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**COMBINING DISCIPLINES IN RAPID APPRAISAL: THE
 SONDEO APPROACH []**

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SUMMARY

Multidisciplinary agricultural research teams can augment information on agricultural technology needs. In Guatemala a reconnaissance survey team of ten, equally split between socio-economists and technologists, has been used to assess farmer constraints and technology needs in advance of agricultural research. Quantified information and questionnaires are not required and the survey lasts only one week. The team investigated farmer conditions in pairs made up of a social scientist and a natural scientist. On each of four days the pairing changes. Daily post-survey team discussions are regarded as essential. Each member of the team prepares a report and these are finally amalgamated into one joint report. Experience has shown that combined disciplines can, if well managed, produce incisive and efficient diagnoses of rural conditions and needs and educate the participants in multidisciplinary thinking.

INTRODUCTION

Several characteristics are critical to an efficient and functioning multidisciplinary effort: first, those concerned must be well trained in their own field; secondly, they need a working understanding of—and must not be afraid to make contributions in—one or more other fields. Team members must not feel the need to defend themselves and their field from intrusion by others. Working together, all members of the team should view the final product as a joint effort in which all have participated and for which all are equally responsible. That means that each must be

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satisfied with the product, given the goals of the team, and be willing and able to defend it.

Perhaps the most critical characteristic required to achieve success in a multidisciplinary team is this identification with a single product in which all participate. The product can be complex and involve a number of facets but it should result from the joint effort of the whole team and not contain strictly identifiable parts attributable to individual team members. Failures of multidisciplinary efforts in agricultural institutions frequently result because teams are organised as committees that meet occasionally to 'co-ordinate' efforts, but in which the crop work is left to the agronomists, the survey to the anthropologists and the desks to the economists. In these cases there is not a single identified product but, rather, several products or reports purported to be concerned with the same problem.

TEAM EFFORTS IN AGRICULTURAL INSTITUTES

In the generation of improved agricultural technology for small traditional farmers, all multidisciplinary team members must be oriented towards and identified with 'technology' as the 'product' of the team (normally just the agronomists or animal scientists identify with the product). All must be willing to consider a wide range of variables and constraints and not leave these worries only to the anthropologists or sociologists. Further, all members must be willing to spend some desk time considering alternatives and their consequences on the clients' goals and not leave this just to the economists. The agronomists should be capable and willing to criticise the economic or social aspects of the work, and the social scientists, the agronomic aspects. In turn, these criticisms should be used to improve the product so that all can be satisfied with the final result.

In most agricultural institutes agronomists (who usually greatly outnumber the social scientists) are concerned about too much influence from the socioeconomic group in work at the farm level. This is manifest in resistance by agronomists to identifying too closely with the farmers (even with those on whose land they conduct trials). It also surfaces with respect to the evaluation of technology. The agronomist is much more comfortable if a final evaluation follows the farm trial phase of the work where he, himself, makes the evaluation. The agronomist, then, decides if a technology is 'good'. If, later, the farmer evaluates this 'good' technology and does not accept it, the agronomist considers it a problem for the extension service, or of poor infrastructure, of low prices, or of lack of initiative on the part of the farmer himself, but not a problem for the agronomist, who has produced what he considers to be a 'good' product. In this situation, evaluation by the farmer is equated with influence by socioeconomicists, who dare ask the farmer his opinion and who would tend to take into consideration more variables, including the present weaknesses in infrastructure, the price level, the farmers' capabilities, etc., in the development of a

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technology so that the product of the team's efforts could be used immediately without the need to await the development of other facets of the sector.

THE SONDEO: A TEAM RAPID SURVEY APPROACH

The Sondeo is a modified survey technique developed by the Guatemalan Institute of Agricultural Science and Technology, ICTA, as a response to budget restrictions, time requirements and the other methodology utilised, to augment information in a region where agricultural technology generation and promotion is being initiated.

In order to understand the methodology, it is first necessary to understand how ICTA is organised at the regional level. Each of the regions in which the Institute functions has a Regional Director who is the representative of the Director General of the Institute and of the Technical Director. Within the region, each area in which work is being carried out is in charge of a 'Sub-regional delegate', a technician who has a minimum amount of administrative responsibilities. All the technicians, from whatever discipline or programme, who work in the area, are responsible to him. This multidisciplinary team is usually comprised of some or all of the following: plant breeders, pathologists, a socioeconomist and approximately four general agronomists who are the Technology Testing Team. This group, backed up by the national Co-ordinators of Programmes (corn, beans, etc.) and Support Disciplines (socioeconomics, soil management) are responsible for orienting and conducting the generation and promotion of technology in the area. The work includes basic plant breeding and/or selection on the (usually small) experiment station in the area, farm trials, tests by farmers of promising technology, evaluation of the acceptability of the technology tested by farmers and economic production or farm records maintained by farmers with the help of the technicians. In order to provide the original orientation to the team, the Sondeo, or reconnaissance survey, is conducted by members of the Technology Testing Team who are going to work in the area, sometimes personnel from an appropriate Programme, and a team from socioeconomics comprised of one or more of the following: anthropologists, sociologists, economists, agricultural economists and/or engineers. Usually, there are five people from socioeconomics and five from the Technology Testing Team who form a ten-man Sondeo team for an area.

The purpose of the Sondeo is to provide the information required to orient the work of the technology generating team. The cropping or farming systems are described, the agro-socioeconomic situation of the farmers is determined and the restrictions they face are defined so that any proposed modifications of their present technology are appropriate to their conditions.

If ICTA is to work in an area that is not previously defined, such as by the bounds of a land settlement or an irrigation project, one of the objectives of the Sondeo is to delimit the area. This is done by first selecting the predominant cropping or farming

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system used by potential target farmers in the area and later determining the area in which this system is important. The reason that an homogeneous traditional or present cropping or farming system is used is that it is this system that ICTA will be modifying with new or improved technology. Hence, having a well defined, homogeneous system with which to work simplifies the procedure of generating and promoting technology. The premise on which the selection of an homogeneous cropping or farming system is based is that all the farmers who presently use it have made similar adjustments to a set of restrictions which they all face and, since they made the same adjustments, they must all be facing the same set of agro-socioeconomic conditions.

As well as delimiting the area of this homogeneous system, the tasks of the Sondeo team are to discover what agro-socioeconomic conditions all the farmers who use the system have in common and then to identify which are the most important in determining the present system and therefore would be the most important to consider in any modifications to be made by the team in future. Finally, the end product of the Sondeo is to orient the first year's work in farm trials and variety selection. It also serves to locate future collaborators for the farm trials and for the farm record projects.

Because the farm trials are conducted under farm conditions, during the first year they provide an additional learning process into the conditions that affect the farmers and are invaluable in acquainting the technicians with the realities of farming in the area. The farm records—which are also initiated in the first year—provide quantifiable technical and cost information on the technology being used by the farmers. At the end of the first year's work, then, the technicians have not only been farming under the conditions of the farmers in the area, but they also have the information from the farm record project. For this reason, it is not necessary to obtain quantifiable information in the Sondeo, which is not a benchmark study. Quantifiable information for impact evaluation in the area is available from farm records which increase in value each year.

THE SONDEO PROCEDURE

The primary purpose of the Sondeo, then, is to acquaint the technicians with the area in which they are going to work. Because quantifiable information is not needed, the Sondeo can be conducted rapidly and no lengthy analyses of data are required following the survey in order to interpret the findings. No questionnaires are used so farmers are interviewed in an informal manner which does not alienate them. At the same time, the use of a multidisciplinary team serves to provide information from many different points of view simultaneously. Depending on the size, complexity and accessibility of the area, the Sondeo should be completed in from 6 to 10 days at a minimum of cost. Areas of from 40 to 150 km² have been

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studied in this period of time. The following is a description of the methodology for a six-day operation.

Day 1

The first day is a general reconnaissance of the area by the whole team as a unit. The team must make a preliminary determination of the most important cropping or farming system that will serve as the key system, become acquainted in general terms with the area and begin to search out the limits to the homogeneous system. Following each discussion with a farmer, the group meets out of sight of the farmer to discuss each one's interpretation of the interview. In this way, the team members begin to become acquainted with how each other thinks. Interviews with farmers (or other people in the area) should be very general and wide ranging because the team is exploring and *searching for an unknown number of unknown elements*. (This does not imply, of course, that the interviews lack orientation.) The contribution or point of view of each discipline is critical throughout the Sondeo because the team does not know beforehand what type of problems or restrictions may be encountered. The more disciplines that are brought to bear on the situation, the greater is the probability of encountering the factors which are, in fact, the most critical to the farmers of the area. It has been established that these restrictions can be agro-climatic, economic or socio-cultural. Hence, all disciplines make equal contributions to the Sondeo.

Day 2

The interviewing and general reconnaissance of the first day serve to guide the work of the second day. Teams are made up of pairs: one agronomist or animal scientist from the Technology Testing Team and one person from socioeconomics who work together in the interviews. The five teams scatter throughout the area and meet again either after the first half-day (for small areas or areas with good access roads) or day (for larger areas or where access is difficult and requires more time for travel). Each member of each team discusses what was learned during the interviews and tentative hypotheses are formed to help explain the situation in the area. Any information concerning the limits of the area are also discussed to help in its delimitation. The tentative hypotheses or doubts raised during the discussion serve as guides to the following interview sessions. During the team discussions, each of the members learns how interpretations from other points of view can be important in understanding the problems of the farmers of the region.

Following the discussion, the team pairs are changed to maximise interdisciplinary interaction and minimise interviewer bias and they return to the field guided by the previous discussion. Once again, following the half-day's or day's interviews, the group meets to discuss the findings.

The importance of these discussions following a series of interviews cannot be overstressed. Together, the group begins to understand the relationships

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encountered in the region, delimits the zone and starts to define the type of research that is going to be necessary to help improve the technology of the farmers. Other problems—such as marketing—are also discussed and, if solutions are required, relevant entities can be notified. It is important to understand the effect that these other limitations will have, if not corrected, on the type of technology to be developed so that they can be taken into account in the generation process.

During the second day there should be a notable convergence of opinion and a corresponding narrowing of interview topics. In this way, more depth can be acquired in following days on the topics of increasing interest.

Day 3

This is a repeat of day 2 and always includes a change in the makeup of the teams after each discussion. At least a minimum of four interview-discussion cycles is necessary to complete this part of the Sondeo. If the area is not too complex, these cycles should be adequate. Of course, if the area is so large that a full day is required for interviewing between each discussion session, then four full days are required for this part of the Sondeo.

Day 4

Before the teams return to the field for more interviews on the fourth day, each member is assigned a portion or section of the report that is to be written. Then, knowing for the first time for what topic each will be responsible, the teams, regrouped in the fifth combination, return to the field for more interviewing. For smaller areas, this also is a half day. In the other half day, and following another discussion session, the group begins to write the report of the Sondeo. All members should be working at the same location so that they can circulate freely and discuss points with each other. For example, an agronomist who was assigned the section on maize technology may have been discussing a key point with an anthropologist and needs to refresh his memory about what a particular farmer said in a brief discussion with him. In this manner the interaction among the disciplines continues.

Day 5

As the technicians are writing the report, they invariably encounter points for which neither they nor others in the group have answers. The only remedy is to return to the field on the morning of the fifth day to fill in the gaps found the day before. A half day can be devoted to this activity, together with finishing the writing of the main body of the report.

In the afternoon of this day, each team member reads his written report to the group for discussion, editing and approval. The report should be read from the beginning just as it will be when finished. As a group, the team should approve and/or modify what is presented.

Day 6

The report is read and conclusions are drawn once again for approval both for the team and for the community. All should be involved in the process.

The product of the multidisciplinary team. Furthermore, after the report is read, the team should be able to discuss the recommendations.

To a certain extent, the report is written by the same person. The fact that they are different points of view and horizons of all with different orientations for no Director, in discussion, is obvious that the report is hurried which is just data that can be used as a document to orient just being written.

The exact form of the area being studied following is a brief description of the area of Guatemala (Chinchilla¹).

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Day 6

The report is read once again and, following the reading of each section, conclusions are drawn and recorded. When this is finished, the conclusions are read once again for approval and specific recommendations are then made and recorded both for the team who will be working in the area and for any other agencies that should be involved in the general development process of the zone.

The product of the sixth day is a single report generated and authored by the entire multidisciplinary team and should be supported by all of the members. Furthermore, after participating for all six days with each other, each member should be able to defend all the points of view discussed, the conclusions drawn and the recommendations made.

THE REPORT

To a certain extent, the report of the Sondeo is of secondary value because it has been written by the same team that will be working in the area. Most of its value lies just in the fact that they have written it. By being forced into a situation where many different points of view had to be taken into consideration and coalesced, the horizons of all will have been greatly amplified. Further, the report can serve as orientation for non-participants, such as the Regional Director or the Technical Director, in discussing the merits of various courses of action. However, it is also obvious that the report will appear to be one written by ten different persons in a hurry, which is just exactly what it is! It is not a benchmark study with quantifiable data that can be used in the future for project evaluation; rather, it is a working document to orient the research programme and that served one basic function in just being written.

The exact format and content of a report of a Sondeo will vary according to the area being studied and the nature of the crops or livestock enterprises included. The following is a brief description of an outline of a report recently completed in one area of Guatemala where grains and vegetables were of primary interest (see Chinchilla¹).

Purpose

Describes the reason the Sondeo was undertaken and the dates.

Homogeneous technology

Describes the principal characteristics of the technology regarding the crops of interest found within the limits of the area and the important differences outside the area that changed the nature of the cropping system and defined the limits of the area.

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Description of the delimited area

Geographical limits, altitude, soils and other important features, including a map drawn with the boundaries as precise as possible.

Land

Land tenure and farm size were important restrictions in the cropping system and were described.

Labour

General labour availability and periods of scarcity and the special tasks performed by women in the homogeneous system were described.

Capital

The capital flow in the traditional system which provides the funds for investing in both the basic grains and the vegetables was described and the poor functioning of the small farm credit system was noted.

Corn

The most important components of the corn production system were described.

Beans

The rôle beans play in the system and their lack of general importance was discussed.

Vegetables

The production system and the marketing of vegetables were described.

Livestock activity

The special importance of livestock and of the livestock-crop interaction was discussed.

Conclusions

Conclusions for each of the above sections were drawn with special emphasis on their meaning to the future work of ICTA.

Recommendations

Those relevant to ICTA and to other organisations in the public agricultural sector as well as the private sector.

Because one of the principal purposes of the Sondeo is to guide the efforts of the resident Technology Generating Team, some of the important recommendations from this Sondeo are elaborated below. These recommendations obviously guide

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the type of technology which will be included in the farm trials and requested from the experiment station in support of farm trials. Specific treatments to be included and the experimental designs to be used are generally left to the team members and the national Programme and Discipline Co-ordinators to determine.

(1) Maize is the most important subsistence crop in the area. The farmers tend to think in terms of a fixed minimum quantity required for the family and the animals. Because of the competition of the vegetables for labour and capital, low technology is used in the maize and, frequently, land is substituted. This must be considered in the mix of technology generated.

(2) Cropping systems must be devised that rotate or intercrop vegetables with maize, but not at the cost of reducing maize production. It is also necessary in these systems to realise that most of the capital and labour will be utilised on the vegetables and not on the maize.

(3) In vegetable technology, priority should be given to disease control and fertilisation.

(4) Even though beans are an important subsistence crop, given the importance of vegetables and the shortages of funds for research, it is recommended that little emphasis be given to beans in this area at the present time.

(5) Because of problems with the small farm credit programme, it is recommended that the technology to be generated should not be based on the hope of such a programme in the short run.

CONCLUDING REMARKS

The disciplinary speciality of each member of the Sondeo team is not critical so long as there are several disciplines represented, and, if the Sondeo is in agriculture, a significant number of them are agriculturalists. At least some of these should also be from among those who will be working in the area in the future. The discipline of the Co-ordinator of the Sondeo is probably not critical, either, if he is a person with a broad capability, an understanding of agriculture (if it is an agricultural Sondeo) and experience in surveying and survey technique. However, the Co-ordinator must have a high degree of *multidisciplinary tolerance* and be able to interact with all the other disciplines represented on the team.

The Co-ordinator, in a sense, is an orchestra director who must assure that everyone contributes to the tune but that, in the final product, all are in harmony. He must control the group and maintain discipline. He arbitrates differences, creates enthusiasm, extracts hypotheses and thoughts from each participant and ultimately will be the one who coalesces the product into the final form. It is perhaps not essential that he has prior experience in a Sondeo, but it would certainly improve his efficiency if he had.

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SELECTED REFERENCES

1. CHINCHILLA, MARÍA E., Condiciones agro-socioeconómicas de una zona maicera-hortícola de Guatemala. Trabajo presentado en la XXV Reunión Anual del PCCMCA, Tegucigalpa, Honduras, 19-23 de Marzo, 1979.
2. HILDEBRAND, P., Motivating small farmers to accept change. Paper prepared for presentation at the Conference on Integrated Crop and Animal Production to Optimize Resource Utilization on Small Farms in Developing Countries. The Rockefeller Foundation Conference Center, Bellagio, Italy. 18-23 October, 1978, ICTA, Guatemala.
3. HILDEBRAND, P. E., *Summary of the Sondeo methodology used by ICTA*, ICTA, Guatemala, 1979.

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