AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

THE AUSTRALIAN JOURNAL OF AGRICULTURAL ECONOMICS

VOL. 17 AUGUST 1973 NO. 2

RANDOM THOUGHTS ON SOME PROBLEMS OF PROFESSIONAL COMMUNICATION*

E. O. BURNS**

Queensland Department of Primary Industries

Within the profession of agricultural economics are found academics, government economists, farm organization economists, and others. Although the profession is based on general acceptance of principles and judgements, the outlook and activities of an individual are conditioned by his occupational status. Employment affiliations give rise to certain restraints and strains to communication between functional groups. The paper examines this problem, and presents a case for better understanding between the major institutional groups.

Introduction

As a previous President has indicated, presidential addresses to learned societies seem to fall into two broad classes. "On the one hand are the products of detailed and often satisfying research for which the address provides an opportunity for public revelation. The other broad category embraces talks which, while not the result of much research as such, end up as dissertations on subjects which the speaker feels of some moment or on which he feels deeply." [14]. My address belongs to the second category, and is an amalgam of some things which I feel are of some moment.

One's background also inevitably influences the selection of such a subjective thing as the topic for a presidential address. The first inescapable factor which has moulded my attitude is that I have spent the whole of my professional working life as an officer of a State Department of Agriculture, with part-time excursions into academic teaching and commercial administration. I am, accordingly, conscious of the fact that the Commonwealth of Australia was constituted a federation of sovereign States, and when I use such a term as "government" I am probably thinking just as much of a State Government as of the Commonwealth Government. My professional interest has been largely, but not exclusively, in the general area of farm management and I give

*Presidential address to the Seventeenth Annual Conference of the Australian Agricultural Economics Society, Canberra, 14 February, 1973.

**The author wishes to thank E. J. Waring for helpful discussion and correspondence and R. B. Bygott for comments on an earlier draft of this paper. Opinions expressed, however, are the author's sole responsibility and are not necessarily those of the Queensland Department of Primary Industries.

a high subjective ranking, among human qualities, to the ability to communicate effectively.

My address is born of a nagging feeling I have had during most of our Society's life that, perhaps more than most professions, we suffer from a communication gap, not only between our profession and the outside world, but also between internal groups. What I propose is to discuss some problems of communication among the various functional groups which comprise our membership in the hope that this may lead to better understanding and a closing of the communication gaps which currently exist.

The General Problem

This situation within the profession is not a purely Australian phenomenon. At the Annual Meeting of the American Farm Economic Association in 1965, reference was made to

> " . . . the rather ignoble state where the U.S.D.A. economist looks upon his colleague in the university as living in an ivory tower, ignorant of the need which inspires men to make decisions and, moreover, detached from the passions which arouse action, whereas the land-grant economist views his U.S.D.A. counterpart as living in the 'twilight zone' where the blind prevail over those who have eyes to see." [2].

I feel sure that all of us who have progressed beyond the stage of youthful idealism will feel some element of identification with one of those attitudes, while protesting, I should hope, its ignoble nature.

A basic form of classification is to group members into academics, government economists, farm organization economists, and farmers and others. This broad institutional classification may not be as useful for most purposes as Dillon's [10] classification based on the major activities of teaching, research, general services and social criticism. We all, irrespective of who employs us, accept a more or less clearly defined body of principles and judgements as the basis of our profession. Nevertheless, with all the usual reservations about the validity of the stereotype, there is no doubt that our occupational status conditions both our outlook and our activities. It is the strains to communication imposed principally by our employment affiliations, and to a lesser extent by our major activities, which are discussed in this paper.

It may be useful to ask at this point—what is the function of our Society? Is it to provide a forum for our mutual self-enlightenment? The answer to this must surely be in the affirmative, but equally surely, this in itself cannot be enough. Do we also have a function to present an informed professional viewpoint to decision-makers at the policy and the farm-firm levels? If we have, I would suggest that we are not performing this function very well as a Society, although as individuals, many of our members are performing very well in these fields.

This could be the key to one of the problems which are concerning me this evening. What our members do as individuals and what we present to the world as a Society—that is, through our journal and our conference proceedings—are entirely different. It is unfortunate that because of restraints in communication these things tend to be done by entirely different people.

Academics and Activists

It has always worried me that most of our members involved in real life management of farms, whether as managers or advisers, do not expect to derive any benefit from reading our journal and think even less about contributing to it. Furthermore this scepticism tends to be shared by real life policy makers and by advisers of government and farm organizations. It is doubtful if our journal has ever served as a communication medium for our general membership. Perhaps this is not a valid aim for a professional journal. Do we then have no broader aim than to provide professional recognition by our peers?

The most influential papers on agricultural economic policy—influential in the sense that they do in fact contribute to the moulding of national, state or industry policy—are seldom made public, but usually remain within an institutional filing system. On the other hand, many published papers dealing with policy issues, although of a high academic standard, do not score so well on the ground of practical relevance. This is a wasteful employment of resources and results from failure to coordinate the special skills of academics and practising economists in the solution of practical problems.

Each group, and presumably national welfare, suffers because of the distinctive roles into which the academic and the activist are cast. We might say that this is not of our making—that it is imposed on us by the policy makers. Most organization and government policy economists would have to concede however that this is only partly true.

Most economists would welcome cooperative involvement in a practical project. As Berg [2] has said, "Most economists do not want their professional lives nailed to the cross of either thought or action. The ivory-towered academician finds thought alone an insufficient kingdom, cramped and cold. The practising economist finds in the activist's role alone, insufficient gratification. In the main each group recognizes in the other a fellow spark from the same fire."

Both parties would benefit from closer coordination of their activities. Some government economists at least would gain in precision of thought and expression and in methodology. Some academic economists at least would benefit from exposure to real facts and the political necessity to consider human factors.[1]

On the other hand there is an apparent reluctance on the part of some policy makers to get too closely involved with academics.[2] This attitude often is rooted in instances, real or imagined, where academics have been harshly critical of some policy allegedly without being in full possession of the facts. As Skeoch [19] has observed—"Academics have been warned with tireless frequency that they should not become crusaders in a hurry, unaware that politics is the art of the second best . . . ". The practising economist, however, should take care that he

[1]As an example of the beneficial effects of the sort of thing I am advocating, Jarrett's paper to the 15th Annual Conference [11] which was written against the background of involvement on a government committee, (the South Australian Wheat Delivery Quota Enquiry Committee) had an authority which marketing papers by academics often lack.

[2]It is still very early days for the new Federal administration but straws blowing in the wind suggest that we may perhaps see greater involvement of academics in government policy making in the future.

does not fall into the temptation of rationalizing away all inconvenient theory. Skeoch also warned that realists should be aware that there is more to economic policy than log-rolling.

Research Methodology and Problem Selection

Many research workers appear to be more concerned with the model and the methodology than with grappling with a real problem. The problem selected is too often a trifling one, which could be discussed and disposed of quite adequately by an old-style descriptive economist, if there were any still around today.

It is often difficult to find any conclusions in published papers. Discussion tends to revolve around the model, and the practical person who may be genuinely interested in the problem which is the ostensible purpose of the paper is quite likely to find near the end an admission by the author that his tentative solution bears no resemblance to fact because it was too difficult to incorporate real life parameters into the model.

I would suggest that these papers form a basis of communication for perhaps 20 per cent of our membership. The remainder are completely excommunicated. As far as our ability to communicate a professional view to the outside world is concerned, I believe that there is a large potential public who would like to communicate with agricultural economists. Unfortunately, little of what we publish has much meaning for the agricultural public at large.

Some may perhaps claim justification for this disturbing situation by precedent set by sister organizations. To those may I quote from Professor Breimyer's 1968 Presidential Address to the American Agricultural Economics Association—"During my apprenticeship year as president-elect, more critiques and suggestions reached me on this (that is, the American Journal of Agricultural Economics) than any other subject. Some members protest that the content departs too far from its one time balance of general and special interest articles . . . a whole chorus shouts that the Journal has become too mathematical." [3].

Agricultural economics must surely have, as its end product, something to say to, or about farmers, or about the things which they produce. We are often prone to forget that even the most abstract question of policy has at some time or other to be translated into terms which have relevance to farmers.

The Farm Management Schism

We have no need however, to turn to policy problems for examples of poor communication. It is in farm management, the "bread and butter" discipline, that there exists an almost impenetrable curtain between research and extension. Research in farm management is becoming increasingly absorbed in methodological and theoretical issues, and very little of it appears to have much relevance to the practical problem of managing farms.

It is 10 years since Glenn Johnson [12] drew attention to a similar situation which had developed in the United States. He pointed out in 1962 that there were two reasons why extension workers were making less use of farm management research. On the one hand, researchers were concentrating on less relevant problem situations, and at the same

time, extension workers had lagged behind research personnel in increasing their competence in production economics.

Johnson [12] referred to the current tendency for production economists to specialize in problems of disequilibria to the exclusion of problems involving technical, political, social and other changes.

Williams [21] in 1968, pointed out that the traditional emphasis—within the discipline of production economics—on conditions creating disequilibria in resource use on farms had been transposed to farm management research. He claimed that "Professional advancement has depended on mastery of these aspects of economics, even though this has in practice involved turning aside from studies of imperfections in markets for farm factors of production, of institutional restraints, farm organization, and technological change, which themselves are at the heart of many of the present-day farmer's problems."

There is an urgent necessity for people to provide a communication link between research and extension. This means sifting out from research what is relevant to farmers, and rewriting it for practical adaptation; not perhaps a glamorous role, but one nevertheless requiring diverse skills borrowed from both the research and extension fields. I am happy to acknowledge that there are people who have accepted this responsibility. The Farm Management Guidebooks issued by the University of New England [15] are an attempt to provide this service, as are the Technical Bulletins produced by the Economic Services Branch of the Queensland Department of Primary Industries [22]. Both these series are designed to explain a variety of analytical techniques in readily understood language, and to demonstrate their use in an applied format. Both, unfortunately, because of the irregular nature of their publication, fall far short of what is required.

Apart from this and similar occasional activity, there has been an almost complete breakdown in communication between research and extension workers in farm management and this is one of the tragedies of the discipline of agricultural economics in Australia. Anyone who wants proof of this has only to note that the second Australian Farm Business Management Conference is currently being held at Albury and it is confidently expected that this Conference will see the formation of the Australian Farm Management Society. Probably, not too many people at either conference are aware of this overlapping. Even fewer will be worrying about it. I am one who does feel concern about this, and I would be very disappointed if the situation were to repeat itself.

Training for Agricultural Economics

It might be relevant to ask "Are agricultural economics students receiving the most appropriate training to equip them for subsequent careers in the profession?" As one who has been fairly active in recruiting for one of Australia's largest employers of agricultural economists, it sometimes appears that the aim of some universities is to turn out new graduates well trained to become junior academics, but not so well equipped for employment in government or industry. Perhaps it might be a good idea to rediscover that in the world of affairs, economics and politics go hand in hand.

In 1966, Norman Coats, [7] who was Manager of the Economic and Marketing Research Division of the Ralston Purina Company,

suggested five important areas of knowledge from which an agricultural economist in industry must draw, and stated that these areas were not always fully covered in agricultural training programmes. The first of these was an appreciation of the way in which computers could be applied to his areas of responsibility. The second area was that of business accounting and finance. Coats pointed out that the agricultural economist in industries serving agriculture was working in a business atmosphere not greatly different from that of any other industry. The third area was marketing at the consumer level.

The fourth area was human relations. Coats [7] reported that "The greatest complaint voiced by management in agriculturally-related industries which we have heard with respect to the role of the economist is his inability to communicate with the top decision makers of his company . . . Too often, we feel, this inability stems from a desire on the part of the economist to change management when it is *he* who must adapt." Coats also pointed out that it was imperative that the economist keep technical jargon out of his presentation to top management.

The fifth area was that of profit orientation. Coats points out that it is essential that an economist be profit-oriented in his approach to the economics of industry, that he must understand what is necessary for the making of decisions, and finally, that very often in industry a project must be completed in a specified time which will not permit academic completeness.

I have no direct experience of the employer-economist relationship in industry, but with appropriate minor adaptation, my own experience confirms that these weaknesses, with diminishing emphasis perhaps on computer awareness, are frequently encountered in recruits to my own State service.

Condcliffe [8] has pointed out that part of the responsibility of economics teachers in the training of economists is to give students some systematic notion of the environment in which they will spend most of their lives and to which, if at all, they must apply their economic models. He points out that the real world is not like the smooth abstractions of the economic texts. "The rapid adjustment of fine margins as a result of even more rapid abstruse calculations may be a reasonable approximation to Ricardo's Stock Exchange background, but it has always been remote from agricultural processes or craftsmanship . . . It is important therefore to find ways in which fledgling economists may be exposed to the real world not by disorderly casual contacts but as a means of testing their systematic models of thought."

One possible way might be through the expansion of what are becoming known as "sandwich" courses. Periods of practical experience in industry or government sandwiched among academic courses seems to give some hopeful balance between the academic and the practical world. One weakness of course is that the involvement of the student in the non-university portion of his study is likely to be at a relatively low level of responsibility and sophistication compared with the level of his academic studies. Assuming, however, that the employer is sympathetic to this approach to training, the practical experience should provide a valuable orientation for the student, and be of significantly

greater value than the vacation employment which is currently required by some faculties.

I believe that agricultural economists in government and industry should accept any opportunities offered of assisting universities in course development and revision, in promoting practical training opportunities, and possibly providing orientation lectures in undergraduate schools. It is to the credit of most faculties that meaningful discourse along these lines is freely sought. I feel also, without wishing to labour the point unduly, that some university teaching might perhaps be improved if practical professional experience in government or industry were placed a little higher up the list of qualifications for the appointment of academic staff; just as government service would also be improved by a genuine two-way flow of staff between universities and government departments.

Sir Alec Cairncross [5] has drawn attention to the danger of a divorce between economic theory and practice if greater provision is not made for mobility of economists between academic life and practical affairs. "It would be a pity if a division grew up between the 'ins' and the 'outs' and it continued to be true that discussion of the major issues of policy tended to be left largely to the journalists."

A Problem of Professional Development

Communication is a two-way affair. I believe some academics among our membership have severed communication with the rest of us by retreating too far from reality. On the other hand, I believe that part of the gap has been caused by the failure of some non-academics to keep up with developing technology.

To keep up to date professionally speaking is admittedly difficult for the government or industry economist. There is no parallel in government or industry to the concept of an acceptable lecturing load. Most of his working day is spent partly in applying his economics to practical situations, and partly in what could perhaps loosely be termed administration. Not often is there much time during the working day to keep abreast of the literature and what time there might have been early in his career tends to diminish for several reasons.

Firstly, as responsibilities increase, time available decreases. Secondly, there are some important contrasts between the typical academic research project and one being undertaken by government or industry, which tend to develop a conservative attitude towards methodology on the part of the non-academic. As an American industrial economist has said—"The academic economist sometimes employs poetic license in his research. He can indulge in the luxury of purifying assumptions called 'ceteris paribus' which are generally denied the industrial economist. This has an effect on an economist entering industry somewhat similar to the clipping of the turkey's wings—he can feed and thrive as well, but he can't range as far." [1]. The third reason is that as an applied economist gains experience in a certain type of environment, he tends to acquire a judgement which enables him "despite limited analytical equipment, to give a more accurate prediction and sounder policy advice, than one with greater command over a more elaborate array of models, but less judgement as to their applicability." [8]. Fourthly,

in some services at least, each successive promotion brings more administration and less economics.

For these reasons; sheer lack of time, a premium on pragmatism, the development through experience of a sort of institutional intuition, and greater involvement in administration, government and presumably farm organization economists often tend to get out of date on literature and methodology. This is a very real problem and is becoming more serious. Intellectual resources are being eroded through lack of maintenance, and I believe a solution will need to be found, possibly through some adaptation of the university system of sabbatical leave.

Policy and the Economic Adviser

In his presidential address last year, John Dillon expressed the view that we have probably had an intra-professional underallocation to marketing and policy, relative to trade and management, and that this has occurred largely because of a lack of encouragement to enter these politically sensitive areas [10]. I can agree with this view as applied to academics, and also as applied to the material with which as a Society and a profession we communicate with the public. Government and farm organization economists, however, can hardly complain about lack of encouragement, as it would probably be true of Australian governments generally that most disciplinary effort is still directed to marketing and policy, despite the rapid expansion in recent years of farm management services.

However, it is significant to note that a specialist committee appointed by the Australian Agricultural Council to study the activities of government extension services in farm business management and to suggest guidelines for future development reported last year that the main deficiency in farm management data is in the supply of commodity information. The Committee [13] recommended that "State governments should be giving a high priority to the provision of more commodity outlook information including production trend reports, forecasts of current production and market availability and price projections."

The advice of a government economist relating to a decision on marketing or policy is seldom published, and because of the nature of the relationship between Minister and adviser is seldom available for discussion, even within the Society. Most economists in this position, however, are prepared to discuss the issues involved. I believe effective communication can be established, but this requires some appreciation of the problems raised by the environment in which the government economist operates.

The relationship between Minister and adviser has been described by J. G. Crawford [9] in the following words—"Ministers must and do carry responsibility for policy, even though their civil servants play an increasingly important part in the making of policy judgements. The proper role of the civil servants remains that of policy advisers, influential perhaps but not paramount, and loyal administrators of the wishes of Cabinet and Parliament properly and clearly expressed."

The advisory role of a government economist is complex. Strong [20] was emphatic that a bureau of agricultural economics should not hesitate to recommend what it considers to be the best policy in the light of its analysis of the facts in relation to stated policy objectives.

"To have agricultural economic research used to full effect in the formulation of agricultural policy, the economist cannot stand aloof, adopting an attitude of unconcern." This, I would think, typifies the current relationship between most Ministers and their economic advisers. Cairncross [5] informs us that it is by no means uncommon in discussions between economists, administrators and Ministers, for the economist to talk politics, the administrator to talk economics, and the Minister to discuss administrative complications. He suggests that an outsider "would be very unlikely to conclude that an economist, as such, was in a particularly powerful position in debating most issues of economic policy."

As I understand it, however, this is what economics is all about. From its early days, the science was oriented towards questions of public policy, and economic tracts were couched in terms of the public good [16]. J. P. Cairns [6] points out that the welfare assumptions of economics were not challenged until the 1930s. When Robbins [17] attacked the validity of interpersonal comparisons of utility, he destroyed the foundations of much of the recommendations-making side of economics. Henceforth, economists were to be mere technicians, capable of giving answers to such questions as "What will be the (probable) results of economic policy A?" . . . But to the much more interesting question, "Is A preferable to B on economic grounds?" the Robbins approach implied that the economist could give no answer [6].

There would not be much support these days from government economists at least for the Robbins viewpoint or for Robertson's insistence that the primary business of the economist is to understand the world, not to set it right [18]. If the broader role is accepted and is to be adequately performed, it is clear that the government economist must consider a number of non-economic factors. Policy must also be tested for political, sociological and philosophical attractiveness. "If we can assume a desire to make economically sound decisions among our policy making personnel, the ideal procedure appears to be to push economic soundness as far as political expediency will permit." [4].

Political expediency is a restraint in agricultural policy formulation which is often misunderstood by some non-government economists. This I am convinced is at the root of the communication problem within our Society. Because of this gap in understanding, there is a too-ready willingness to impugn the validity of non-economic factors, with the implication that the government economist who has been involved in the issue is lacking either in objectivity or professional competence.

It seems to be assumed that the government adviser is unaware of the neglect of economic principles, whereas in fact he may be able to see even more problems than the academic economist, but is under certain employment restraints, to which I have already referred, which inhibit his involvement in public criticism and by corollary, public praise, of particular policies. It is at least questionable also, whether adoption of the concept of "open" government could in practice lead to any significant relaxation of this principle. If it could of course, much of the problem which has concerned me this evening would vanish. Nevertheless, despite the obvious desirability of informed public debate on forthcoming policy measures, it seems obvious that a government economist cannot morally disclose all the information in his

possession, irrespective of what the legal or philosophically acceptable position might be.

Conclusion

Although I believe there are serious grounds for concern at the communication problems which exist in our ranks, communication does take place. In respect to farm management training programmes for extension officers and farmers, formal collaboration between state government and academic economists is commonplace in most States. Training programmes of this nature are usually structured at an applied level, on which most farm management economists would find little cause for controversy.

There is also some informal collaboration in research and investigational work. Some academics discuss their work with some government economists, and the reverse also occurs at both Commonwealth and State levels. It is beyond dispute that some senior academics have influenced government and industry thinking in agricultural policy issues. Instances will readily spring to mind where proposals currently under consideration bear certain resemblances to hobby-horses which have been ridden in this present company.

Our Society has certainly provided a forum at our annual conferences, and, perhaps even more importantly, at branch meetings, for interchange of views between academics, government economists and farm organization economists, and there is little doubt that some cross-fertilization occurs at these meetings. It is important to note, however, that the academics who influence government policy are more likely to be those with experience of applied work, rather than those who would wish to determine policy without the inconvenience of studying the practical issues.

In this address, I have endeavoured to make a case for better understanding among the institutional groups which comprise a large proportion of our membership. I would emphasize in conclusion, that I have no wish to secure a conforming uniformity of thought and action. Disagreement and argument because people think differently are good. Conflict between conservative and radical elements keeps a Society such as ours virile. Inability to discourse meaningfully because of ignorance and lack of sensitivity towards the other fellow's institutional problems is not good, but is purely a communication problem in human relations. One of our Society's most important functions must surely be the resolution of problems of this nature as they arise. This address, I hope, has been a small contribution towards this end.

References

[1] Arthur, H. B., "How Should the Industrial Economist Operate for the Best Long-time Results?" *Journal of Farm Economics,* 36 (5), 1954.

[2] Berg, S. O., "Agricultural Economics in the U.S.D.A.: A Land-Grant-University View". *Journal of Farm Economics,* 48 (2), 1966.

[3] Breimyer, H. F., "The A.A.E.A. and U.S.D.A. in an Associationistic Age". *American Journal of Agricultural Economics,* 50 (5), 1968.

[4] Britz, E. L., "The Agricultural Economist in the Political Environment of Policy Making". *Journal of Farm Economics,* 37 (2), 1955.

[5] Cairncross, Sir Alec, *Essays in Economic Management.* George Allen and Unwin Ltd. 1971. pp. 219.

[6] Cairns, J. P., "What Criteria can be Employed in Formulating and Evaluating Agricultural Policy?" *Canadian Journal of Agricultural Economics,* 4 (2), 1956.

[7] Coats, N. M., "Appraisal of the Current Training of Economists for Positions in Industries Serving Agriculture". *Journal of Farm Economics,* 48 (5), 1966.

[8] Condcliffe, J. B., "The Training of an Economist". *The Economic Record.* 36 (73), 1960.

[9] Crawford, J. G., "Relations between Civil Servants and Ministers in Policy Making". *The Economic Record,* 36 (73), 1960.

[10] Dillon, J. L., "The Outlook for Agricultural Economics". *Australian Journal of Agricultural Economics,* 16 (2), 1972.

[11] Jarrett, F. G., "*Quota Arrangements for the Wheat Industry*". Paper presented to Fifteenth Annual Conference, Australian Agricultural Economics Society, 1971.

[12] Johnson, G. L., "Stress on Production Economics". *Australian Journal of Agricultural Economics,* 7 (1), 1963.

[13] Maccallum, D. E., Burns, E. O. and Potter, J. N., *Extension in Farm Business Management.* N.S.W. Department of Agriculture, Sydney, 1973. pp. 59.

[14] Maiden, A. C. B., "Beyond the Farm Gate". *Australian Journal of Agricultural Economics.* 7 (1), 1963.

[15] Makeham, J. P., Halter, A. N. and Dillon, J. L., *Best Bet Farm Decisions.* Professional Farm Management Guidebook No. 6 University of New England, 1968. pp. 70.

[16] Reder, M. W., "Theories of Welfare Economics". *Journal of Political Economy.* April 1950.

[17] Robbins, L. C., *Nature and Significance of Economic Science.* 2nd Ed. MacMillan & Co. 1935.

[18] Robertson, Sir Dennis, "Utility and All That?" *The Economic Journal* LXIV (256), 1954.

[19] Skeoch, L. A., "Agricultural Policy—Expediency or Consistency". *Canadian Journal of Agricultural Economics,* VII (2), 1959.

[20] Strong, T. H., "Using Economic Research in Policy Making". *Proceedings of the Tenth International Conference of Agricultural Economists.* Oxford University Press, 1960.

[21] Williams, D. B., *Agricultural Extension.* Melbourne University Press, 1968, pp. 218.

[22] Williams, L. E. and Clift, P. F., *Pig Budgeting—A Multivariable Approach.* Technical Bulletin No. 6, Economic Services Branch, Queensland Department of Primary Industries, 1970, pp. 78.