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RURAL EXTENSION AND THE AGRICULTURAL ECONOMIST*

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The role of the agricultural economist in rural extension is discussed with particular reference to the changing structure of extension, exemplified by the development of private consulting services and the changing orientation of extension from purely technical considerations to problems of management. The status of the agriculturist generally, and of the extension worker in particular, is also examined and it is concluded that the status of extension as a profession must be raised if the results of technical and economic research in agriculture are to be utilized effectively.

On another occasion I have described and discussed some of the implications of the changing pattern of rural extension and advisory services in Australia, arising principally from the growing recognition of importance to the farmer of management as a decision making process.¹ Exemplifying the changing structure of extension is the recent significant development and growth of the farm management club and the private agricultural consultant as well as the introduction of formal farm management extension services in Departments of Agriculture. In this paper I propose to examine the role of the agricultural economist in the changing extension environment and discuss the status of extension as a profession.

The new emphasis on management in farming will ultimately have a profound effect on the philosophy and administrative structure of rural extension and on its techniques. That the agricultural economist will have a significant part to play in the new extension programmes which are now emerging cannot be disputed. However, I do not believe that at this stage of development the economist will engage to any extent in direct advisory activities with the individual farmer; his work in this area will be largely a by-product of visits for research or investigational purposes. At least for the time being, direct individual farm advisory work will best be left largely to the technical agriculturist and livestock husbandryman,

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¹ Druce, P. C. "Some Developments in Farm Management Extension in Australia", *Australian Journal of Agricultural Economics*, Vol. 8, No. 2 (December, 1964), pp. 112-123.

with the agricultural economist in the background. The agricultural economist will be responsible (i) for research to provide essential economic data for management purposes; (ii) for developing new techniques in farm management extension and advisory work, techniques which take full account of the need for efficient management; (iii) for providing necessary training and guidance to technical extension and advisory workers in management techniques and in the interpretation of economic data; (iv) for providing training for the farming community in management techniques and in the elementary principles of farm management economics using group extension methods; and finally (v) for interpreting economic research results and economic data generally for farmers and their advisers.

Neither the private advisory service nor the institutional extension service which fails to make appropriate use of the agricultural economist can hope to continue to provide the type and quality of service which is becoming increasingly necessary to ensure efficient utilization of resources in farming.

Dillon, in his Inaugural Public Lecture as Foundation Professor of Farm Management in the University of New England, has referred to the present situation as the beginning of a new (third) stage of development in Australian farm management.

"It is characterized by the beginnings of an adequate institutional framework for training and research; accepted recognition of the major role that economic principles must play in farm management; a developing network of State Government extension in farm management; a fast-growing professional farm management service in the commercial arena; the availability of computer services to handle the more voluminous and complex data processing and problem formulations that realistic farm management must face; and an increasing, albeit inadequate, number of competently trained personnel."²

Not only does this changing situation represent another stage in the development of farm management but it represents also a new and significant phase in the development of agricultural extension. In fact, changes—potential and actual—resulting from the impact of the farm management economist and the farm management consultant on the extension structure represent probably the most important single development in the field of extension since the introduction of formal extension services to agriculture late last century.

In agriculture, the farm management economist tends to act as an integrator, co-ordinating the use of plant, animal, financial and human resources into a meaningful unit. The influence of the farm management economist on extension programmes can be expected to give such programmes unity which often they have lacked in the past; and, while increasing the complexity of extension problems, it should result in a much higher degree of satisfaction for the individual extension worker than has frequently been the case with the piece-meal type of extension and advisory work which has typified past activities in this area of work. Not only, therefore, will it result in a much more complete advisory

² Dillon, John L. "Farm Management in Australia as an Academic Discipline", *Review of Marketing and Agricultural Economics*, Vol. 33, No. 4 (December, 1965), p. 188.

service to agriculture but it should help to attract professional workers of generally higher calibre to extension.

The Scope and Function of Extension Services

Agricultural extension has been defined as:

"A service or system which assists farm people, through educational procedures, in improving farm methods and techniques, increasing production efficiency and income, bettering their levels of living, and lifting the social and educational standards of rural life".³

There are numerous methods and approaches in extension and advisory work but in essence, extension activities can be classified either as (i) educational (extension education) or as (ii) *ad hoc* advisory work designed to answer individual on-farm problems as they arise. Although they must inevitably overlap, these two functions are basically different; the differentiation appears particularly important in considering the ramifications of extension in farm management and farm economics generally and especially in considering the relative position of government (or institutional) extension services and the new private or club-sponsored advisory services.

State Departments of Agriculture have traditionally described their services as "extension" rather than "advisory", a description which is justified as all such services incorporate at least some element of educational activity—usually substantial—in addition to the provision of specific "once and for all" advice on individual farmer's *ad hoc* problems. Nevertheless, although official extension services do fulfil educational functions, it is probably true that a much greater proportion of most extension officers' time is still taken up in advice to the individual farmer than in extension education as such. However, this situation (which has already begun to change in isolated cases as more extension officers adopt planned programmes designed to make their contribution to rural development more positive) can be expected to change significantly with the advent of private and co-operative advisory services and the implementation of farm management extension services at the institutional level.

It has been suggested that technical agricultural extension is a proper field for official extension agencies, using primarily mass and group methods, whereas farm management extension is basically a field for individual advisory services. Schapper has said "Farm management extension can only be done by close and frequent contact between adviser and farmer. Consequently the intensity of service must be high and this explains why farm management advisers probably cannot handle more than about 50 farmers."⁴

This proposition is reasonable only for the problem-solving role of extension but ignores its wider role. It appears to arise from a confusion between extension as an educational process and individual problem solving where a direct personal advisory approach is necessary. Because farm management advisory work is concerned with the organization and operation of the farm as a whole, it is generally extremely time-consum-

³ Farquhar, R. N. "Comparative Agricultural Extension", *Australian Agricultural Extension Conference 1962: Review, Papers and Reports* (Melbourne: CSIRO, 1963), p. 116.

⁴ Schapper, H. P. *An Information System and Computer Programming Service for Farm Management Extension*, (University of Western Australia, 1965), p. 2 (mimeo).

ing, whereas technical advisory work has usually been concerned with *ad hoc* technical problems on which advice can generally be given simply and relatively quickly and without necessarily considering the whole farm structure and organization, providing the basic information needed is available. Thus the technical advisory officer can often answer a number of individual enquiries in the course of a day's work and may well be able to service over 300 farms in the course of a year's activities.

There is, however, no basic difference between technical agricultural extension and farm management extension when the term "extension" is used in the sense of extension education. The differentiation between extension and advisory work is, therefore, significant when considering farm management work, the role of the agricultural economist in extension and advisory work, and the relationship between institutional extension services and the private farm management consultant or farm management advisory club.

The aim of the official extension services in the past has been to provide both educational services and individual on-farm advice on specific problems of a technical character for all members of the farming community requiring such assistance. However, no extension service in Australia, probably no extension service anywhere, could claim that it has ever achieved this situation; the ratio of extension officers to farmers is not high enough to allow every farmer to have access to free technical advice as and when he requires it. The initial impetus to the establishment of farm management advisory clubs in Australia almost certainly arose from this situation.

If comprehensive management advice is to be provided at the individual farm level, then it is not feasible that official extension services could meet the demand that would arise if a large proportion of the farming community decided to avail itself of such services. Nor, for that matter will there be sufficient trained personnel available to allow farm management clubs or private agricultural consultants to provide detailed service to any but a relatively small proportion of the individual farmers who may require it, at least for some years to come.

Assuming that one farm management adviser can handle 50 farms when providing intensive management advice (including technical advice), some 1,300 to 1,400 field advisers would be needed to provide a complete management service to N.S.W. farmers alone if all farmers availed themselves of such a service; admittedly a highly unlikely contingency. If no more than 25 per cent of the commercial farms in the State desired such a service, 300-350 advisers, in addition to supporting services, would be needed. Australia-wide the number of advisers needed might reach 1,250 on the same assumption. Coincidentally, this figure closely approximates the number of extension workers (full-time equivalent) currently operating throughout Australia in all phases of extension, but excluding supporting services.

The New Extension Services

Traditionally, rural extension services in Australia have been provided by State Departments of Agriculture (supplemented in some States by Conservation and Irrigation authorities). Until recently these State Government instrumentalities were virtually the exclusive purveyors of rural extension. They still dominate the extension field and possibly always will dominate institutional extension activities, but with the establish-

ment of the first farm advisory group at Bombala, N.S.W., in 1956, their virtual monopoly of the extension field ceased. Although still of overriding importance, their relative influence has begun to decline and is likely to decline further.

The dominance of rural extension by State government services is challenged by a number of relatively recent developments, viz:

- (i) The rapid development of individual advisory services by farm advisory clubs and private consultants;
- (ii) The entry of some universities into the extension field (a) by participating in group extension activities, formerly (in agriculture) the almost exclusive field of State Departments and (b) more recently, by the establishment of a Farm Management Service Centre at the University of New England, with another such centre proposed at the University of Western Australia;
- (iii) The recent development of private agricultural colleges which are providing limited services in extension education;⁵
- (iv) The increasing tendency for private and public companies to provide limited advisory services to their clients, usually as part of their sales programmes; and
- (v) The changing role of the Commonwealth Government in extension. Although not entering directly into extension activities, except in the Territories, the Commonwealth is likely to exert an increasing influence on the detailed content of State extension services by means of the control it will be in a position to exercise through the payment of expanded extension grants to the States.

These developments, while they should result in a material improvement in the quality and volume of extension services available to the primary producer, will make heavy demands on the slowly increasing number of trained agricultural scientists and agricultural economists graduating from Australian universities. The demand for trained personnel chronically exceeds supply and will almost certainly do so for at least a decade; even longer unless there is a marked increase in university enrolments in agricultural and associated faculties in the near future.

The seriousness of the situation is illustrated by a recent report of a sub-committee of the Victorian Branch of the Australian Institute of Agricultural Science⁶ wherein it was estimated that the output of graduates in Agriculture at the University of Melbourne would fall short of requirements in each year to 1969 by 54 under "average conditions" and by 111 under "optimum conditions".⁷ These figures, related to the expected outturn of agricultural graduates from the University of Melbourne, suggest that university enrolments in Victoria need to slightly more than double to enable "normal" needs to be met in the next five

⁵ For example, see McFarlane, G. C. "The Economics of Fertilizer Application", *Extension Bulletin No. 1*, C. B. Alexander Presbyterian Agricultural College, Paterson, N.S.W., (November, 1965).

⁶ For further detail see *The Demand for Graduates in Agricultural Science from Victoria*, Report of a Sub-Committee of the Victorian Branch of the Australian Institute of Agricultural Science, Melbourne, April, 1965 (Processed). Also: Gravell, K. *A Report on Professional Incomes in Victoria*, (Melbourne: University of Melbourne Appointments Board, 1965).

⁷ "Average Conditions" represented "Estimated recruitment based on financial and other limiting factors". "Optimum Conditions" represent "Estimated full establishment needs assuming no limiting factors". *Op. cit.*, p. 8.

years and more than treble to allow "optimum" needs to be met. Further, the assessed number of graduates required appears to be based on quite a conservative estimate of expansion in the number of private agricultural consultants in Victoria during the period.

Admittedly the situation is probably more serious in Victoria than in some other States, for example N.S.W., because there is only one Victorian university providing training in agricultural science and it imposes a rigid quota restriction on university entrance. Nevertheless, the supply of graduates is likely to be inadequate in all States unless there is a marked upswing in university enrolments, some of which are restricted to specific quotas.

Given a clearly increasing demand for intensive advisory services in agriculture, particularly in the area of management and given the likelihood that trained personnel will continue in short supply for upwards of a decade and possibly much longer, it is relevant to consider the organizational means of providing the most adequate and economically efficient extension and advisory services, having regard to the historic development of current services, both institutional and private. There is no reason to believe that private consultant and farm management club services will not continue to develop, quite possibly at as fast a rate as they have done since the early 1960's, provided only that adequate trained personnel are available to staff them. It is apparent also that the Commonwealth Government's recent decision to make substantially greater funds available to the States for agricultural extension will result in a marked increase in the long unfulfilled demand for trained personnel by State services.

Ultimately this upsurge in the demand for personnel can be expected to result in increased output of graduates by university faculties of agriculture, rural science and agricultural economics, but in the short term it would seem that the already severe competition for trained staff will be intensified. It is under these circumstances, particularly, that there is a need to examine the means of utilizing personnel most effectively.

The private consultant and club movement will tend to develop according to the demand by the farming community for such services, subject only to the restriction imposed by lack of suitable staff. It will not be inhibited due to institutional restrictions and rigidities. For this reason, and despite increased Commonwealth financial allocations to extension, it seems probable that the private consultant and farm management club will provide an increasing proportion of the individual advisory services to agriculture, although the proportion of the farming community so serviced by consultants and clubs may remain quite small for some years to come.

Given this fact, it would appear essential that the institutional extension services should devote an increasing proportion of their activity to extension education, rather than attempt to provide individual advice to a relatively small proportion of the farming community. This appears to be particularly important in the field of farm management and farm economics generally. There will, however, be some special areas in which the provision of individual management advisory services by State extension services will be justified. Particularly will this be the case in certain problem industries and areas and in those industries where there is no significant development of consultant or club services.

It should not be inferred from the foregoing that private consultants

and club advisory services have no educational component. However, by the very nature of their operations any educational service must be limited largely to members of the group serviced. Furthermore, educational work by these operators must remain quite a subsidiary activity to their main purpose which is to provide specific advice on the organization and management of the individual property and on specific technical problems facing individual farm operators.

Farm management advisory work is inherently time-consuming compared with technical advisory services to agriculture but although much detailed work is involved in the application of an elementary but widely used and fundamental technique, such as budgeting, the technique itself is essentially simple. For this reason optimum resource use may be achieved if the institutional extension services concentrate a large part of their extension resources *per se* on instructing the more intelligent sector of the farming community in the elements of farm management economics and in farm management techniques. Limited experience in the N.S.W. Department of Agriculture with work of this kind suggests that there is considerable scope for it, although as yet, no attempt has been made to evaluate group training for farmers in farm management economics. The evaluation of both group extension activities in farm management and the service provided by farm management clubs and private consultants obviously presents difficulties. However, in view of the volume of resources likely to be devoted to these activities in the future it is unquestionably an area of work which merits the attention of the research economist and possibly other social scientists.

Problems of evaluation aside, it is clear that there is a demand for group training in farm management by a significant but unmeasured proportion of the farming community. Experience to date in N.S.W. suggests that it is possible to provide many of the more intelligent farmers with an understanding of the elements of production economics and an appreciation of the budgeting technique and its practical application in courses of relatively short duration. Such courses should be designed to provide instruction in elementary principles and simple but useful techniques. Once understood these can be applied by the more capable farmer, with, at most, some assistance from technical advisory officers, provided the necessary economic and technical data is available. This latter proviso is most significant and points to a major field of work for the agricultural economist in extension. That is as a researcher and interpreter of data providing basic factual material in a form that can be readily used by the farmer who is trained in planning techniques, and by farm management advisers who should be, but at present are not always, trained and experienced in the use of such techniques.

The demand for farm management advice is increasing. This service to agriculture can be provided only with the assistance of the agricultural economist, but it should not be necessary that the economist advise or assist the farmer individually. In fact, given certain provisos, the service is likely to be more effective if it is provided by the general agricultural practitioner, provided he is of high calibre, has reasonable experience and is adequately trained in the elements of production economics and basic farm management techniques.

One of the problems which must be faced by those responsible for the administration of agricultural extension services is that a substantial proportion of technical extension workers—particularly the older men—

have inadequate training and experience in elementary production economics and in the application of even the simpler farm planning techniques to be able to instruct farmers in them or to apply them to particular farm problems. A further complication in some States is that many existing extension officers are not university graduates but college trained diplomates.

The general problem of providing technical agriculturalists with training in farm management economics faces not only the institutional extension services but also the farm management clubs and consultants. A perusal of programmes for the annual conference of the Farm Management Section of the Australian Institute of Agricultural Science, which is dominated (to their credit) by consultants and group advisers, suggests that, to some extent, at least, this problem has been recognized by the private operators, most of whom are relatively young university graduates.

State Departments of Agriculture in several States have also recognized the need for in-service training in farm management, as I have reported elsewhere,⁸ but it is doubtful whether training programmes so far introduced go nearly far enough. In-service training of extension workers in farm management principles and techniques is receiving attention in other extension services. A recent report prepared by Professor Chombart de Lauwe for the European Organization for Economic Co-operation and Development has suggested that short in-service courses, of about a week's duration, are unsatisfactory. He has suggested that an in-service "course forming an introduction to farm management, should extend over three consecutive months and that the syllabus should be based on the principles of economics and cover the whole range of possibilities of applying the various methods of management advice by means of very extensive practical work."⁹

On the basis of experience already gained in N.S.W. I am inclined to agree with this suggestion, although its implementation would obviously present some administrative problems. (That this would be the case is recognized by O.E.C.D.) While ideally, it would be desirable for all extension personnel to be thoroughly trained and experienced in farm management economics, it would hardly be economic or productive of useful results to arrange intensive in-service training in this subject for all existing extension staff even if such a programme were administratively feasible. Rather, the approach should be to select a limited number of the most promising and most interested extension staff to attend comprehensive courses. These courses would include both the theory of production economics and intensive practical application of management techniques which may be usefully applied in the field. At the same time it is desirable that all extension staff have at least a broad knowledge of the principles involved together with some appreciation of the techniques of management, even if they are not fully trained to utilize these techniques. To date, training in farm management economics by Australian agricultural extension services has been aimed largely at securing this latter objective. In N.S.W., for instance, all exten-

⁸ Druce, *op. cit.*

⁹ *Advisory Work in Farm Management*, Draft Report by Professor Chombart de Lauwe, O.E.C.D., Working Document, Project 14/11, (Paris: October, 1964), p. 63. See also Walker, H. W. "An Effective Education Program in Farm Management", *Journal of Farm Economics*, Vol. 46, No. 5 (December, 1964), pp. 1179-1185.

sion staff have attended at least one introductory course of a week's duration. Attention now needs to be directed to the intensive training of selected personnel but, so far, there are no firm plans for follow-up courses, largely due to staffing problems within the Department of Agriculture.

Selectivity in recruiting personnel for intensive courses would be particularly important in those States where college diplomates are widely employed in extension. However, this is not to suggest that many college diplomates would not prove highly competent farm management extension workers, given adequate training and if backed up in the field by research economists who would provide essential data and necessary guidance on methodology (a service needed by all workers in this field—graduate or diplomate). While entrance standards to most agricultural colleges have, in the past, been quite low and while academic standards have also been low compared with universities, it is certain that the agricultural colleges have produced many highly successful extension workers. With higher entrance standards now in force and a *recognition* of the need to raise standards of college curricula, it can be expected that the general standard of diplomates will improve in the future. There has been a marked improvement in the standard of courses in agricultural economics and farm management economics in N.S.W. agricultural colleges in recent years and as a result recent college diplomates have *some* grounding in production economics and farm management theory and practice.

This, coupled with the greater emphasis on agricultural economics in many university undergraduate courses, will, over time, reduce the need for intensive in-service training to some extent, although some such training is likely to be needed indefinitely, particularly if college diplomates are to be provided with thorough training in farm management economics. For, while existing courses have been greatly improved in content and standards have been raised, there is not yet sufficient time devoted to the subject at colleges to produce diplomates who can be regarded as adequately trained in the theory and practice of farm management.

Because the majority of private consultants and club advisers are relatively recent graduates who, in most cases, have had some training in agricultural economics at the undergraduate level, there is not the same pressing need to provide intensive courses for them as there is for institutional extension personnel who are either diplomates or generally older graduates who have had less formal training in agricultural economics.

Nevertheless an intensive course would almost certainly provide useful training for many consultants as well as Departmental extension staff and ways and means of introducing such a course could well be explored. If such a course were to be provided by a university, problems of attendance by diplomates may arise, and in any case, in those States where there are reasonably experienced agricultural economics research units within the State Department of Agriculture, a suitable course might be most effectively organized by State Departments in conjunction with universities.

Status of Extension

A basic all embracing problem which cannot be ignored in any consideration of the scope and efficiency of agricultural extension services in

Australia is the relative status of (i) the agriculturalist *vis-a-vis* other university-trained professions and (ii) within the agriculture profession itself, the status of the extension worker *vis-a-vis* the researcher, the university teacher and the administrator.

The clearly established inferior status of the agriculturalist, judged on earning capacity of the profession,¹⁰ is no doubt due in part at least to the exceptionally large proportion of agriculturalists employed by governments, particularly State Governments, which traditionally pay professional staff at lower rates than are obtainable in private practice and in many commercial organizations.

The development of the private consultant in agriculture, while likely to result in some temporary misallocation of resources, may in the longer term result in a much needed increase in the status and income of the agricultural profession. If, as a consequence, there is a significant increase in the number of persons entering the profession, the private consultant and farm advisory group movement will have made an additional contribution to agriculture generally over and above the direct benefits accruing from the operation of individual practitioners.

Irrespective of any change in the status of the profession generally, there is need for a reconsideration of the status of the extension worker within the profession. At this point, two quotations are, I think, apposite. The first by the present Minister for Agriculture in N.S.W., the Hon. W. A. Chaffey, M.L.A., who recently said "Research is not worth two bob without the means of getting the information out to the people who must apply the techniques . . . in the field."¹¹ The second by an American economist who said "There are academic strata of professional status: on the top is the researcher; down quite a ways is the teacher [university]; and at the bottom are the educational translators—the extension people".¹² The environment is that of the United States, but except perhaps that university people here rank somewhat higher than the quote suggests, the situation in Australia is not very different.

To what extent the inferior status of the extension worker accounts for the frequently slow adoption by farmers of new research findings, a phenomenon so often lamented by research workers, it is not possible to even hazard a guess; but it is reasonable to assume (i) that the quality of the extension service will affect the speed with which new research findings are adopted, and (ii) that the status and hence the quality of the extension worker will affect the quality of the extension service available.

The inferior status of the extension worker is not a new problem, nor, as the second of the quotations illustrates, is it restricted to Australia. It is nevertheless, a real problem and a pressing one, if satisfactory extension education for the farming community is to be provided in farm management and farm economics generally.

If evidence is needed that the extension worker does not rate very high in relation to the researcher and the academic generally, one has only to look at the relative salary levels paid to agriculturalists in University,

¹⁰ For evidence see Molhuysen, P. C. "The Professional Engineers' Case", *Australian Economic Papers*, Vol. 1, No. 1 (September, 1962) especially Table XIV, p. 77. Also K. Gravell, *op. cit.*

¹¹ *New South Wales Parliamentary Debates*, Forty-first Parliament Second Session, November 24, 1965, p. 2335.

¹² John, M. E. "Recruitment, Training, Administration of Staff", *Symposium Proceedings of the National Study on Agribusiness Education*, Purdue University, 1962.

C.S.I.R.O. and State Departments of Agriculture (the extension authorities) as disclosed by recent Institute of Agricultural Science surveys (see Table 1).

TABLE 1
Expected Salaries of Agricultural Scientists at Various Ages—1964

Age	Employing Authority				
	CSIRO	Universities	Commonwealth Public Service	State Public Service	Others
	£	£	£	£	£
30	2,520	2,300	2,280	2,045	2,340
40	3,160	3,020	2,840	2,530	2,920
50	3,810	3,740	3,410	3,010	3,490

Source: Australian Institute of Agricultural Science, *Council Newsletter*, November, 1964.

An Institute survey of levels of professional earnings of its members as at June, 1965 disclosed that, of those who responded, in C.S.I.R.O. 70 per cent received salaries of \$6,000 and over. The equivalent figure for University personnel was 65 per cent, for the Commonwealth Public Service 39 per cent and for State Public Services 18 per cent.¹³ The extent to which these results may be biased by different response rates in different groups is not known but a check on the situation in the N.S.W. Department of Agriculture suggests that the Institute figure of 18 per cent for State Public Services is slightly above the actual figure in that State. For further evidence one can look within the State Departments themselves. In N.S.W., at least, the "career range" is better for research workers than for extension workers even where academic qualifications are identical.

To the extent that the above salary differences reflect differences in the "quality" of personnel, they fail to reflect the fact that the first-class extension worker needs just as high an intellectual capacity, just as good an academic record, just as much initiative and, if anything, more rather than less enthusiasm than the first-class researcher; personality may well be different, but other requirements differ but little.

However, of agriculturalists and agricultural economists entering institutional employment, it is clear that, with few exceptions, those with the highest intellectual attainments choose research rather than extension as a career. While, under existing circumstances, this behaviour is quite rational, it must be detrimental to the development of the extension services. If it is conceded that first-class extension services in farm economics are a prerequisite to sound agricultural development and the efficient utilization of resources in farming, then it is obviously essential that some improvement in the status of the extension worker in particular and of the professional staff of State Departments of Agriculture generally be sought. If the best possible farm management extension services are to be provided it is particularly important that the calibre of agricultural economists employed by State Departments be maintained at a high level. It seems both inevitable and desirable that much of the research and investigational work in farm management should be carried out by these organizations. In addition, they have a major role in extension education

¹³ Australian Institute of Agricultural Science, *Council Newsletter*, November, 1965 (5/59).

which will remain, irrespective of developments in private consulting work.

Let me examine briefly the apparent reasons for the relatively low status of the extension worker in agriculture.

- (i) Tradition—associated with the fact that much advisory activity (as distinct from extension education) in the past required a relatively low level of academic training. It is a relatively simple matter to provide specific advice on particular technical problems of farming where research, or even experience alone, has provided the answer.
- (ii) Some State extension services have been, and still are, staffed largely by Agricultural College diplomates; and though many diplomates have high ability, their training is well below that of graduates and there is a tendency to rank graduate extension workers with them in status and salary.
- (iii) University courses in agricultural science have been, and still are, strongly research oriented although, at the University of Sydney some change in orientation is now evident. Also the recently introduced post-graduate diploma course in Extension at the Universities of Queensland and Melbourne may tend to raise the status of extension in the eyes of undergraduates.
- (iv) Lower salaries and less satisfactory promotion opportunities available to extension workers than to research workers and academics. This situation results from the first two factors mentioned, and the fact that, until recently, extension and advisory workers were employed almost exclusively by State Governments.

If my diagnosis is correct, the broad remedies are readily apparent, but nevertheless, it would be extremely optimistic to expect that the existing difficulties will be overcome easily or quickly. Extension needs a share of the outstanding intellects in agriculture if it is to provide a virile and imaginative service, constantly developing new methods and new approaches, just as do research, teaching or administrative services. It has been said that "the value of research has been successfully sold to society in general". In this context one wonders whether it has not been over-sold, at the expense of rural extension. Applied research that is not applied is pointless.

Whether farm management research will be used will depend largely on two factors (apart from the quality of the research itself): (i) the level of education of the farming community, and (ii) the manner in which it is presented and, if necessary, interpreted by the extension worker or adviser. Although other factors besides effective extension will influence the first of these two factors, the extension worker has a dual role: first in preparing a climate which will result in the acceptance and implementation of applied research; and secondly in the interpretation and presentation of research results to the farmer and to his technical advisers. The more complex the research, the higher the level of farmer education and the more skilful the interpretation must be if acceptance and utilization are to be achieved effectively and quickly. If, then, all—or almost all—the best intellectual resources are to be devoted to research, the effectiveness of that part of research classified as applied, may well be greatly reduced.

Research is conducted at numerous levels. If we accept as a definition of research that it is "the exploration for new truths", it is probably fair to suggest that much of what passes for research should not be designated as such, but should be referred to as "investigational" work. Unfortunately, there appears to be a status attaching to research and often promotion depends so heavily on "research" results—sometimes the volume rather than the quality of such results—that even the lowliest enquiry tends to be designated as such. But, be that as it may, the types of work usually referred to as "research" in farm economics can be classified in three broad categories:

- (i) Basic research producing genuinely new discoveries and resulting in new techniques;
- (ii) Research involving the adaptation of existing techniques to new situations; and
- (iii) Routine research, or what I prefer to term "investigational work" using existing tested and proven techniques in orthodox circumstances to provide needed data in given situations.

While not suggesting that research workers can be rigidly classified in the same grouping, it is certainly true that only a very small proportion of researchers ever produce basically new discoveries or create fundamentally new techniques. More are capable of and in fact do work in the second category, adapting techniques to new situations, but probably the majority of workers rarely move out of category three. This is inevitable and even necessary; for farm management extension and advisory work there is a tremendous volume of routine research or investigational work needed to produce all the continuing data that is required. In fact, a shortage of economic data is one of the severe disadvantages under which extension workers in Australia operate.

I have attempted to classify research and research workers in these three categories because I believe that the requirements for extension can be classified on basically similar lines: the intellectual requirements for each category are probably not so very different, although they may not be identical, irrespective of whether it is research or extension that is involved.

At its most demanding level, extension requires the creation of and experimentation with new techniques to meet changing conditions, and in no area is this more important than in farm management extension. To date, little serious attention has been given to the methodology of extension education in farm management either here or overseas. The methods adopted are largely those of the technical extension worker, yet the subject matter is markedly different. There is, then, a need for innovation in extension techniques and methodology. As with research, there is also the need for adaptation of existing techniques to new and changing environments. In terms of sheer volume of work, there is also the need for a larger number of well trained extension workers of lesser intellectual ability to perform the relatively routine task of day to day extension education and advisory activities.

If applied research in farm economics is to achieve its full potential, it is essential that extension receive a share of workers of outstanding

intellectual ability, although not necessarily the same proportion of such workers as research. To achieve this a number of things are necessary. First, and probably the most obvious, is that material encouragement in the form of better career opportunities for an extension elite needs to be provided. It is to be hoped that, in so far as additional funds may be made available for institutional extension activities in the future, this vital need for salary opportunities that will attract an extension elite will not be overlooked. More extension staff and more elaborate facilities for regional research and extension will be useful but their value will be severely limited unless the calibre of the personnel concerned is high.

Secondly a change is needed in the outlook of some academics to rural extension as a profession and, with this, a change in undergraduate courses in agriculture so that they are not completely research oriented. The University of Sydney appears to be moving in the right direction in this regard in offering an extension-oriented course in farm management and agronomy as a final year option. I am not suggesting that full formal courses in extension methods should be introduced in agricultural faculties—training of this type can well be provided in-service after graduation or in post-graduate diploma courses in extension such as are now available at the Universities of Queensland and Melbourne. However, in undergraduate courses there should be a positive attempt through the course to provide some appreciation of the role of rural extension in the efficient development of the primary industries.

Concluding Remarks

Rural extension services are on the threshold of major developments which, in part, are the result of economic pressures on the rural economy and which in part are due to the impact which the agricultural economist—and particularly the farm management economist—has had on the thinking of technical agriculturists, farm leaders and rural administrators.

The changing extension structure which is now emerging—if rather slowly—should result in a marked improvement in the effectiveness of Australian rural extension services, and it could ultimately have a profound effect on organization and management in the Australian rural industries. The original, completely institutional, technical extension services are gradually being modified and supplemented by economic services, partly institutional and partly of a private advisory character. In this process the agricultural economist is of fundamental importance, not primarily as an advisory worker providing assistance to the individual farmer, but as a researcher, teacher and adviser's adviser—this latter both at the institutional level and in private practice.

While the broad pattern of development in rural extension seems reasonably clear, there is scope for great variety in the individual approach and there is a real need for the farm management economist, even though he may be primarily a research worker, to give serious attention to extension techniques. The extent to which the agricultural economist succeeds in making a constructive contribution to extension methods and techniques over the next decade or thereabouts could have a profound influence on the quality of extension services available to the farming community over a long period. Next to the need for an improvement in the status of extension as an avenue of employment for professionally trained people, there is possibly no more important potential contribution

to the extension services at the present time than that which can be provided by the agricultural economist. Unless the profession takes a constructive approach to extension and unless the status and, as a consequence, the general calibre of extension workers is improved, much of the effort which both the agricultural economist and the physical scientist puts into research will be wasted.