Farmer Surveys

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In a survey, one collects data from a sample of a population to determine the relative incidence, distribution and interrelations of variables for the purpose of description or prediction as a guide to action (Kerlinger, 1986; Oppenheim, 1966). Sample surveys focus on people and their beliefs, opinions, attitudes, motivations, and behavior. In survey research, the goal is to infer the characteristics of a given population from samples drawn from that same population.

Limitations of the survey approach

> 'But questionnaire surveys often take more time and resources than estimated, enslave researchers, and generate misleading data and unread reports. Some bad questionnaire surveys make rural people appear ignorant when they are not.'
>
> Robert Chambers, *Rural Development: Putting the Last First,* Chapter III

Because of their usefulness in setting the research agenda, testing research hypotheses, designing extension strategies, evaluating the effectiveness of projects and development interventions, there has been a demand for surveys. The popularity of surveys also stems from the fact that survey data can be subjected to statistical analysis, which generate quantitative indicators giving a semblance of rigor often desired by donors and practitioners. Yet, surveys can be costly, inefficient and superficial (Bryman, 1988; Chambers, 1983; Kearl, 1976) unless these are carefully planned and combined with in-depth and more sensitive techniques carried out by a multi-disciplinary team (Yin, 1984; Bryman, 1988; Gonzalez, 1985.

How to conduct a farmer survey

Because the cost-effectiveness and opportunity costs of surveys are often high, it is important that they are planned and conducted with utmost care (Chambers, 1983). In conducting a farmer survey, the following steps are recommended:

1. Identifying the problem

The first step in planning a survey is to identify a problem that needs to be addressed. In pest management, the choice of pest problem to focus on would depend on the research priorities and information needs of a given ministry or plant protection organization. Where such priorities have not been articulated, the farmer survey could also gather information that could be used for developing research priorities.

2. Developing survey objectives

Having identified a priority problem, the next step is to develop the survey objectives. A list the variables that will help find answers to the survey objectives could put the researcher on track. Specific questions that are aimed at various aspects of the problem could help clarify the research problem. It is also important to remember that the choice of questions should be guided by the survey objectives.

3. Developing the survey instrument

In a survey, the instrument used for data collection is a questionnaire, which contains a series of questions designed to gather information from the respondents. Depending on the survey objectives, the survey questionnaire may contain knowledge, attitude and practice questions on an identified pest problem, cropping patterns, demographic and socio-economic background of respondents, among others.

Kinds of questionnaire items. Two types of questionnaire items are commonly used: fixed-alternative and open-ended. *Close-ended* or *fixed-alternative* items offer the respondent a choice among two or four alternatives. For most items, fixed-alternative questions are valuable because they provide a frame of reference and help to clarify the meaning of the question. The most common type of fixed-alternative question is dichotomous which asks for two-alternative answers such as Yes-No, Agree-Disagree. Often a third alternative, Don't Know or Undecided is added. Here is an example of a fixed-alternative question:

Who is responsible for water management in your rice field?

_____ 1) Self
_____ 2) Spouse
_____ 3) Hired labor
_____ 4) Other (specify) _____

With close-ended items, one can achieve greater uniformity and reliability of measurement by encouraging the respondent to answer in a way that fits preset response categories, and facilitates data processing. However, their major disadvantage is their superficiality. Without probing questions, they do not ordinarily get beneath the response surface. Probing questions are follow-up items that encourage the respondents to clarify his or her answer, giving more details about thoughts, feelings and opinions (Moulton and Roberts, 1993). If they are mixed with open-ended items and used with probing questions, close-ended items are useful (Bryman, 1988; Kerlinger, 1986).

Open-ended questions. Open-ended questions are those that supply a frame of reference for respondents' answers, but put a minimum of restraint on the answers and their expression. While their content is dictated by the research problem, they impose no other restriction on the content and manner of respondent answers. Here is an example:

Can you tell me how water management should be carried out to control weeds?

_____

Open-ended questions are flexible; they provide opportunities for getting in-depth information which can enable the interviewer to do any of the following: clarify the question, ascertain a respondent's lack of knowledge, detect ambiguity, encourage cooperation and achieve rapport, or make better estimates of respondents' attitudes and beliefs (Kerlinger, 1986).

Scale items. A scale is a set of verbal items to each of which an individual responds by expressing degrees of agreement or disagreement or some other mode of response (Kerlinger, 1986; Kidder, 1981; Becker, 1970). Scale items have fixed alternatives and place the responding individual at some point on the scale. Scales may consist of multiple points (e.g., 7. 5 pr 3 response categories). While a 5-point s or 7-point scale is generally suggested to minimize a response bias, a 3-point scale has been observed to be more appropriate for rural settings because of differences in vocabulary patterns and educational levels. Rural respondents generally tend to be unable to place gradations to their own perceptions or feelings, making it difficult to discriminate between the “agree” or “strongly agree”. An example of a scale is shown below:

Leaf-feeding insects do not cause yield loss:

_____ 1) Strongly agree
_____ 2) Agree
_____ 3) No opinion
_____ 4) Disagree
_____ 5) Strongly disagree

For agree/disagree scales such as the one shown above, it is important to include a “don’t know” category so that respondents who have no knowledge of an issue could say so. When using a “don’t know” category, it is suggested that the midpoint of the scale then becomes “neither agree nor disagree” which is very different from the original “no opinion” midpoint. In general, the “don’t know” option needs to be included in all close-ended questions, as finding out what farmers don’t know is important as it suggests intervention points.

Assessment of farmers' knowledge, attitude and practice

In farmer surveys, some questions seek to establish which particular technique or concept the respondent knows about, how he feels about it and whether or not he practices it. There is an objective norm against which to compare the respondent's knowledge and practice, and an objective standard against which to rate the extent of his or her knowledge and practice, and the direction of his attitude. The assumption in measuring the knowledge, attitude and practice of respondents is that there are differences between what a person knows (knowledge), how he feels (attitude) and what he does (practice).

KAP questions enable the researcher to identify gaps in knowledge, attitude and practice with regard to a problem which have implications for designing future research and intervention. For instance, in a survey of farmers’ weed management practices, we found that most farmers relied on their own seed stock or the neighbor’s seeds to transplant of broadcast in their fields. Most farmers believed that seeds from private seed growers do not require additional cleaning and neighbors and friends should exchange seeds among themselves. Some reasons given by farmers for their preference for their own unprocessed seeds or those of their neighbors wre: a) it is always available and accessible, and b) can be obtained at low cost. Information on farmers’ knowledge such as this can then be transformed into researchable problems and results of research communicated back to farmers.

Knowledge. Knowledge questions are constructed to test the comprehension and awareness of the respondents toward an object.

Attitude. To measure how a respondent feels toward a particular subject, attitude questions use scales which ask the respondent to indicate his degree of agreement or disagreement toward certain statements. In each statement are alternatives and the respondent chooses one of the supplied responses to report his or her reaction to the item. An example of an attitude scale is given below:

Direct seeding or broadcasting can increase weed population.
____ 1) agree
____ 2) no opinion
____ 3) disagree

Practice. Practice questions measure the action component of the object by asking the respondent how he behaves or would behave in a situation involving it. Although observation is a more reliable method for determining practice, in farm surveys, it is often measured by verbal reports of a respondent's application of a particular technique or a set of recommended procedures. In asking about a respondent's present behavior or practice, specific rather than general questions are asked about what he is actually doing. For example, in a survey on farmers' pesticide use, it is preferable to ask, "Which pesticide do you currently use? May I see the container?" rather than merely asking, "What chemicals do you use?"

Question wording

To a large extent, the validity and reliability of survey data would depend on the quality of question wording. Appropriateness and precision of the words used are desirable attributes of questionnaire items which could generate reliable answers. To elicit an accurate response, one also has to be sensitive to cultural differences in linguistic patterns. For instance, in a post-campaign survey we conducted in Vietnam, the following survey questions were asked to determine message reach and utilization:

26b. IF NO, why did you decide not to do the experiment?
_____

27. *Have you stopped the early spray for leaffolder control?*

____ *1) Yes*
____ *2) No*

In the above illustration, the use of two negative words or phrases in a question was perceived to imply a negative meaning (e.g., stopped the early spray for leaffolder control), thus, they were considered inappropriate and culturally unacceptable. In cross-cultural survey settings, it is essential to exercise care in the choice of words and syntax of survey questions. It is also important to be aware of these common errors in questionnaire construction which could threaten the validity of your data:

1. Leading questions which suggest answers or forces the respondent to answer in the direction desired by the researcher.

   Example:

   Do you think using IPM is a waste of time?

_____ 1) yes
_____ 2) no

2. Double-barreled questions which ask two items at the same time

Example:

What major pests did you have last season and how did you control them?
_____

3. Vague time reference

Example:

Usually, what is your most important rice pest?
_____

4. Subjective qualifiers

Example:

Normally, how many times do you spray chemicals on your rice crop? _____

5. Very long questions which tax the memory of respondents

Example:

For your last rice crop, could you tell me the dosage or tablespoons per load, number of sprayer loads per hectare, time of application and number of applications of insecticides?

6. Jargon which confuses respondents

Example:

Which of the following is the best way of conserving *natural enemies*?

_____ 1) spray on a fixed calendar schedule
_____ 2) spray at the first appearance of pest
_____ 3) follow the Economic Threshold Level method

4. Pretesting the questionnaire

After the draft of the prototype questionnaire has been completed, it is pretested on a small representative sample of the population. The pretest is a try-out of the questionnaire to see how it works and whether changes are

necessary before the start of the actual survey. About 15 to 25 respondents will be adequate for a pretest. The questionnaire is then revised and finalized on the basis of pretest results. Pretesting guidelines would facilitate the conduct of a pretest.

Rationale for pretesting. The pretest provides a means of catching and solving unforeseen problems in the use of the questionnaire, such as the phrasing and sequencing of questions. Linguistic and cultural differences also complicate the task of questionnaire development, making pretesting all the more indispensable. The pretest enables one to: 1) improve the wording of the questionnaire; 2) correct and improve translation of technical terms; 3) check the accuracy and adequacy of the questionnaire's instructions such as "skip" and "go to"; 4) eliminate unnecessary questions and add necessary ones; and 5) estimate the time needed to conduct the interview. In Box 1, excerpts of pretest results are reported to illustrate how pretesting yielded constructive suggestions which served as the basis for improving a questionnaire.

5. Choosing sample respondents

An important concern in survey research is deciding how many respondents should be included. A farmer survey uses standard social science methods in selecting the sample, e.g., multi-stage sampling, stratified sampling, systematic sampling, cluster sampling, and simple random sampling. The choice of sampling technique depends primarily on the nature of the problem, the cost and time factors involved, and the desired precision or reliability of the results (Parel *et al*., 1978). When a project can afford it, a larger sample is preferred to reduce sampling error. In a survey of, say, 300 farmers, it is recommended that the sample be drawn from a cross-section of the sampling population so that this group can be said to represent the larger population. The following are some of the commonly used sampling methods:

Cluster/multi-stage sampling

Most KAP surveys use the multi-stage sampling procedure in selecting survey respondents. This technique is recommended when a complete list of persons in the population is not available and if the population covers a wide area. As sampling is done successively in stages, cluster sampling is also referred to as multi-stage sampling. In this technique, one comes up with the desired sample by first selecting large groupings or clusters (Kidder, 1981). Through simple or stratified sampling, one chooses the clusters and the units within each cluster. For example, a survey of farming households may take a sample of regions; within each region, a sample of provinces; within each province selected, a sample of districts; and within each selected district, a sample of households(Parel *et al*., 1966; Kidder, 1981).

Box 1. Questionnaire Pretest - Suggestions from the Field

The survey questionnaire on "Farmers' Perceptions and Attitudes Towards Seed Health for Crop Management" was subjected to a pretest in Pandac, Pavia, Iloilo on 4 March 1995. The pretest was intended to determine the reactions of rice farmers to the questionnaire, estimate the length of time required to complete the interview, validate the translation of key technical terms used, find out whether the technical terms could be understood and ascertain if the sequence of the questions could solicit the desired information. A survey enumerator was hired to assist in the pretesting of the instrument with 15 rice farmers.

The following observations were gathered with the corresponding recommendations:

1) In this village, the first and second croppings were both done during the rainy season, hence the reference to first cropping as wet season and second cropping as dry season does not apply. It is suggested that we provide the necessary indications for the interviewers to guide them in case they are confronted with decision problems in this regard.

2) The second cropping (re: Q. 4: *Last year for the second cropping, what was the area you used for direct seeding and/or transplanting?)* was not realized because of drought. Some farmers did not plant rice and instead planted watermelon or tomatoes. It is suggested that this be pointed out to the interviewers during the orientation.

3) In Question No. 5, (*What cropping pattern did you practice?)* the farmers found it very difficult to comprehend cropping patterns, such that the question cannot be properly answered without explaining or making it a leading question. It is suggested that the question be modified to ask the particular crop grown in a particular season. With regard to season, farmers also mentioned 3rd cropping where they plant "auxiliary crops" like watermelon, tomatoes and mungbean in lieu of rice.

4) Question No. 6 *(Last cropping season, how much (in pesos) did you spend for the following? - rice seeds, insecticides, fungicides, herbicides, fertilizer, irrigation and labor cost for pesticide application)* entailed a lot of time to fill out because most often than not, the interviewer had to sum up the figures given by farmers. It is suggested that interviewers be reminded to bring calculators with them during fieldwork to facilitate and speed up the interviews.

Stratified sampling

Sometimes, the population under study is large and made up of diverse groups. For instance, in a population of farmers, there are men and women farmers, rice farmers, coconut farmers, upland farmers, among others. Within the subset of rice farmers, there are further groupings such as irrigated or rainfed, upland or lowland. In such cases, stratified sampling is suggested. When the composition of each group is not equal, the number of farmers to be selected should be proportional to the total number of farmers in each of the two strata.

Systematic sampling

If the population units are found within a limited area, a sample of respondents may be selected systematically (Casley and Lury, 1982). In systematic sampling with a "random start, the persons in the population from which the sample will be drawn are numbered consecutively and drawn at random.

Simple random sampling

Simple random sampling is done if there is a list of persons to be included in the survey, if these persons are not widely spread geographically, and if they have similar characteristics. For instance, if you were to do a survey of fruit tree growers in the northern highlands, you would need a list of fruit tree growers in those communities. To select respondents through simple random sampling, this procedure is suggested (Parel *et al.,* 1966; Kidder, 1981):

- assign a number to each person to be included in survey
- write each number on a small piece of paper
- roll each numbered paper and place it in a box
- shake the box to mix the rolled pieces of paper
- draw a rolled paper from the box

Alternatively, you may use a table of random numbers following this procedure:

- number the units in the population
- select the sample units corresponding to the numbers from a block of digits in the table

6. Implementing the field survey

Once the questionnaire has been pretested, finalized and reproduced, the next step is to implement the field survey. Resources needed for the field work include personnel, money and time. A field survey team is often composed of a survey coordinator, a supervisor, and interviewers. The survey coordinator is responsible for all aspects of the field work – selection, training and deployment of interviewers. The supervisor assists the survey coordinator in spot checking and monitoring the field interviews. Before they are fielded, interviewers are oriented on the purpose of the survey and trained on interviewing skills and the conduct of the interviews. Guided by the sampling plan and respondent list, the interviewers locate the respondents, conduct the interviews, and check the completed questionnaires after the interview.

Choosing a field interviewer

An interviewer is an important link in the survey chain. Because of their important role, it is important that the interviewers to be selected are those who are honest and objective. Our experience has shown that college students tend to be more objective interviewers because do not have the inherent bias that professional agency staff may have. For example, in a survey of rice farmers' pest management perceptions and practices, it was observed that plant protection officers who had conducted the interviews, tended to unnecessarily interpret farmers' responses. Although many farmers reported that "green worm" was their most important pest, this was recorded by interviewers as either army worm or rice bug based on their perception of what the term, green worm, implied. Green worm could have referred to a variety of leaf feeders such as rice leaffolders, cutworms, case worms, and thrips.

Guidelines in implementing the field survey

To ensure efficient implementation of the survey and minimize errors, the following guidelines for interviewers are suggested:

Selection of respondents. Only those farmers who are on the respondent list should be interviewed. If the designated farmer is temporarily not available at the time of the interview, schedule a return visit. Otherwise, choose another farmer from the list of replacements.

Materials needed. Advise interviewers to obtain the following before field work: specific area of assignment, list of rice farmers to be interviewed, questionnaires, map, and pencils.

Establish rapport with your respondent

As a quick approach for obtaining information, a survey often relies on interviewers who may be unknown to respondents. Being strangers could pose difficulties in soliciting accurate information because respondents are often hesitant to give the right information out of an implicit mistrust of outsiders. In conducting field interviews, a first step would be to establish rapport with respondents by setting the proper atmosphere. To achieve this, the following steps are suggested:

1) Introduce yourself.
2) Ask the respondent's permission for the interview.
3) Inform the respondent of the following important points of the study:
    - description of the study
    - purpose
    - benefits that can be derived from the study

4) You may use the following suggested introduction:

> "Good morning, I am _____, a student at Long An University. The Plant Protection Department (PPD) is currently doing a survey of farmers in Long An province with regard to the recent multi-media campaign on pest management. We would like to find out what you heard from the campaign and whether you told others about it. Your feedback will help PPD and the People's

Committee make plans on how to better respond to your information needs on pest management. Could we interview you?"

How to conduct the field interview

1) Create a friendly atmosphere by being friendly, courteous, conversational, and unbiased. When a respondent gives an answer that indicates a knowledge gap, never show surprise or disapproval.

2) Ask each question exactly as it is worded in the questionnaire. A slight rewording of the question would affect the response. If the respondent has a difficulty in understanding the question try to adjust the question slightly to facilitate your respondent's understanding.

3) Ask questions in the same order as they appear on the questionnaire. Don't jump from Q. 1 to Q. 6 then go back to Q. 2 as this will confuse your respondent.

4) Ask every question, unless the directions on the questionnaire specifically direct skipping certain ones. It is important that the questionnaire is filled out completely. Record responses as they were reported to you. Don't give your own interpretation of a respondent's answers.

5) Be extremely careful not to suggest a possible reply. When the respondent does not give a quick answer, be patient and wait for his response.

6) Do not read out the response categories unless it is otherwise stated. Just read the question and wait for the respondent to answer them. Unless directed to do so, do not read the categories as it will lead the respondent. Just wait for the respondent to answer but try to encourage him or her by saying, "Is there anything else?" or "What else did you do?"

7) When respondents give "don't know" answers or misinterpret the meaning of the question, or contradict themselves, repeat the question or probe by saying, "Is that all?" or "Could there be other reasons?" or "Can you tell me some more?"

8) Where it is indicated *"Go to Q..."* follow the instruction carefully.

9) Never show that the respondent is wrong when asking questions on their knowledge. Take down his or her answers as he or she gives them. However, if the response given indicates that the respondent misunderstood the question, repeat the question to clarify.

10) Do not let your respondent bring you away from the subject and if he talks too long on one topic, listen for a while and proceed with the interview.

Probing questions

In many interview situations, some respondents tend to give vague replies such as "okay" or "good" which could mean different things. When this

happens, try to have the respondents express themselves better by asking them why it is “okay” or “good” and encourage them to give more specific answers. If a respondent’s answer belongs to the “other” category of responses in the questionnaire, he should be asked to specify his response.

Usually open-ended, probing questions ask for more than a “yes” or “no” answer and provide the respondent the leeway to respond to a question from his own perspective. These generic follow-up questions are suggested to elicit more precise information (Kidder, 1981; Krueger, 1988):

“Could you give an example?”
“In what way?”
“What do you mean?”
“Would you explain further?”
“Tell me a little more about it.”
“What do you mean when you said …”
“Tell me how it is so…”

Open-ended survey questions usually provide opportunities for probing, but the sequence of probe questions to ask would depend on the respondent’s initial response (see Box 2).

Box 2. Probing Example

After establishing that farmers face pest problems and that leaf feeding insects are important, we might want to proceed to try to identify which species. This can be done through a conversation using some of these questions:

- You said previously that *ulod*[1] are pest problems, can you tell me how they look like?
- Can you describe the color?
- How big are they?
- Where do they live?
- At what stage of the crop do you see them?
- At what time of day do you see them?
- How many such insects do you often see on the rice crop?
- What are they doing to the crop?
- Please draw the “ulod” for me here.

[1] *Ulod* is a term for worm in Cebuano, a local language spoken in most of the Visayas and Mindanao provinces in the Philippines.

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Edit the responses well

1) Always check after each answer to the question if such answer is complete.
2) Edit your questionnaire immediately after the interview to check for any unclear information and clear such with your respondent before leaving.
3) Correct inconsistent answers by asking your respondent.

Close the interview

After editing your interview schedule for completeness, briefly thank your respondent for his help and cooperation.

Specific instructions on the use of the questionnaire

Every questionnaire should come with a set of definite instructions to guide the interviewer on how certain questions should be asked in order to elicit the needed information. During interviewer training, it is often useful to provide interviewers with written instructions on how to use the questionnaire. Such guidelines could facilitate the interview process (see Box 3).

Box 3. Sample Instructions on the Use of the Questionnaire

Page	Q. No.	Instructions
1		As you ask the respondent's name, fill in the names, address, date of interview and other information required. It is important to take down the names of respondents because we may want to do a follow-up interview at another time. Recording the respondent's name will also facilitate the task of verifying the interview or doing spot checks by the field supervisor.
1	6	Rice yield should be recorded in tons/ha. Record the local unit of measure that the respondent gives you but later convert it to kg and tons/ha.
3	7	Read out the farm inputs (from 7a to 7g) one at a time and record the costs he or she incurred for each. For 7g (labor cost for pesticide application), if self or family labor was used, ask the respondent to estimate how much he would have paid if he hired labor to do the operation. If the respondent shows some difficulty in estimating the labor cost, assist him by asking him the local wage rates for certain farm operations and multiply this by the number of days spent in performing the task.
2	9	In this question, do not read the response categories. Wait for the respondent to answer. Probe for as many answers as possible but do not to lead or help the respondent with the

		answers. After he has given you an answer, probe by saying, "What else did you do?"

7. Coding and analyzing survey data

Once the completed questionnaires have been edited, the data are encoded, processed and analyzed either manually or through the use of a statistical package for a microcomputer. Ease of use, power, and cost are some of the important considerations in the choice of computer software for data analysis. The responses to questions are coded and tabulated. Coding is the term used to describe the translation of question responses and respondent information to specific categories for analysis. The first stage of coding information involves the construction of a code book. A code book is a set of rules used to classify observations of variables into values that are transformed into numbers.

Tabulation is the recording of the numbers of types of responses in the appropriate categories, after which statistical analysis follows: percentages, averages and appropriate tests of significance. The data analysis is then interpreted and the results of this interpretative process are reported. After the analysis of the survey data, the next task is to organize them into a coherent report. The purpose of a survey report is to tell the readers the research problem, data collection methods used, findings, and conclusions. Thus, like other research reports, the survey report should consist of these parts: executive summary, introduction, description of the methods, results and discussion, and conclusions. An important part of the final report is the abstract which should describe the: survey objectives, methods, summary of the results, discussion, conclusions, and recommendations.

Box 4. Sample Code Book

Q. No.	Variable Name	Column	Code	Description
	RESPNUM	A		Enter actual number
1	VARIETY	C	1	IR variety (Hungary, IR 29723, IR 13240-108, IR 50404, IR 68, IR 64,IR 50401, IR 62, IR 66, IR 65, IR-17433, IR-61, IR42, IR 60, IR 28, IR 250, IRnn 595, IR 120, IR 9729, IR 35546, 9729, 19660, 1352, 2797, 69C, 250, 84-23, 84, 10, 522, 3200, 10-1, 32429)
			2	Local variety (F28, F36, G125, G 596, G 02, G 03,G 31851, K, Khac, Trang Phuoc, Trangnho, NEP)
			3	Breeding line from research institutions (CL, CL6, CL2, CL46, CL950, CL7, CL5, C28,

				KSB-54, KSB 55 DT10, LA-1, LA-70, LM 45, MTL-85, MTL 59, MTL 54, MTL-58, MTL-31, NN8, NN-9A, OM, OM86, OM80, OM90, OM576, OM296, OM-43-26, OM57-9, 44-5, RSB-13, V-14, 3001, 59-7, 296,1903)
2	SDSOURCE	D	1 2 3 4 5	Private seed grower Ministry of Agriculture Own Neighbor Other (specify)
3	METHOD	E	1 2	Direct seeding Transplanting

Comparison of Various Methods Used in a Survey

The similarities and differences among these three data collection methods could be summarized in the following matrix:

Table 1. Differences among data collection methods

Steps	*KII*	*FGI*	*Survey*
Objective	To explore related insights	To get a consensus	To determine KAP levels
Sampling procedure	Purposive	Purposive	Random
Instrument	Guide questions	Interview guide	Structured questionnaire
Data collection	Unstructured personal interview	Group discussion	Structured personal interview
Data processing and analysis	Mainly qualitative	Mainly qualitative	Mainly quantitative

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APPENDIX A

Content Page

FGI Report on Integrated Weed Management in the Muda Irrigation Scheme, Malaysia[2]

[2] Source: Ramli Mohamed and Khor Yoke Lim. 1988. A Report of the Focus Group Interview on the Strategic Extension Campaign on Integrated Weed Management in the Muda Irrigation Scheme, Malaysia. Consultants' Report submitted to the Muda Agricultural Development Authority and FAO.

APPENDIX B

SAMPLE KAP SURVEY QUESTIONNAIRE

Rice IPM Network

Respondent _____ Date of Interview_____
District _____ Village_____ Province _____
Interviewer _____

I. Background Information

1. Last cropping season, what rice varieties did you plant?

   _____

2. What is your source of rice seeds?

   ____ 1) Private seed grower
   ____ 2) Ministry of Agriculture
   ____ 3) Own
   ____ 4) Neighbor
   ____ 5) Other (specify) _____

3. How is rice grown in your field?

   ____ 1) By direct seeding
   ____ 2) By transplanting

4. What is your total rice area? _____ ha.

5. What cropping pattern do you follow?

   ____ 1) Rice-Fallow
   ____ 2) Rice-Rice
   ____ 3) Rice-Other crops (specify)_____

6. What was your rice yield last season? _____ Yield/ha
   [Note: RECORD ACTUAL UNIT GIVEN BY FARMERS AND LATER CONVERT IT TO KG]

II. Pest Management Practices

7. What pest(s), if any, did you have last cropping season?

   ____ 1) Armyworm
   ____ 2) Blast
   ____ 3) BPH
   ____ 4) Caseworm
   ____ 5) Gall midge
   ____ 6) Green worm
   ____ 7) Leaffolder
   ____ 8) Nematodes
   ____ 9) Rat
   ____ 10) Rice bug
   ____ 11) Sheath blight
   ____ 12) Stem borer
   ____ 14) Tungro

_____ 15) White-backed planthopper
_____ 16) Whorlmaggots
_____ 17) Yellowleaf
_____ 18) Yellow spot
_____ 19) Other (specify)_____
_____ 20) None

8. What pest, if any, caused the biggest damage to your rice crop last season?

   No. 1 _____

9. What is your second most important pest problem?

   No. 2 _____

10. How did you control these pests last season?

    10a. Most important pest

    _____ 1) Apply pesticides (ASK Q. 11)
    _____ 2) Hand picking
    _____ 3) Baiting
    _____ 4) Water management (flooding, draining)
    _____ 5) Nothing
    _____ 6) Other (specify) _____

    10b. 2nd most important pest

    _____ 1) Apply pesticides (ASK Q. 11)
    _____ 2) Hand picking
    _____ 3) Baiting
    _____ 4) Water management (flooding, draining)
    _____ 5) Nothing
    _____ 6) Other (specify) _____

11. If you applied pesticides last cropping season, how many weeks after planting did you apply pesticides?

    _____ weeks

12. All in all, last cropping season how many times after planting did you apply pesticides?

    _____ times

13-16. Please tell me the number of times you applied pesticides at particular stage(s) of the crop. What chemicals did you apply at these stages? For what pests? *[INTERVIEWER: Make sure that the no. of pesticide applications given in Q. 10 matches the total number of applications reported for all stages. You need to probe for pesticides applied at each crop stage as a farmer could make more than 1 application at each stage.]*

No. of applications (Q. 13)	*Time of application** (Q. 14)		*Pesticides applied* (Q. 15)	*For what pests* (Q. 16)
	DAS	***Crop Stage***		
	0	Seedbed		
	1-20	Seedling		
	21-40	Vegetative		
	41-60	Panicle initiation		
	> 60	Reproductive		
		Ripening		
Total ____				

* *Time of application can either be in terms of days after seeding (DAS) or crop stage.*

17. Can you tell me the reason why you sprayed at these times?

*Time of application**		*Reason for pesticide us*	
DAS	***Crop Stage***		
0	Seedbed		
1-20	Seedling		
21-40	Vegetative		
41-60	Panicle initiation		
> 60	Reproductive		
	Ripening		

18. In general, please estimate the percentage of insect pests killed by the insecticides that you used?

_____ 1) 75% - 100% of insect pests
_____ 2) 50% of insect pests
_____ 3) < 50% of insect pests

19. How much in total did you spend on chemicals last season? _____ (local currency)

20. Did you spray the pesticides yourself?

_____ 1) Yes
_____ 2) No

20a. IF **NO**, how much did you pay for labor for spraying?

_____ (local currency)

21. Do you have a sprayer?

_____ 1) Yes
_____ 2) No

21a. If **YES**, what kind of sprayer do you have? [INTERVIEWER: *Ask the farmer to show his sprayer]*

_____ 1) Knapsack
_____ 2) Hand sprayer
_____ 3) Other (specify) _____

21b. If **NO**, how do you get hold of a sprayer when needed?

_____

III. Information Sources and Knowledge on Pest Management

22. Where did you first hear about the insecticide you were using?

____ 1) Neighbor/other farmers
____ 2) Extension technician
____ 3) Pesticide sales agents
____ 4) Mass media
_____ print
_____ billboard
_____ radio
____ 5) Other (please specify)_____

23. What is your <u>most important</u> consideration in deciding what insecticide to buy? [*INTERVIEWER: If respondent gives more than one answer, probe if those considerations are most important to him before jotting down his/her response.]*

____ 1) Price
____ 2) Effectiveness (killing efficiency)
____ 3) Packaging
____ 4) Endorsement by sales agent

____ 5) Other (specify) _____

24. From where do you get pest control advice?

____ 1) Neighbor
____ 2) Extension technician
____ 3) Relatives
____ 4) Pesticide sales agents
____ 5) Radio
____ 6) TV
____ 7) Other (please specify) _____

24a **IF MORE THAN ONE RESPONSE IN Q.24**, which of these sources of pest control advice is most credible to you?

_____

25. Why? _____

26. Are you aware of any training on pest management conducted in your area?

____ 1) Yes
____ 2) No

26a. If **YES**, what was the training about?

_____

26b. Who organized the training?

_____

27. Have you attended this training on pest management?

____ 1) Yes
____ 2) No

Knowledge of Natural Enemies

28. Are there other insects/animals that do not cause damage to your rice crop?

____ 1) Yes (ASK Qs. 28a, 28b, 29)
____ 2) No (GO TO Q. 29)
____ 3) I don't know

28a. If **YES**, what are they? Name as many._____

28b. What do these animals do in your field?

____ 1) Feed on other insects
____ 2) Dwell on leaves or live in the field
____ 3) I don't know

29. What do you think happens to these animals when your rice crop is sprayed with chemicals?

_____ 1) Killed
_____ 2) Disappear
_____ 3) Don't know
_____ 4) Other (specify) _____

Attitudes Toward Pesticide Use

Please indicate whether you agree, have no opinion, or disagree with the following statements:

30. Applying pesticides to the rice crop will make the yield go up:

_____ 1) Agree
_____ 2) No opinion
_____ 3) Disagree

31. Killing the natural enemies in your rice field by spraying chemicals can cause pest infestation:

_____ 1) Agree
_____ 2) No opinion
_____ 3) Disagree

Knowledge of Leaf-Feeding Insects

32. What insects that feed on rice leaves do you know?

_____

Please indicate whether you agree, have no opinion, or disagree with the following statements:

33. Leaf-feeding insects (e.g., leaffolder, leafroller) in the early stage cause severe damage to the rice crop.

_____ 1) Agree
_____ 2) No opinion
_____ 3) Disagree

33a. If **Yes**, please name the leaf feeding insects that cause severe damage to the rice crop.

_____

34. Leaf-feeding insects do not cause yield loss.

_____ 1) Agree
_____ 2) No opinion
_____ 3) Disagree

35. Spraying chemicals to control leaf feeding insects has to be done early.

_____ 1) Agree
_____ 2) No opinion
_____ 3) Disagree

IV. Socio-Demographic Profile

36. What is your age? _____ years

37. Please tell me your tenure status.

_____ 1) Owner-operator
_____ 2) Leasee
_____ 3) Tenant
_____ 4) Hired laborer
_____ 5) Other (specify) _____

38. What is the highest grade/year you have completed?

_____

39. Are you a member of any farmers' organization?

_____ 1) Yes
_____ 2) No

40. What farmers' organizations are you a member of?

_____

41. Last cropping season, did you borrow money for rice production?

_____ 1) Yes
_____ 2) No

42. From whom did you borrow money?

_____ 1) State, how much interest? _____
_____ 2) Private, how much interest?_____
_____ 3) Not applicable

V. Communication Variables

43. Do you have a functional radio set?

_____ 1) Yes
_____ 2) No

44. What radio station(s) do you usually tune into? _____

45. What time do you usually listen to radio? _____

46. What types of radio programs do you listen to?

47. Which of the following print materials do you read most?

_____ 1) Newspaper
_____ 2) Comics
_____ 3) Pamphlets
_____ 4) Magazines
_____ 5) Other (specify) _____

48. Do you have a television (TV) set?

_____ 1) Yes
_____ 2) No

49. What TV station(s) do you watch? _____

50. At what time do you usually watch TV?_____

Thank You.