Australia (Dillon, 1965) and in South Africa (Behrmann, 1964).

The development of FM as an academic field of study in the UK, Australia and South Africa was strongly influenced by the evolution of FM in the USA during the period from about 1920 to the late 1960s (Dillon, 1979). Earl Heady and Glenn Johnson, especially, opened new avenues, threw new light on old problems and brought penetrating new insights. As an example Heady's book, published in 1952, can be mentioned.

The impetus they provided for FM died out with the demise of the North Central Farm Management Research Committee (NCFMRC) and the shift in interests of both these men to sectoral modelling and problems of economic development. To date, according to Schuh (1983), no one has come forward to provide the international intellectual leadership that they once provided in FM.

The position of FM in the USA, the UK and Australia will now be discussed, as this will serve as a guide-line in the evaluation of the development process of FM in South Africa in the next sections.

United States of America (USA)

For the purpose of this article the author's impressions of a Farm Management Retreat of the Department of Agricultural and Applied Economics at the University of Minnesota in May 1983 are considered as appropriate. According to Schuh (1983), it is fair and correct to state that FM is no longer the main pillar of the profession and discipline of agricultural economics in that Department or at national level. In the USA therefore, FM has declined in relation to other fields of the agricultural economics discipline. However, FM remains a key field of agricultural economics. Evidence of this can easily be found. One merely has to look at the agricultural economics curricula of the Land Grant Universities in the USA.

As mentioned previously, the NCFMRC played an important role in the high points reached in FM. One of these was the Interstate Managerial Survey (IMS) conducted with 1 075 farmers in seven states in the USA in the late 1950s in order to:

(i) examine the role of information in decision-making;
(ii) establish the applicability of the management processes in describing the decision-making process:
(iii) learn more about the analytical methods used by farm managers in making decisions;
(iv) describe and establish expectation models used in the decision-making process;
(v) ascertain the extent of use of certain insurance and personal strategies;
(vi) give empirical content to previously conceptualised work knowledge situations; and
(vii) obtain data to test hypotheses involving insurance and risk taking.

The IMS made valuable and lasting international contributions to FM. They are rated so highly that Schuh (1983) considers that we do not know much more about FM today than we did after the IMS, except perhaps with regard to new insights into farmers' risk preferences.

Another highlight was the study of the human factor in FM about a decade later. This regional project was entitled *The identification and measurement of managerial ability and its effect on resource use in farming*. These researchers developed a management model (the James Nielson management model) to predict the management performance of farmers. The Nielson model was an aid in understanding the complex nature of management, but they did not succeed in developing an objective method to evaluate farmers as managers. This evaluation ambition remains a challenge (Shaudys, 1981).

Today the approach to FM in the USA is more comprehensive, integrated and analytical than before, but the so-called "FM identity crisis" is not yet over. The fundamental question asked by Ruttan (1967), namely (i) whether FM as an academic field should confine itself to the economics of FM (i.e. FM economics), or (ii) whether production economics is merely one of the applied behavioural, social, biological and physical science disciplines on which FM is based, is as relevant as it was then. If the narrow approach is followed the dilemma is that the agricultural economist cannot carry out his integration function well enough. Practising managers and consultants are then expected to integrate all the disciplines for decision-taking at farm level. If the broad approach is followed the demands made on agricultural economics as a discipline become almost unmanageable. On the whole FM is regarded as FM economics in the USA, but attempts are being made to integrate the

different disciplines more. The book by Bhoehlje and Eidman is proof of this. As far as FM teaching is concerned, however, a broader approach is followed. This is accomplished by offering a management degree at undergraduate and post-graduate level in conjunction with a business school. A general trend in the USA is that applied work develops more and more into separate disciplines, and in many cases into separate departments. To counteract this trend the Strategic Management Research Centre was recently established at the University of Minnesota. This Centre is a joint undertaking by the School of Business, the Department of Agricultural Economics and the Institute of Public Affairs.

At present the focus in the USA with regard to FM research, teaching and extension work falls on managerial skills and processes, studies about risk in farming and the sensitivity to risk of farmers, the use of computers as decision-making aids, control of farm resources so that farm firms can grow at an optimum rate, off-farm work opportunities on a part-time basis for farmers, inter-disciplinary work, more utilisation of the knowledge and experience found at business schools and improved use of communication technology in FM extension.

The United Kingdom (UK)

Not long ago Nix (1979) concluded in a review article that the progress of FM in the UK was satisfactory. According to him FM in the UK had been 30 years behind the USA initially, but this was definitely not the case in 1980. The most important reason for this was that researchers and academics in general had closer contact with extension officers and leading farmers than in the USA.

An important event in the history of FM in the UK was the establishment of the Farm Management Association (FMA) in 1965. This Association has approximately twice as many members as the Agricultural Economics Society in the UK. About two-thirds of the members of the FMA are farmers and managers and a third are academics and management consultants. From the outset academics were closely connected with the FMA. Since 1967 the Association has been publishing a magazine (*Farm Management*) three times a year. Although it is a professional magazine, the articles are not too academic.

The establishment of the FMA played an important role in the general acceptance of FM by British farmers. An important aspect was the organising of district branches that usually held 5 to 6 meetings a year. The FMA organised the first International Farm Management Congress in 1971. For example, a committee of the FMA investigated the professional qualifications of practising managers and drew up a series of "Aids to Managers". Surveys on salaries and work conditions of managers on farms were made. Courses in advanced FM, personnel management and marketing were presented to members annually. The biggest advantages to academics were the feedback from management consultants and the contact they had with leading farmers.

The national leaders in FM in the UK today are Tony Giles and John Nix. In 1973, during a period when American FM books were scarce, *Farm Planning and Control* by Barnard and Nix was published. For practising managers Giles and Stansfield wrote the book *The Farmer as Manager* in 1980.

Another outstanding feature of FM in the UK is that the so-called broad approach to FM teaching is followed, but unlike the method followed in the USA, lecturers at the faculties of agriculture are grouped as at a business school. The Farm Management Unit at the University of Reading, since 1979 under the leadership of Giles, deserves to be mentioned here.

Australia

I am not going to discuss the evolution of FM in Australia because it was very similar to that in SA. It must be mentioned, however, that John Dillon has been the national leader in FM in Australia since 1960 and that he has built up a formidable team of agricultural economists at the University of New England. The best FM book of the 1970s, according to Dillon, was written by Makeham (one of his colleagues) under the title *Farm Management Economics*. Makeham and Malcolm (1981) improved on this with their book *The Farming Game*. The syllabuses developed by the Department of Agricultural Economics and Business Management at the University of New England in 1985 reflect, to a great extent, the high level of teaching that has been reached in Australia. As in the USA, FM is generally regarded as FM economics (the narrower approach) in Australia, but attempts are being made to integrate the various disciplines in FM teaching to a greater extent.

AN OUTLINE OF THE DEVELOPMENT OF FM IN SOUTH AFRICA OVER THE PAST 60 YEARS (APPROXIMATELY 1925 - 1985)

For the purposes of this article the history of FM in South Africa has been divided into three phases. The first phase of approximately a quarter of a century (from about 1925 until after the Second World War) is called the pioneering period. The second phase was characterised by the increasingly important role played by economics in FM and spans two decades from about 1950 until the late 1960s. The last phase (about 1970 to 1985) is typified by the increasingly important role of management science in FM. More attention will be paid to the last phase.

The pioneering period: from about 1925 until after the Second World War

The outstanding feature of FM right from the outset was the multi-disciplinary nature of the field of study, as in the USA. As far as FM teaching is concerned the nucleus subjects were Agricultural Economics and one of the biological agricultural sciences. A variety of research contributions were made during Phase I. The approach was mainly one of fact-finding. Characteristic of this period are the cost accounting studies and economic surveys. The pioneers whose names are prominent are J.C. Neethling, S.J. de Swardt and F.R. Tomlinson. During Phase I there was a lack of any specific institutional framework for FM research and teaching. Institutions that were involved from the outset were the faculties of agriculture at two universities and the Division of Economics and Markets.

Increasingly important role of economics in FM (about 1950 to the late 1960s)

Phase II of the development of FM is characterised by the increasingly important role played by economics in FM. The swing to emphasising production economics as the major component in FM training occurred as a growth out of the initial development of FM by professional agriculturalists with little or no background in analytical economics. During this phase the development of FM and general agricultural economics became indissolubly entangled as in the USA and Australia. FM was little more than applied production economics. The implications of this view were that FM teaching should have Economics as its parent discipline. The composition of agricultural economics curricula consequently changed drastically. The nucleus subjects were now Economics and Agricultural Economics with the biological agricultural sciences as the comprehension subjects and Statistics and Accounting as auxiliary subjects.

The most prominent feature of FM research was the gradual shift in emphasis from descriptive to analytical research. A good example of this gradual change in research orientation is the FM research published in the *South African Journal of Economics* and *Agrekon* at that time.

Hattingh (1973) outlined FM research done during this period. He divided FM research into farm organisation studies, enterprise studies, farming practise studies, management research and methodology research. Most progress was made in methodology research. An outstanding feature was the progress made in the development of farm record books (the S.P. van Wyk record book) and record keeping (Hattingh, 1968), the inter-farm comparison technique (Brand and De Swardt, 1964), budgeting techniques (Hattingh, 1968), production function analyses (Kassier, 1966), gross margin analyses (Hattingh, 1968) and linear programming (Kassier, 1963.)

With regard to management research, in the mid-sixties J.A. Groenewald (and previously D.J.G. Smith) realised the merits of the sociologically based approach that was followed by agrarian extension officers and the possibilities for application it had for agricultural economists. It began with an analysis of the decision-making process of farmers (De Swardt, 1965). Subsequently a scale was developed to measure the managerial aptitude of farmers (Burger, 1967).

Progress in FM was therefore very good during Phase II, because it was closely correlated with the development rate in the USA, which was the leader. At this stage the levels of development in FM corresponded to a great extent to those in the USA, the UK and Australia. During this period in our history FM was given a big thrust by the leadership of S.J. de Swardt, F.R. Tomlinson, S.P. van Wyk, H.S. Hattingh, H.I. Behrmann, W.E. Kassier en J.A. Groenewald at overlapping stages. They all visited the USA and the UK at some stage. An outstanding feature of Phase II was that FM was dominated by production economics. This was a logical result of events in the USA, the UK and Australia. In South Africa it began when D.J.G. Smith, in particular, began to use Heady's book (1952) in FM teaching in the mid 1950s.

The institutional framework for FM teaching and research changed and expanded during Phase II. The Economics and Markets Division was extended and changed into the Department of Agricultural Economics and Marketing. Two more faculties of agriculture were established.

Increasingly important role of management science in FM (about 1970 to 1985)

Phase III in the evolution of FM is characterised by the more important role being played by management science in FM. Another outstanding feature was the development of full-time career opportunities in FM teaching, research and consulting.

With regard to FM teaching, the most significant changes took place at the beginning of the period with the introduction of business-oriented agricultural degrees. A distinction must be made, however, between the B.Sc. Agric. and B. Agric. curricula. The B.Sc. Agric. curriculum did not change much on the whole, except that Business Administration became more important. The changes vary from essential changes in the composition of the curriculum, to lesser changes in the composition of the curriculum to mere syllabus changes. The Department of Agricultural Economics at the University of Stellenbosch changed the Agricultural Economics curriculum the most drastically during this period so that provision was again made, as in Phase I, for Agricultural Economics and one of the biological agricultural sciences as nucleus subjects in FM teaching. An example of a smaller change in curriculum composition can be found in the Department of Agricultural Economics at the UOFS where Business Administration is a nucleus subject

with Agricultural Economics in certain curricula.

On the whole the contents of Agricultural Economics syllabuses changed substantially because more and more management concepts were included, especially financial and personnel management principles. With regard to post-graduate FM teaching, business administration also began to play a larger role. Another development was that students could supplement their FM tuition with courses at a business school. An example is the Department of Agricultural Economics at the University of Pretoria.

All the faculties of agriculture except at the UP, now offer B. Agric. degrees. The extent of business orientation of the B. Agric. degrees vary. The more business-oriented B. Agric. degrees combine Business Administration with Agricultural Economics as nucleus subjects. Over the past 15 years few changes have been made with regard to the undergraduate B. Agric. curricula. The greatest changes were at the post-graduate FM teaching level. FM can now be offered up to Ph.D. level. One of the most recent developments has been that since 1980 the University of Stellenbosch has developed close teaching integration between the Department of Agricultural Economics and the Business School (similar to the case in the USA). As a result of this a modular MBA degree which includes Agricultural Economics has been offered since the beginning of 1984. Another development that should be mentioned here is the post-graduate FM teaching in the Faculty of Agriculture at the UOFS. Since the early 1980s the Faculty has endeavoured to organise a broad staff set-up for FM teaching patterned on the set-up at business schools and corresponding to the situation in the UK.

On the whole it can be said that the systems paradigm for FM teaching has been accepted because it provides a better framework for the multi-disciplinary nature of FM.

With regard to FM research, the developments can be sketched briefly by using Hattingh's classification scheme (1973) again. Only the most important developments are mentioned here. In general the FM research in Phase III became more and more analytical. The volume of work has also increased.

As can be expected, considerable attention has been given to the continuation of methodology research which was started in Phase II. As far as farm record keeping is concerned, no meaningful changes in record keeping and analysing procedures occurred, but much work was done in connection with electronic data processing. One immediately thinks of the computerisation of the mail-in recording system of the Directorate of Agricultural Production Economics (APE), the Canefarms system of the S.A. Canegrowers Association and the present attempts of APE to computerise the *Financial Record Book for Farmers* which was released in 1980.

The application of the various budgeting techniques became more important because these time-consuming procedures can now be carried out quickly by means of micro-computers. A distinctive development is the stronger emphasis that has been placed on cash flows. Whereas in Phase II, and also initially in this phase, most attention was concentrated on the income statement, the balance sheet is also being studied now.

The gross margin analysis technique is used widely, as in Phase II. The inter-farm comparison technique is still used, but to a lesser extent. There has been a considerable decline in the application of production function analyses on farm level.

Research using the LP technique has received continuous attention. Integer, dynamic-, linear, Monte Carlo and game-theoretical programming techniques have been applied sporadically. Simulation was also used in a few studies. Several system simulation models and packages were developed and used, for example the DAISI dairy model.

The standard of enterprise studies has improved considerably and the volume of work has increased. The enterprise budgets of APE since 1970, which were computerised in 1981 and are known as COMBUD, can be mentioned here. Considerably more so-called "management research" was undertaken during this period. Studies in measuring the management factor received the most attention in the first half of the period. This research was continued by Groenewald and Burger, originally on the initiative of P.J.G. Smith, at the end of Phase II and later Groenewald and several collaborators continued with it. This type of research is very similar to the regional project undertaken in the USA in the 1960s concerning the measuring of management performance. Later there was less emphasis on managerial ability and skills and more on management objectives and the management process. The technique of management by objectives was applied for the first time (Hill, 1974). With regard to the management process, Hill (1974) added to the IMS work and the work done by De Swardt (1965) in South Africa by indicating what a manager does when he "takes action". He succeeded in doing so by using industrial management theories. This approach of applying management science in FM research to a greater extent was continued by Oosthuizen (1981), who used the Farmer-Richman model to analyse farm management problems. This progress included management functions and also the environmental restrictions of the firm.

During Phase III attention was also given to personnel management on farms. Oosthuizen (1981), in collaboration with Lloyd of the University of Reading, adapted a diagnostic instrument to measure personnel management on farms in the RSA.

With regard to other aspects of FM research, a more recent development was that FM analyses became more dynamic. For example, Louw (1979) took risk into account in alternative land-buying strategies. Thereafter Van Zyl (1985) took risk in farming explicitly into account by using various methods such as MOTAD and stochastic dominance to select the optimum strategy.

Another outstanding feature of Phase III is the development of full-time career opportunities in FM

teaching, research and consulting. The development of the management consultant profession which was started in the late 1960s has been gaining momentum since 1980.

During this period the institutional framework for FM teaching, research and consulting changed and expanded further. A change that should be mentioned here is that the faculties of agriculture were detached from the State at the beginning of this phase. Another three departments of agricultural economics were established at universities. Persons who took the lead during Phase III are, in alphabetical order, H.I. Behrmann, J.A. Groenewald, H.S. Hattingh, W.E. Kassier and H.A. Kotzé.

EVALUATION OF THE PRESENT STATE OF FM IN SOUTH AFRICA

If the progress of FM in South Africa over the past 15 years is evaluated in terms of the progress of FM in the USA, the UK and Australia, one arrives at the conclusion that the progress was satisfactory on the whole. However, the progress was far from ideal because the outstanding international intellectual leadership in FM found in the previous phase was absent during this phase. FM in South Africa would probably have developed more quickly if bursaries were still made available to South Africans for overseas studies, as was the case in Phase II. As far as the application of FM principles to farms in the RSA is concerned, there was not nearly as much progress as in the UK. The quality of management on South African farms was unsatisfactory at the beginning of this phase (Groenewald, 1973), and at the end of the phase the situation had not changed much, according to the findings of a think tank on FM held in Pretoria in 1984.

The progress in FM teaching, research and consulting in South Africa during this last phase will now be discussed more specifically.

With regard to FM teaching, one could generally say that, as in the USA, the UK and Australia, there was a trend to follow a broader approach than in Phase II. This was mainly achieved by introducing industrial management principles into Agricultural Economics curricula. FM teaching consequently became more multidisciplinary in nature. Two alternative methods of approach in performing this integration function have been identified. It is not possible to rate the quality and effectiveness of post-graduate FM teaching at the various universities, because such comparisons have not been made in South Africa (in contrast to the case in the USA).

During Phase III FM research was given the highest priority in relation to other fields of agricultural economics. The relative importance of FM research can be studied by looking at the contents of the *Agrekon* articles published during this period. Table 1 shows that 40 per cent of the *Agrekon* articles in Phase III were about FM. It can also be seen that the ratio of FM articles almost doubled during the middle period and improved slightly more over the last five years.

TABLE 1 - The ratio of FM articles in *Agrekon*, 1971 - 1985

	FM articles	Other articles	Total articles	% FMA articles
1971 - 75	23	59	82	28
1976 - 80	31	37	68	46
1981 - 85	29	27	56	52

The quality of FM research was better during Phase III because the research became more analytical . When the contents of the articles in the first issue of *Agrekon* in 1962 are compared with the contents of the articles in Volume 24 of 1985 the differences are quite clear. The research orientation is mainly analytical now and is based on economic theory. Today the "typical" FM survey attempts to answer the following question: Under what conditions is it profitable to do such and such? In the previous phase, on the other hand, a "typical" survey investigated the question: Is it profitable to do such and such under the present price conditions? In the previous section it was shown that methodology research constantly received the most attention. The quality of this research also compares favourably with similar research in other countries.

The volume of FM research also exceeds that of the previous phase. But when one compares the number of FM articles in *Agrekon* with the number in the *Journal of Agricultural Economics* and the magazine *Farm Management* over the same period, one realises that FM researchers in SA will have to make up a lot of lost ground. In contrast to the 83 FM articles in *Agrekon* during Phase III, 284 articles appeared in *Farm Management* alone during the same period.

Fields of research where South Africa did not keep up with the progress in other countries are: decision analysis, systems analysis, risk in farming, the use of computers as true decision-making aids, personnel management, growth theory, outlook studies and inter-disciplinary research.

With regard to FM consulting in South Africa, the profession is still in its infancy. It is apt at this stage to repeat the question asked by Hattingh (1976, p.58): Why not establish farm management associations on a regional basis? It certainly contributed greatly to the improvement of management on farms in the UK.

Finally, I wish to point out that the so-called "FM identity crisis" is gradually becoming more intense. At present there is noticeable tension between agricultural economists who are more quantitatively oriented and those who are more business oriented. This tension also exists between agricultural economists and economists. It is the inevitable result of the evolution and growth of knowledge. As knowledge grows, theory becomes increasingly abstract and at the same time increasingly divorced from applied work.

SOME THOUGHTS ABOUT FUTURE CHALLENGES IN FM

FM will remain a key field of agricultural economics in future, but it can be expected that the

relative importance of FM in South Africa will decline as it did in the USA. However, FM as a discipline will survive.

The challenges in FM research will be mainly in attending to those research areas where we did not keep up with the progress in other countries and in continuing present research. In FM teaching the challenges are to present FM as a multi-discipline and to overcome the growing lecture load. Futhermore, the communication lines between FM teaching, research and consulting must be kept open more successfully. Finally, there will have to be a greater effort than in the past to keep pace with changes in the economic environment and changes in the disciplines that support FM.

BIBLIOGRAPHY

BARNARD, C.S. and Nix, J.S. (1973). *Farm planning and control* Cambridge: Cambridge University Press.

BEHRMANN, H.I. (1964). Die ontstaan van bedryfsekonomiese navorsing in Suid-Afrika. *Agrekon* 3 (4): 18-24

BOEHLJE, M.D. and Eidman, V.R. (1984). *Farm Management* New York: John Wiley and Sons

BRAND, S.S. and De Swardt, J.B. (1964). The use of interfarm comparisons in improving farm management efficiency. *South African Journal of Economics* 32 (2): 95-112

BURGER, P.J. (1967). *Agricultural progressiveness: A South African concept* Dissertation (D. Agric. (Inst. Agrar.)), University of Pretoria

CURRIE, J.R. (1956). A review of fifty years' farm management. *Journal of Agricultural Economics* 11 (4): 350-360

DE SWARDT, J.B. (1965). *Die besluitvormingsproses by tafeldruifboere in die Hexriviervallei* Dissertation (D.Sc.Agric.), University of Pretoria

DILLON, J.L. (1965). Farm management in Australia as an academic discipline. *Review of marketing and agricultural economics* 33 (4): 175-189

DILLON, J.L. (1979). An evaluation of the state of affairs in farm management. *Suid-Afrikaanse Tydskrif vir Landbou-ekonomie* 1 (1): 7-13

DILLON, J.L. (1980). The definition of farm management. *Journal of Agricultural Economics* 31 (2): 257-258

GILES, T. and Stansfield, M. (1980). *The farmer as manager* London: George Allen and Unwin

GROENEWALD, J.A. (1973). 'n Oorsig van die gehalte van bestuur in die Suid-Afrikaanse landbou. *Agrekon* 12 (2): 38-46

HATTINGH, H.S. (1968). Boerderybestuurskursus Deel I en II. - Durban: Division of Agricultural Production Economics, Department of Agricultural Economics and Marketing, 26 - 28 March 1968

HATTINGH, H.S. (1973). 'n Evaluasie van landbou-ekonomiese navorsing. *Agrekon* 12 (1): 14-19

HATTINGH, H.S. (1976). Bevordering van boerderybestuur in die praktyk, *Suid-Afrikaanse Tydskrif vir Landbouvoorligting 5: 55-58*

HEADY, E.O. (1952). *Economics of agricultural production and resource use* Englewood Cliffs: Prentice-Hall Inc.

HILL J.N.S. (1974). *Modernisation of management techniques in large agricultural operations* Dissertation (D. Sc. Agric), University of Pretoria

KASSIER, W.E. (1963). An application of linear programming to farm planning. *South African Journal of Economics* 31 (2): 118-126

KASSIER, W.E. (1966). A production function study of marginal returns and optimum intensity on East Griqualand farms. *South African Journal of Economics* 34 (2): 158-164

LOUW, A. (1979). *Groeistrategie vir boerdery-ondernemings* Dissertation (D. Sc. Agric), University of Pretoria

MAKEHAM, J.P. (1971) *Farm Management Economics* Armidale: Gill Publications

MAKEHAM, J.P. and Malcolm. L.R. (1981). *The farming game* Armidale: Gill Publications

NIX, J.S. (1979). Farm management: the state of the art (or science). *Journal of Agricultural Economics* 30 (3): 277-291

OOSTHUIZEN, L.K. (1981). *Die ontwikkeling van 'n bestuurstelsel vir beter benutting van Swart werkers in 'n boerderyonderneming, met besondere verwysing na personeelpraktyke in die Brandfortdistrik* Dissertation (Ph.D.) University of the Orange Free State

RUTTAN, V. (1967). Issues in the evolution of production economics. *Journal of Farm Economics* 49: 1490-1499

SCHUH, G.E. (1983). Important farm management issues in the decade ahead. Paper presented at the Farm Management Retreat, Department of Agricultural and Applied Economics, University of Minnesota, St. Paul, May 11-13, 1983

SHAUDYS, E.T. (1981). Correspondence. - Department of Agricultural Economics and Rural Sociology, The Ohio State University, Columbus, August 1981

VAN ZYL, J. (1985). *Ekonomies-optimale mieliekultivarseleksie onder risikotoestande* Dissertation (D.Sc. Agric.), University of Pretoria