

## COMMUNICATION GAPS\*

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### Abstract

To make technological and economic progress in the agricultural field it is essential that good communication be maintained between the pure researchers, applied and developmental researchers, extension scientists and farmers. There must be a two-way communication chain.

Pure research has an important rôle to play in order that there is better understanding of basic functions of plant behaviour. These findings are passed to the applied and developmental researcher. At this stage the form of research assumes a multidisciplinary character with a consideration of economics being increasingly important. From here the data are passed to the extension scientist who has the task of conveying the findings to the farmer.

Clear objective setting and careful identification of priorities at every stage of planning are most important.

Accurate and unambiguous reporting is essential. Frutchey (1966) wrote: "Remember that what the receiver thinks the sender said is more important than what the sender said — The action the receiver takes depends more on what the receiver thinks the sender said than what the sender said."

To help in this regard the author suggests that courses on report writing should be designed specifically to give instruction and guidance even at under-graduate level.

The Department of Agriculture and Fisheries has been very successfully using a system of Work-teams to bring together workers of various disciplines for exchange of ideas, information and for planning of research. It is suggested that a modified form of Work-team could help in filling communication gaps still further in all sectors, both State and private. In addition the Systems approach used by the State is an invaluable tool in the processing and transmitting of research information to the field.

The greater use of "demonstration" farms to act as focal points for small-scale farmers' days and as sites for learning and discussion by study groups is recommended. Real-world problems could here be identified and passed on to the researcher.

### Introduction

Man has reached his present advanced stage of technology because he is a thinking being, able to identify causes and effects and because of his ability to apply new findings to practical use.

In the field of agriculture and its related sciences, research — both fundamental and applied — has played a major rôle in increasing economic production. Discoveries of a fundamental nature seldom have a direct field application however. The findings of the pure researcher have firstly to be transmitted to research workers in the applied sphere — communication gap number one.

Relevant fundamental data are then used by the researcher in the applied field to develop new techniques. Promotion of these new developments is channelled via the extension officer to the farmer — two more possible communication gaps — compounded in the latter case by the necessity of conveying the data to farmers in a form moulded to suit each particular case. Some of the problems encountered in such an exercise were discussed by Dickinson (1978).

Various functions overlap. Because of the intricacies involved, it is difficult to define any clear borderline. Farmers and extension workers can themselves be considered researchers in their particular departments (Elliott, 1973). Research workers, particularly those in the applied field, can become involved in extension activities, albeit from their research centres. It is obvious that feed-back from farmers and extension workers to those engaged in the research function is an important means of keeping the researcher in touch with problems encountered in the field — a reverse movement in communication. Agricultural leaders are important links in this process and can perform a vital task (Luitingh, 1972).

Now let us consider some aspects of the fields covered by the researcher and extension officer in order to appreciate more clearly some of the communication difficulties which arise.

### Research

In proposing a strategy for the research function Beveridge (1961) used what he called an arbitrary classification of research into 'applied' and 'pure'; the terms 'fundamental' (Elliott, 1973) or 'basic' are also sometimes used. The choice of words to describe what is essentially the same function becomes an exercise in semantics. Applied research is an investigation into a problem which is of direct

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practical importance, Pure research on the other hand is conducted in order to gain knowledge for its own sake (Beveridge, 1961).

With limited, well-trained manpower in the field of agriculture, pure research projects must be most carefully considered so as to ensure that valuable time and money are spent to best advantage. Pure research into some of the basic concepts of plant behaviour could have considerable application and be complementary to work in the applied and developmental fields (Hyam, 1979). An example is the effects which nitrogen in different forms (nitrate, ammonia) has on C<sub>3</sub> and C<sub>4</sub> photosynthetic pathways in certain veld grasses (Grossman and Cresswell, 1974).

Significant facts established by pure research can be of real value if they are employed to advantage in the applied and developmental research sphere. The form of research now takes on an interdisciplinary character, with economics playing an increasingly important rôle.

Experience has shown that worthwhile progress can be made if research is initially devoted to component phases. Individual aspects of a problem can be examined, measured, understood and evaluated. This technique is being successfully followed by research scientists in the Department of Agriculture and Fisheries, in the agricultural faculties of our universities and in certain fields in the private sector.

### Extension

A clear definition of agricultural extension was offered by the Minister of Agriculture, the Honourable Mr. Hendrik Schoeman (1979) in an opening address at the thirteenth conference of the South African Institute for Agricultural Extension. He defined agricultural extension as 'the process whereby the greatest possible percentage of farmers in a community are persuaded in the shortest possible time to apply the latest research results on the farm in a rational and economical manner.'

The rôle of the agriculturalist in the extension field is indeed a complex one. It can be compared in many respects to that of a medical doctor engaged in general practice. The problems which the extension officer encounters daily cover an extremely wide field. These can range from answering technical questions and offering solutions to economic problems to the sociological implications encountered in rural communities. Burger (1977) in the conclusion of his paper stated that in his view 'extension will be called upon to play an increasingly professional rôle, both in technology and in educational process.'

The deep significance of agricultural extension was outlined and discussed by Slabber (1975). He pointed out that the extension worker — besides having a sound knowledge of his subject (or *subjects* — the author's italics!) — must

also be well acquainted with the ecology of his area as well as its socio-economic situation. In addition he must have 'a specific and thorough knowledge of the process of change, including methods and techniques to achieve it in a rural situation.' Indeed no mean task!

### Communication

Close contact between researchers, extension workers and farmers is a *sine qua non*. Its importance has been emphasised in many quarters. The information gained from research must be passed on to the farmer not only in his interests but for the good of South Africa as a whole (Schoeman, 1978; Agenbach, 1979).

Accurate and unambiguous reporting of research results is essential. Frutchey (1966) wrote: 'Remember that what the receiver thinks the sender said is more important than what the sender said. The action the receiver takes depends more on what the receiver thinks the sender said than what the sender said.'

A researcher's output lies almost entirely in the written word. Because of shortcomings in this regard the author proposes that much more emphasis be laid on report writing. Courses should be designed specifically to give instruction and guidance even at under-graduate level (Dijkhuis, 1980).

Planning — which is both meticulous and visualised to its final stage — is vital for a research programme to be meaningful. In a paper on research planning, Harwin (1974) stated: 'A more business-like approach by researchers that will ensure objective priority determination and orderly and mission-orientated research is essential to support the programme under consideration.'

Applied and developmental research should be motivated by economic considerations. By consultation not only with biometricians but with economists, experiments could be designed to provide a reasonable basis for economic analysis or ultimate real-world application (Parsons, 1977).

Considerable progress has been made in the passing on of information from the research function to the extension function by means of the Systems approach. Advancement in this field relies on a clear definition of objectives and identification of priorities (Jones, 1978; Schoeman, 1978; Walker, 1978). It follows that weakness in objective setting and priority selection can considerably detract from this exercise.

Some years ago, under the guidance of the Institute of Crops and Pastures of the then Department of Agricultural Technical Services, a system of work-teams was devised. This brought together a number of disciplines which resulted in good in-depth discussion and subsequent planning of research programmes. It formed an important link between

extension and research. To some degree this was in line with recommendations made by Keenan (1978) who stressed the value of setting objectives and measuring progress in the extension field. The author is of the opinion that the work-team system can play a major rôle in helping to close communication gaps not only between different disciplines at the research level but between researchers and extension workers. This technique could be strongly developed to act as a two-way communication system. It is suggested that the feed-back from extension to the applied research field should be considerably strengthened.

It has become increasingly difficult to render extension services on an individual farmer basis. This problem was clearly outlined by Cilliers (1975) who recommended that the main task of the State should be to lead and co-ordinate all extension efforts. Could a modified form of the work-team system perhaps help in this regard?

The supply of trained manpower is limited. To offset this, greater use has been made of mass or group media so as to reach as large an audience as possible (Robbertse and Burger, 1972). Such a scheme has advantages but it also has problems. If groups become too large the effectiveness of meetings (eg farmers days) becomes questionable. Well-led study groups which would normally include a fairly large proportion of opinion leaders are proposed as one of the best means of extension. We come again to the absolute necessity for clear objective setting and frequent, critical evaluation of progress.

Another technique which has been successfully followed as a means of getting the message across is that of 'demonstration' farms. Here careful planning is step number one. This is accomplished by close co-operation between the farmer, the extension scientist and other specialists. The farm is subsequently visited on a regular basis, say every three or four weeks, by the extension officer. He and the farmer critically evaluate progress and plan the next steps. Should it be necessary, specialists may be called in to help with the solving of a particular problem. These 'demonstration' farms are used as focal points for the holding of small-scale farmers' days and as sites for learning and discussion by study groups. It is recommended that this type of extension technique be used on an increasing scale. Clearly, communication must be a two-way process. Information must be passed on from researchers to the extension services both of the State and in the private sector. Equally important, farming problems must be transmitted to researchers so that they are fully aware of the real-world situation.

In conclusion, tribute is paid to the South African Society of Agricultural Extension and to the Department of Agrarian Extension at the University of Pretoria for their continuing efforts in the communication field.

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