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IDENTIFYING FARMER TARGET GROUPS IN AN AREA:

METHODOLOGY AND PROCEDURES.

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In recent years, government officials of many Third World Countries have called upon research services to make their programs more relevant to small farmers.

The question which often begs itself is, "to which small farmers". Indeed, a country like Kenya is characterised by a considerable variation in farming circumstances, even within the "small-farm" sector. Some notable aspects which may vary include cropping pattern, farm size, method of land preparation, topography, land tenure, and input levels to mention but a few.

Surely an individual research program, such as a maize agronomy program, cannot address an entire nation of maize growers' problems with one set of experiments.

Adaptive research, specifically designed to generate farmer recommendations, must be area-specific or better, target group specific. This is so because farmers with different production problems and possibilities will likely require different research experiments and different research recommendations.

Identifying target groups is important for planning research appropriate for the farmers in respective target groups. For example, policy makers can examine the number of farmers in different target groups, their particular circumstances and decide which groups warrant priority. Researchers can use the information to help focus their research towards particular groups and towards problems which particular groups have.

CIMMYT, Eastern African Economics Program Report No. 4, "Deriving Recommendation Domains¹ for Central Province, Zambia" is a report on the zoning of an area into target groups to facilitate the planning of appropriate research and development programs. The paper identifies the Province's principal target groups, describes the farming circumstances

1. "recommendation domain" and "target group" are used interchangeably.

in each and establishes a framework for policy-makers to assess research priorities for each target group. The purpose of the present paper is to elaborate on methods and procedures for carrying out such an exercise.

First the collection of background information, maps, and questionnaire design are outlined. Then, the paper discusses meeting with the District Agricultural Officer and interviewing field staff. Finally data tabulation, analysis and interpretation, and writing up a report are examined.

This paper uses Kenya's administrative structure in its examples. However, it is likely that the principal aspects of the procedures are applicable to the circumstances of other countries as well.

I. BACKGROUND INFORMATION.

Review background information for the district. Assemble information on rainfall data, soil and topography, population and settlement pattern, crop and stock enterprises, pests and disease problems, marketing, input distribution and extension programs. (See "A Case Study of a Diagnostic Survey of a Farming System in Zambia", Occasional Paper No. 1, CIMMYT, Eastern African Economics Programme, Pages 5 - 6).

It is likely that research reports concerning your selected area are available from the University of Nairobi library, The Institute for Development Studies library or the Agriculture Documentation Centre at the Ministry of Agriculture, Nairobi. The Documentation Centre also has copies of Annual Agricultural Reports by District.

II. MAPS.

Obtain topographical maps of the District from the Public Map Office, Harambee Avenue, Nairobi. 1:50,000 maps will probably be adequate. To obtain the maps (K.Sh. 12.50 each) you must present a letter detailing why you need the maps, which has been initialed at the Survey of Kenya Office, University Way, Nairobi.

Administrative maps are available from the Survey of Kenya Office, Thika Road. However, these maps may be out of date. Up to date maps of administrative areas may be obtained from the Central Bureau of Statistics, Cartography Section, at no charge but you must provide the paper for printing.

It is desirable to have both topographical and administrative information on one map. You can accomplish this by tracing the administrative boundaries on a large piece of plastic and then laying the plastic sheet over the topographical map.

III. QUESTIONNAIRE DESIGN.

Develop a short one-page questionnaire focussing on important

aspects for identifying differences in farming systems within the district. A sample questionnaire, accompanied by notes to guide designing it and filling it in, is presented in "Deriving Recommendation Domains for Central Province, Zambia, Report No. 4. CIMMYT, Eastern African Economics Programme (Page 3, 23, 27 - 30).

IV. MEET WITH THE DISTRICT AGRICULTURAL OFFICER (D.A.O.).

The D.A.O. is likely to bring district staff into the main office once a month. Find out when this is and aim to administer your questionnaire to them while they are at the District Office. Alternatively, it may be preferable to meet with staff at the Divisional Offices. Only in extreme cases, should you have to visit each location to interview the field staff.

Try and meet with the D.A.O. at least one week before the staff members come to the office. At this meeting, you should :

A. Explain the purpose of the Project.

1. Station recommendations are sometimes irrelevant to farmers, partly because they are developed on stations by researchers who are isolated from the farmers and the extension workers themselves. Researchers have to understand the farmers' circumstances if they are to develop appropriate recommendations.
2. Different groups of farmers require different research and extension strategies. Our task is to identify important farmer groups in the District. We will do this by administering a short questionnaire to field workers throughout the district. This exercise will be followed by in-depth interviews with farmers, at a later time. The overall purpose is to understand farmer practices and conditions so as to plan more relevant research programmes.

B. District Overview.

Ask the D.A.O. to summarize what he thinks are the most important farmer groups in the district. Explain that farmer groups may vary according to geographical or hierarchical lines :

1. Geographical.

For example, farmers in a hot, dry area of the district may have different resources, grow different crops, face different problems and manage their farms differently than those farmers in areas of the district which have more rainfall.

2. Hierarchical.

Hierarchical divisions occur within a geographical area and are generally caused by economic or historical factors. For example, power source may be an important factor distinguishing different farms in the district -- some using hoes, others ox ploughs, others tractors. Another important factor might be hired labour use -- some with permanent labourers, others with seasonal casual labourers, others with only family labour. Whether or not farms have an important cash crop, such as coffee or tea, may be an important factor differentiating between farmer categories within an area. Finally, size of land holding may reflect one or another of these factors and may be the most easily understood basis for a hierarchical division.

Give the D.A.O. some examples of variations which occur among farmer groups in other areas, such as those mentioned above. Try to get the D.A.O. to give you what he feels are boundaries (geographical or hierarchical) for the different farm types he recognises and why he feels these are the boundaries.

C. Interview Schedule.

Set up a schedule of meetings with field staff. Present the D.A.O. with the check list of locations and sub-locations in the district and have him fill in, for each, the name of the staff worker who is -

- (a) Most articulate, and
- (b) Has spent a good deal of time in that sub-location. Of course, one staff worker may be selected for several sub-locations. Thirty minutes per interview should be sufficient. Remember that a separate questionnaire is required for each hierarchical group within an area.

If the D.A.O. is calling the staff in for a District Agricultural Meeting, you may have a problem meeting with each of the staff individually on that same day. As staff meetings generally begin late and last long, try to arrange most interviews for the morning period before the meeting begins. Give priority to staff members from areas which are most inaccessible, as it may be necessary to interview some fieldworkers at their posts.

D. Pre-test questionnaire.

Ask the D.A.O. if you may carry out a few test

interviews with staff members who happen to be present at headquarters. This exercise will help you to -

1. Clear up any ambiguities which may exist. For example your questionnaire may ask about major pests and diseases in the area. Pretesting will instruct you to refer to either frequency, intensity, or some index of the two (seriousness to the farmers) rather than leaving it to the staff worker to decide.
2. Improve the phrasing in putting the question to the respondent. For example, in a recent zoning exercise for a dryland range area, the original questionnaire asked the respondent what the cattle take-off rate was. In the pre-test, it was found that respondents were unable to answer the question. However, when the question was re-phrased - - "you say an average farmer has about 20 head of cattle. How many of these animals would a typical farmer sell or slaughter over a one year period?" - - the respondents were able to answer.
3. Pre-testing will also help you to evaluate the effectiveness of the assistant(s) helping you to administer the questionnaire. Have him/her interview a field worker in your presence.

Be sure to give a copy of the questionnaire to the D.A.O. Ask him to comment on relevancy of questions, phrasing, omissions, etc.

V. OBSERVATIONS OF AREA FROM VEHICLE.

While travelling to and from the D.A.O.'s office and interviews with field staff, observe the farms along the road. Take notes as you go along and note, in particular, where important changes in the farming system occur. If money for petrol permits, try and cover all the major parts of the area which you are studying. Your observations will assist you in identifying topics to discuss with the field-staff in the interviews as well as verifying the information given to you.

VI. INTERVIEWING FIELD STAFF.

A. Explain purpose.

Begin as you did with the D.A.O. (See 4 above) by explaining the purpose of your exercise. It will be necessary to use simpler terms than those you used with the D.A.O. Maintain a relaxed, informal atmosphere.

B. Area Identification.

1. Spread out the map(s) on a table and delineate the area that he serves in his work. It is possible that names and places on the map will not correspond with the names and places as he knows them.
2. Find out how long he has served at this post. If he has been here for only few months, it would be better to interview someone else more conversant with the area. However you may want to interview this field worker on the area he was recently transferred from.
3. If there are areas which are not well known to any field worker, seek out a field worker in another ministry (Livestock Development, Health, etc) who is conversant with the area. Chiefs may also be of assistance.
4. Identify the areas on the map which he is familiar with. Put your question in a way which permits him to say, without losing face, that there are places in his area that he does not know well. Locate places on the map which he knows to help him focus on the area you are discussing.

C. Test homogeneity within area.

1. Ask the respondent if there are differences in farming at different places within the area. Focus the questioning by:
 - (a) Asking if there are differences in farming at places he has shown he knows at opposite ends of his area. Be sure he realises you are talking about physical differences (soil, rainfall, topography, etc), technical differences (crops grown, method of land preparation, land tenure, etc), and human differences (tribes, staple foods, etc).
 - (b) Asking about some important variables which the D.A.O. has indicated are important in distinguishing between different farming types in different areas. These might be number of growing seasons per year, main crops grown, farm size, etc. Ask if these vary among different places in his area. Get an idea of variation in the geographical differences across the respondent's area.

- Find out whether there are hierarchical differences among farmers in the respondent's area. Explain the hierarchical differences which the D.A.O. believes exist in parts of the district. Try to establish, for each of the geographical divisions, what proportion of farmers fall into each of the hierarchical divisions. Note the divisions, both geographical and hierarchical, on the check-list against the sub-location. An example of such a check-list is shown in Table 1. A separate questionnaire should be administered for each combination, that is, each hierarchical group within a geographical area. If the respondent indicated that a hierarchical group consists of less than 10% of the farmer population in the geographical area in question, do not administer a questionnaire for that group. Be sure to get an approximate percentage breakdown for each hierarchical group within his area. For example if some farmers prepare their land by hand and others by tractor, get the approximate percentage breakdown for each.

TABLE 1 : AN EXAMPLE OF A ZONING INTERVIEW CHECK LIST.

1 Location	2 Sublocation	3 Fieldworker	4 Geographical Division within Fieldworker's area	5 Hierarchical Division within Fieldworker's area.	
				Medium size Farms	Small scale Farms
Asmira	Tabila	Mr.Kamau	Coffee and Maize zone	None	x
	Niforin				x
	Tuscala	Mr.Ngawe	Coffee and Maize zone	None	x
	Rayore				x
Wictorin				x	
Amarinye	Ichala	Mr.Timora	Coffee and Maize zone	None	x
	No.Lungore				x
	So.Lungore				x
	Central				x
	Limuta				x
Nafasiri	Tea and Maize zone	None	x		

Notes : An "x" in column 5 or 6 indicates that a questionnaire is required for the farmer group.

(Notes continued on the following page)

The example shows that 13 questionnaires are required to complete the exercise for the two locations.

Names of locations and sub-locations were filled before the meeting with D.A.O. Column 3 was filled by D.A.O. Columns 4 and 5 were filled by the researcher during preliminary discussions with field staff listed in column 3.

3. In most cases, testing homogeneity should take no more than ten minutes. Be sure that the respondent is answering the questions that you are phrasing. If he is not, politely interrupt and rephrase the question so that he understands what you are looking for. Don't let him drift into areas of conversation which are not relevant to the discussion. You, the researcher, must control the conversation. On the other hand, he may suggest geographical or hierarchical differences which the D.A.O. did not mention. Evaluate the importance of these differences and decide whether or not they are significant enough to justify further divisions across or within the area.

D. Administering the Questionnaire.

1. Use pencil as there will likely be much erasing to do.
2. Be aware of the biases of your respondents and ask your questions in a manner to offset these biases. For example extension workers tend to consider only the progressive farmers when answering questions about variety, fertilizer use, etc. So you must keep your discussion focussed on the majority of the farmers within the group, not just about exceptional progressive farmers with whom he may have the most contact. Explain to him the distinction between progressive and typical farmers and that we are primarily interested in the typical farmer. Continuously refer to "the average farmer", "the typical farmer", "the majority of farmers" during your questioning.

It is also likely that the respondent will tend to talk about that village of the area you are discussing which he knows best. Keep referring to specific places in the area throughout the questioning. For example you might reply, "You say most farmers plant Katumani variety. How about in Mbira village, what variety do they plant there. And over near the Menchum river, what do they plant there? "

3. Use the respondent's terms of reference. For example, if you ask what is the maturity period for a certain maize variety, it not likely that respondents will be able to answer. However, if you ask when farmers usually plant the variety and when it is usually ready for harvest, respondents will know the times and you can easily calculate the length of the period.
4. It is likely that you will have several questions on your questionnaire for which respondents should rank the importance of the answers.

Make sure that respondents are ranking those responses according to their importance to the majority of the farmers. Let us say that for over 90% of the farmers in an identified group, maize is the most important foodstuff. For these same farmers, cassava is the next most important foodstuff. In addition, there are a few farmers for whom millet is the chief food staple. In your questionnaire, you should include maize as the most important food staple and cassava as second. If the millet farmers made up more than 10% of the area's population, you would probably decide that they were a separate heirarchical group requiring a separate questionnaire to be filled about them.

For ranking alternative responses to a question, first allow the respondent to list different responses which are important. Next, tell him you would like him to rank the answers according to their importance. Read the list over to him and let him rank them.

For example, lets say you want him to rank crop diseases and pests according to their importance as problems for farmers. First ask him what are the major diseases and pests which farmers in the group face.

When he has finished naming them, tell him "I would like you to name the three which represent the most problems for the farmer in order of importance. I'll read the list over slowly and you think about which are the three most important". When you have finished reading the list, ask him which is the most important, which is next, and which is third in importance.

5. Do not suggest answers, allow the respondent to answer in his own words. Be patient and allow him enough time to answer. If he does not understand your question, then rephrase it. The only

time you may suggest answers is when you provide him with all possible responses. For example, if you are asking him the main methods of land preparation you may ask if land is prepared by hand digging, ox plow, tractor, or if it is left unprepared since there is no alternative to these.

6. Keep the conversation focussed on the questions you are asking. Don't allow him to stray into subjects outside the area of interest. Be brief, it should not take more than 30 minutes to complete a single questionnaire.
7. Half-way through the questionnaire, you may realise that you are actually trying to cover two distinct farmer groups in one questionnaire. If this is the case, begin again, doing a separate questionnaire for each group.
8. If one field worker is asked to complete more than two questionnaires ask him if he'd like to take a short break after the first two are complete. Respondent fatigue can seriously affect the quality of the information you obtain.
9. After completing interviews with a field worker, make a small note to yourself about how suitable he would be for assisting you in further work - pre-survey, formal survey, etc. Evaluate him on knowledge of the area, how articulate he is, cordiality and knowledge of the local language.

VII. TABULATION.

Several methods of tabulation are discussed in CIMMYT Report No. 4. The basic tabulation, which has different areas across the top and the questions down the side, is essential for a comprehensive analysis of the data. Do a different tabulation sheet for each hierarchical group. Examples of tabulation sheets are shown in Annex 2 and 3 of Report No. 4.

VIII. ANALYSIS AND INTERPRETATION.

The following is one method to facilitate interpretation. Use your own judgment on how to arrange the data in a meaningful fashion. The following steps are carried out for each hierarchical group.

- A. Separate out variables for which there is no variation across the zone. These variables will not play an important role in distinguishing one target group from another.

B. For variables which vary :

1. Decide on how to break down the areas into distinct groups for each variable. Keep the number of groups to two or three. For example, for size of farm, you may want to classify farms according to a large-small or a large-medium-small breakdown. A listing of the breakdown of variables into distinct groups is shown in Figure 1.
2. Rank the variables, in one indexed ranking, according to -
 - (a) The importance of the variable in the farming system. Is it likely that differences in this variable will require you to make different recommendation domains ?
 - (b) The reliability of the data.
If you do not feel that the data obtained for a certain variable are accurate, then these variables should not be strongly considered in the analysis. However you should check with persons knowledgeable about the area whether the variable is strongly related with another variable and whether it is likely to be an important criteria for distinguishing among recommendation domains.

List the variables in order of rank on a piece of paper, as shown in Figure 1.

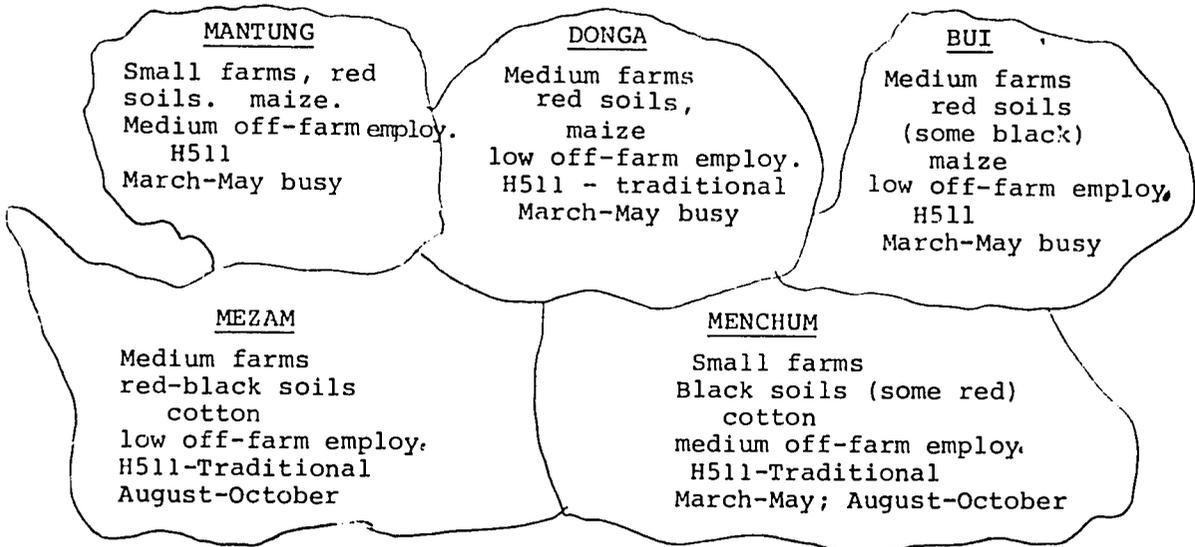
3. For each hierarchical group sketch out a map of the district. Draw boundaries around each area for which a questionnaire was done. Don't worry about the shape of the boundaries, but be sure that each area shares borders with the same areas as it does on an administrative map.

Within each area for which a questionnaire was filled, fill in short notes concerning the most important characteristics which vary across the district. An example of a map with areas and characteristics filled in, is shown in Figure 1.

4. Select the most (or one of the most) important variables. Note the areas represented by each class of variable on the map, e.g. areas where maize is an important cash crop, areas where cotton is important, etc. Do the same for other variables you've listed on the map. Note how values of one variable correlate with values for other variables. For example in Figure 1, maize is correlated with red soils

FIGURE 1. PROCEDURE FOR IDENTIFYING TARGET GROUPS AMONG OX-PLOUGH USERS IN AN AREA.¹

- I. Ranking of most important (and reliable) variables causing variation in the district.
 1. Farm size. (Medium, small)
 2. Soil. (Black, red, red-black)
 3. Cash crop. (Maize, cotton)
 4. Off-farm employment. (High, medium, low)
 5. Maize variety. (Mostly H511, mostly Traditional)
 6. Busiest month. (March-May or August-October)
- II. Hand-drawn map to show major characteristics of areas.



III. Hypothesized target group and its characteristics (including exceptions !)

1. MAIZE-MEDIUM-SIZE FARM GROUP (Mantung-Donga-Bui)
Variable.

1. Medium size farms (Mantung-small)
2. Red soils (some black in Bui)
3. Maize as principal cash crop.
4. Low-off farm employment (Mantung-medium)
5. H-511 is principal maize variety (some traditional in Donga)
6. Busiest months are March-May.

1. It is assumed that two hierarchical groups have been identified in the area: ox-plov users and those renting tractors. This figure deals only with identifying target groups among ox-plov users. A parallel procedure may be followed to identify target groups among the tractor users.

and cotton with black soils.
List out what you think the target groups are.

It is often difficult to decide which differences between farmer groups are important enough to warrant labelling them as different target groups. Remember the underlying concept behind a target group - - it is a group of farmers with similar farming systems and with similar researchable development problems and opportunities. Certainly, the researcher's own judgement comes into play in drawing lines between different target groups. Nevertheless in most circumstances, the difference between target groups in an area are readily recognizable.

5. For each proposed target group list out its major characteristics. Figure 1 presents such a listing. For each characteristic, areas which deviate from the norm are noted. If the same area(s) comes up as an exception frequently, it (they) may merit being classified as a separate recommendation domain.

The notes under this section pertain to a specific hierarchical group. If you have questionnaires for more than one hierarchical group, you have to confirm that the original idea for breaking the population down into such groups is valid. For example Figure 1 deals only with one hierarchical group - - those preparing their land with ox-ploughs. The researcher must then follow the same procedures for the other identified group - - those renting tractors for land preparation. Furthermore, he must verify that it is necessary to identify target groups, to differentiate between tractor-users and those tilling oxen.

IX. WRITING UP A REPORT.

Write up a short report detailing the results of the study. Be sure to define terms not ordinarily used, e.g., hierarchical group, so that those not familiar with the exercise can understand it. Use census data to estimate the population of each identified target group.

Before writing your final draft, review the results with the D.A.O. and others knowledgeable of the area. Make adjustments as necessary.

X. CONCLUSION.

The above notes explain one view on how to identify different recommendation domains in an area. Use your own judgement to evaluate whether specific sections of the guidelines are relevant to your own circumstances, or whether other approaches would be of more benefit. Your own judgement, when based on a solid understanding of the principles involved and a clear statement of your objectives, is the best instrument for deciding methods and procedures to use in an exercise to identify target groups.