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MEMORANDUM

3 October, 1988

TO: Chloe O'Gara, AID/S&T/ED  
FROM: Gail McClure, CTTA Project Director  
RE: Attached Deliverable

Attached for your review and approval is copy of the following:

Summative Evaluation Plan: CTTA Jordan, S. Hussein.

Please indicate your approval and return this memorandum to me for our files.

Approved: Chloe O'Gara  
Chloe O'Gara, CTTA CTO

5-26-89  
Date

## **SUMMATIVE EVALUATION PLAN**

### **CTTA - JORDAN**

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The Communication for Technology Transfer in Agriculture (CTTA) Project is jointly managed and funded by the Offices of Education, Agriculture, and Rural Development of the Bureau for Science and Technology of the United States Agency for International Development in collaboration with Regional Bureau Technical Staff and the USAID Mission at each collaborating site. Technical services are provided by the Academy for Educational Development under Contract No. DPE-5826-C-00-5054-00. ACT is contracted by the Academy for Educational Development to conduct summative evaluation of the CTTA Project in all countries.

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**SUMMATIVE EVALUATION PLAN  
CTTA - JORDAN**

**SUBJECT : SAFE AND CORRECT USE OF PESTICIDES**

**I. INTRODUCTION**

This document describes a plan for the evaluation of the CTTA Project in Jordan. Preceding the plan itself is a brief description of the project and relevant background information.

The CTTA Project in Jordan started in October 1988 and will continue for a period of two years. Identifying the lessons learned and the achievements of this project would be useful for the implementors of the project in Jordan and also for the designers of other CTTA Projects in other countries. For this purpose an evaluation of the project is being conducted. The original plan specified a baseline study prior to the commencement of the project and a subsequent measurement at the end of the project to determine, by comparison, the achievements made by the project. The collection of baseline data at the beginning of the project was not possible. During the period August 20 - September 16, 1988, the first data collection exercise for the evaluation will attempt to determine retrospectively what the situation was, with respect to the interventions being promoted, prior to the beginning of the project. Additionally, data will be collected to ascertain what changes have taken place among the audiences and within the institutions involved in the promotion of the intervention since the beginning of the project.

The evaluation will investigate changes in knowledge, behavior, and attitudes, and whether the project was influential in producing these changes; it will determine the nature and extent of the target audience's exposure to the intervention, whether they learned anything from the exposure, whether the knowledge acquired is used as intended, and whether the application of the knowledge is producing desired results. It will also try to determine reasons for indifferent, positive, and negative effects.

Changes of interest within the institutions include changes in processes and organization to facilitate greater exposure of audiences to the intervention, and also to facilitate the use of the intervention.

More specifically, the information to be collected from the various groups of respondents would throw light on the following aspects of the technology transfer process:

- How is knowledge being transferred to the various audiences, i.e., what is the nature of the transfer processes being used and how are they working?
- What levels of exposure did the various audiences receive

- and from which sources?
- What knowledge has been transferred?
- What transferred knowledge is being used and with what result?
- What transferred knowledge is not being used and why?
- What are the audiences' interpretations of the knowledge being transferred?
- What obstacles affect the use of transferred knowledge?

Respondents will be asked whether they have learned new information or changed their practices during the past year, and if so, whether it was in response to the campaign information. Therefore, the data collection at this point will perform both a retrospective baseline and a current formative function. We expect, after the second evaluation visit, to have identified some overall change in knowledge and practices related to the intervention and to be able to identify different levels of change among audiences. For example, it may emerge that there is greater change at the extension worker level than for private farmers.

Although measuring of achievements is best done quantitatively, the limited time and resources available for this evaluation have dictated the use of a qualitative approach.

## II. THE PROJECT

The CTTA Project in Jordan is being implemented both in the Jordan Valley and the Highlands. In the Jordan Valley the Project focuses on the issue of "pesticide safety and use." It was agreed among the program implementors and the relevant authorities in Jordan that there was a grave need for this intervention in this particular geographic area on account of a growing threat to the health of the population caused by incorrect and unsafe use of pesticides.

### A. Objectives of the Project<sup>1</sup>

The objective of the CTTA Project in Jordan is to develop a multi-channel integrated communication strategy comprising the use of mass media (video, television, radio, and newspaper) and interpersonal contacts to communicate messages on pesticide safety and use to various audiences with the intention of changing their knowledge, attitude, and behavior. The audiences and corresponding messages are outlined below:

1. The extension staff and farmers are receiving information on the correct and safe use of pesticides with respect

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<sup>1</sup> Extracted from the first draft of the Integrated Action Plan for Jordan written by Daryl Kuhnle (no date).

to:

- a. Preventing personal, safety, and health risks by improving present habits of pesticide users in handling and storage of pesticides and toxic chemicals.
  - b. Applying the correct pesticide, proper mixture, proper amount, and using the correct application technique during spraying.
  - c. Integrating good agricultural practices in plastic greenhouses and in open fields.
  - d. Awareness of pesticide toxicants.
  - e. Identifying symptoms of pesticide poisoning and taking first aid steps to help victims of pesticide poisoning.
2. The consumers are receiving information on the concept of pesticide residue, the danger of eating produce with high levels of pesticide residue, and how to remove pesticide residuals from products after purchase.
  3. The vendors of pesticides are receiving information on the safe handling and storing of pesticides, correct recommendations for pesticides, and are provided with materials to disseminate to farmers on the safe use of pesticides.
  4. The extension staff are being trained on the efficient application of the developed communication strategy.

## B. Background Information

### 1. The Problem

Pesticides are being used extensively in the Jordan Valley especially in the plastic green houses where high humidity and high temperature are extremely conducive to the proliferation of pests and diseases. A study conducted in 1984/85 by the Center for Formulation and Pesticide Residue Analysis showed that large percentages of vegetables sampled contained pesticide residues higher than the minimum amount permitted. The vegetables that contained dangerous amounts of residues were cucumbers, hot peppers, green beans, tomatoes, squash, green peppers, and egg plant.

The harmful effect of pesticide residues on human beings in Jordan has been documented since 1981 by the Department of Community Medicine. For the years 1979 and 1980 there were 51 cases of pesticide poisoning and six of these were fatal. However, the situation was probably even more serious than these data indicate since the record-keeping system for pesticide poisoning and

availability of laboratory tests are poor. Another study by the Royal Scientific Society of Jordan showed that poisoning cases were mainly found in agricultural areas and mainly in the Jordan Valley. These poisoning cases included not only those caused by pesticide residues on produce, but also those caused by contact while spraying and handling pesticides, and by improper storage of pesticides resulting in the contamination of foods, use of contaminated containers, and the accidental drinking of pesticides.

The apparent problem with the use of pesticides can be considered as comprising several aspects of misuse outlined below:

- a. Use of pesticides when it is not necessary.
- b. Use of pesticides that are more potent than is necessary.
- c. Use of chemical rather than non-chemical prevention and control methods if available.
- d. Use of control rather than prevention methods; the latter can reduce the need for intensive control in the advanced stages of the crop.
- e. Unsafe storage of pesticides: in non-ventilated area, within the reach of children, and near to food.
- f. Unsafe handling of pesticides: non or inadequate use of protective clothing, respirators, gloves, etc.
- g. Spraying pesticides in the wrong wind direction, on a wet days, or when it is very windy.
- h. Not informing neighbors of day and time of spraying.
- i. Entering sprayed field soon after spraying when it is unsafe.
- j. Use of incorrect pesticides and/or incorrect rates and/or non-optimum timing.
- k. Use of systemic pesticides when plants are in fruit.
- l. Harvesting produce too soon after applying pesticides and before the recommended time has elapsed.

## 2. Possible Reasons for the Problem

Why do farmers persist in unsafe behavior? Some of the reasons for these actions may be:

- a. Farmers do not know the recommendations for safe use of pesticides.
- b. Farmers know the recommendations for safe use of pesticides but do not use them:
  - i. Farmers do not believe that pesticides inhaled, on skin, or on fruits and vegetables would harm anyone.
  - ii. Farmers are more concerned about maximizing production than ensuring the health of workers, neighbors, and consumers.
- c. Protective materials are too expensive, or unavailable, or too cumbersome to use.
- d. Non-chemical prevention and control methods are unavailable.

- e. The more dangerous pesticides are too readily available; there are no restrictions nor monitoring of use.
- f. Consumers are not aware of the potential danger of pesticides evident on produce, and do not care.

The CTTA Project is based on the assumption that locally adapted technologies have already been tested by the host country's research organization. It is not the intent of the implementation or of the evaluation to assess the appropriateness of these recommendations. CTTA is concentrating its efforts on information dissemination and persuasion activities directed at extension agents and farmers, and it is on these efforts that the evaluation will focus.

### III. THE SUMMATIVE EVALUATION

#### A. The Objectives of the Evaluation

Applied Communication Technology (ACT) will conduct a qualitative study to determine the impact of CTTA's communication interventions in promoting the safe and correct use of pesticides in the Jordan Valley. Information will be collected twice: during the period August 20 -September 16, 1988, and at the end of the project. Comparison will be made between these two sets of information, and within them between different audiences, in an attempt to determine the effectiveness of the communication strategy, the extent of changes produced by the project's communication interventions, and the factors contributing to, or inhibiting changes.

More specifically the objectives of this evaluation are to determine:

1. The structure and operation of the communication strategy developed by CTTA: content, audiences, channels, exposure, etc.
2. Changes in the communication and extension institutions as a result of CTTA's influence.
3. Farmers' past<sup>2</sup> and present knowledge of correct and safe (i.e. recommended) pesticide-use practices:
  - a. pesticides recommended for specific pests and diseases;
  - b. recommended application rates for recommended pesticides;
  - c. recommended safe methods of storing, handling, mixing, and applying pesticides;

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<sup>2</sup> The term 'past' is used here to mean prior to the commencement of the intervention.

- d. recommended actions to protect persons supplying pesticides and persons living adjacent to farms;
4. Farmers' past and current pesticide-use practices:
  - a. which pesticides are used for which problems;
  - b. what application rates are used for each pesticide used;
  - c. what precautions are taken when handling, storing, mixing, and applying pesticides;
  - d. why they do what they do for a, b, and c.
5. Farmers' past and current perceptions of the likelihood of harming themselves and others by what they do.
6. Farmers' past and current sources of information on recommendations, practices, and safety; frequency of contact with sources (exposure), perception of relevance, and credibility of information received; also reasons for not receiving the above information where applicable.
7. Farmers' past and current knowledge and practices with respect to methyl bromide fumigation of soils in plastic green houses.
8. Extension officers' past and current knowledge of current pests and diseases, the recommended pesticides and rates of application, and their perception of why farmers do what they do.
9. Extension officers and other government workers past and current knowledge and observance of safety practices in handling and applying pesticides.
10. Researchers' knowledge of problems facing farmers and solutions available or possible, and their perceptions of why farmers do what they do.
11. Suppliers' past and current knowledge of correct pesticides and rates of applications for specific pests and diseases.
12. What factors contribute to improving knowledge, practices, perceptions, beliefs, and attitudes of the various audiences.
13. Whether there has been any reduction in incidences of pesticide poisoning by the end of the project.
14. Whether there has been a reduction in pesticide residues in produce marketed by farmers by the end of the project.

## B. Sampling

For this study it is planned to draw small purposive samples from the following groups:

1. Farmers (owners/managers).
2. Farm workers (applicators of pesticides on private and government farms).
3. Extension field officers.
4. Researchers at agricultural research stations.
5. Vendors of pesticides.

The sampling procedure (subject to change upon arrival and upon the availability of more knowledge of the site and the audiences) will attempt to obtain respondents from identifiable sub-groups in order to approach representativeness to the extent possible within the operating constraints. For example, farmers will be divided into two groups: those who participated in extension activities promoting the safe and correct use of pesticides and those who have not in order to compare their knowledge, practices, and perceptions. About 25 farmers will be selected from each group. It is believed that extension officers will have lists of farmers who participated in their extension activities thereby facilitating selection of one group of farmers<sup>3</sup>.

Similarly, researchers will be subgrouped as entomologists, pathologists, and physiologists and small samples will be interviewed. Vendors and consumers can be subgrouped by geographic location. Extension officers may be subgrouped by geographic areas.

## C. Data Collection

The data collection methods to be used for this study include:

1. Individual interviews.
2. Group interviews.
3. Non-participant observations.
4. Participant observations.
5. Searching archival records.

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<sup>3</sup> Farmers can also be divided by crops cultivated, by level of extension service received, by geographic location, by different ecological condition (with and without irrigation), etc. The stratification to be used may be influenced by the method used to select the target audience of the project.

It would also be possible to gain access to information on incidences of pesticide poisoning from medical clinics<sup>4</sup>, and to obtain residual levels on produce reaching the market from the pesticide testing laboratory of NCARRT.

In this study, simple outlines of predesigned interview guides will be used. They will be revised subsequent to visiting the site and after being reviewed by local officials. They will facilitate the collection of essential information by more than one interviewer as well as standardize the information collected from each respondent. However, data collection is not limited to the interview guides. The interview guides will open doors for much probing. Interviews will be conducted by Shakir Hussein with the help of an interpreter, and also by one or more persons who may be provided by the Ministry of Agriculture.

#### D. Data Processing

In qualitative studies, data collection includes observing, interviewing, and recording; it also includes modifying the observation, interviewing, and recording devices from one field trip to another. This cycle of activities necessitates some daily processing of information collected in the fields. The ongoing processing will reduce gaps in the information, and will also lead to collection of additional information to test evolving rival hypotheses.

The processing in the field would require the following:

- making a contact summary sheet summarizing the main issues or themes; the information obtained or not obtained on each of the main questions; anything else that appear salient, interesting, illuminating or important; and new questions for the remaining interviews/contacts.
- verbal coding of data collected and comparison of codes given by each interviewer to determine reliability of the coding process.
- making interim site summaries in order to ensure that the data being collected are good, that the data are measuring what is required to be measured, to detect and correct any systematic measurement error.

If new and relevant issues, problems, and questions are evolving, modifications of the interview guides and of the sample may be necessary before going out for more data collection. Additional

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<sup>4</sup> It may be necessary to persuade the medical institution to distinguish in their record keeping between pesticide poisoning and other types of poisoning. Laboratory verification may be necessary for dubious cases.

processing will be done at ACT's Home Office. Processing will provide qualitative summaries, descriptions, explanations, and interpretations.

E. Reporting

The information collected will be reviewed and organized in Jordan prior to departure. This exercise will facilitate the collection of additional information to fill information gaps encountered, and which gaps may not have been noticed before. Additionally, a summary of the main findings will be prepared and presented to AID, Jordan, and NCARTT at the exit briefings. The first draft of the report will be prepared at ACT's Home Office within two weeks after returning.

F. Tentative Work Plan

- August 21 Arrive 1.00 am.  
Review with Daryl Kuhnle the structure and operation of the CTTA Project.  
Discuss logistics and finalize work plan.
- 22 Protocol visits. Discuss evaluation plan with officials at protocol visit. Recruit interpreter and interviewers.
- 23 Visit to Deir Alla and Jordan Valley. Discuss with Extension the availability of records of farmers who participated in the program. Collect reports and related documents.
- 24 Review with Extension and NCARRT officials the interview guides.
- 25 Pretest interview guides and train interviewers.
- 26 - 27 Weekend.
- 28 - Sept 1 Interviewing farmers and farm workers.
- Sept 2 - 3 Weekend.
- 4 - 8 Interviewing extension officers, researchers, vendors.
- 9 - 10 Weekend.
- 11 - 15 Organizing and reviewing of information collected. Collection of additional information. Complete outstanding interviews, observations, etc. Give briefings to AID and NCARRT.
- 16 Depart from Jordan.

**APPENDICES**

APPENDIX 1: NTERVIEW GUIDE FOR FARMERS

I. FARMERS' CHARACTERISTICS

1. Personal:

- a. Owner or manager :
- b. If manager, migratory or resident:
- c. Years of farming experience:
- d. Years of schooling:
- e. Any formal training in agriculture:
- f. Age:
- g. Marital status:
- h. Number of children:
- i. Number of persons in household that can read:

2. Economic:

- a. Total size of farm (sum of areas cultivated with all crops)
- b. Areas cultivated by crops annually and yields obtained:

Name of crops	Area cultivated	Yield/Dunum
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- c. Number of workers employed on total farm \_\_\_\_\_

**II. PESTS AND DISEASES ENCOUNTERED ON FARM**

Crop	Pests and Diseases on crop	Causative Agent (insect, fungus virus, etc.)	Pesticides used (Name)	Classification (insecticide, fungicide, etc)	Rate used per dunum	When started application	# of days between applicatn	# times applied	# days after spraying is crop harvested

**III. FARMERS' KNOWLEDGE OF RECOMMENDATIONS ON CORRECT USE OF PESTICIDE**

Crop	Pests and Diseases on crop	Causative Agent (insect, fungus virus, etc.)	Pesticides rcmd (Name)	Classification (insecticide, fungicide, etc)	Rate rcmd per dunum	When to start application	# of days between applictn	# times to apply	# days after spraying to harvest crop

FOR EACH QUESTION, WHERE RELEVANT, THE INTERVIEWER WOULD FIND OUT NOT ONLY THE SUBSTANTATIVE INFORMATION LISTED BELOW BUT ALSO WHETHER THE FARMER'S PRESENT KNOWLEDGE, BEHAVIORS, AND ATTITUDES ARE DIFFERENT FROM THOSE PRIOR TO THE PROJECT, AND WHY HE IS OR IS NOT DOING WHAT IS RECOMMENDED TO BE DONE?

IV. STORAGE OF PESTICIDES

- A. Where does farmer store pesticides? Inspect for ventilation, protection from children, and from contaminating food:
  
- B. Description of storage facilities and relationship to living quarters:

V. HANDLING AND APPLYING OF PESTICIDES

- A. Does farmer own protective clothing, etc., or has set aside clothing for use when handling and spraying pesticides; if no why not:
  
- B. Does farmer use any protective material? If yes what is used? (type of clothing, gloves, respirators, etc.); if no why not:
  
- C. If protection is not adequate, why more protection is not practiced?
  
- D. If some or adequate protection is used, did he start using the present level of protection this year? And if so, what caused him to change?

- E. After spraying of field/greenhouse how soon after would farmer and/or workers enter?
- E. Does farmer inform his neighbors of the day and time he would be spraying his field? If not, why not?

**VI. FARMERS' PERCEPTIONS OF DANGER IN PESTICIDES**

**A. Produce:**

- 1. Do pesticides get into the fruit when sprayed?
- 2. If pesticide gets into the fruit or vegetable, will the pesticide be destroyed by cooking?
- 3. If pesticides are seen on the outside of fruits and vegetables, can the fruit or vegetable be eaten?
- 4. If pesticides are on the outside of fruits and vegetables, is it safe to use it after washing with water?
- 5. Are some pesticides safer than others if they get into the fruit or if they are on the outside of the fruit or vegetable? If so which ones are safe and which are not and why?
- 6. Why do the instructions on the pesticide container say not to pick the produce until a certain amount of days has elapsed?

**B. People:**

- 1. If pesticide gets on a person's skin or eyes while spraying, what would be the likely outcome?:
  - a. nothing will happen to him.
  - b. it will itch his skin only.
  - c. it will make him sick:
    - i. some discomfort, not really sick.
    - ii. sick for a short time only.
    - iii. very sick for a short time.
    - iv. very sick for a long time.
    - v. very sick and die.

2. If pesticide is inhaled by someone while spraying what would be the likely outcome?:
  - a. nothing will happen to him.
  - b. it will itch his skin only.
  - c. it will make him sick:
    - i. some discomfort, not really sick.
    - ii. sick for a short time only.
    - iii. very sick for a short time.
    - iv. very sick for a long time.
    - v. very sick and die.
3. If a little pesticide gets onto the food eaten by someone what would be the likely outcome?:
  - a. nothing will happen to him.
  - b. it will itch his skin only.
  - c. it will make him sick:
    - i. some discomfort, not really sick.
    - ii. sick for a short time only.
    - iii. very sick for a short time.
    - iv. very sick for a long time.
    - v. very sick and die.
4. If someone eats fruit or vegetable after washing out the pesticide that was on its outside what would be the likely outcome?:
  - a. nothing will happen to him.
  - b. it will itch his skin only.
  - c. it will make him sick:
    - i. some discomfort, not really sick.
    - ii. sick for a short time only.
    - iii. very sick for a short time.
    - iv. very sick for a long time.
    - v. very sick and die.
5. If someone eats fruit or vegetable picked too early after spraying pesticide what would be the likely outcome?:
  - a. nothing will happen to him.
  - b. it will itch his skin only.
  - c. it will make him sick:
    - i. some discomfort, not really sick.
    - ii. sick for a short time only.
    - iii. very sick for a short time.
    - iv. very sick for a long time.
    - v. very sick and die.

## VII. FARMERS' SOURCES OF INFORMATION ON SAFE USE OF PESTICIDES

### A. Mass media:

#### 1. Radio, television:

- a. does farmer own radio, television?
- b. does farmer listen to agric. program on radio,

television? which programs?

- c. how often per week listen to agricultural programs on radio \_\_\_\_, on television \_\_\_\_?
  - d. did listening to agric. prog. increase during the last three months? by how much? Why?
  - e. does agric. prog. give information on safe use of pesticide? is the information clear about what you should do and should not do?
2. Video:
- a. has farmer seen video on safe use of pesticides? where? when?
  - b. is the information in the video clear and tells what to do and not to do when handling, storing, and applying pesticides, and harvesting of produce after spraying? has farmer used any of the information? what? if not, why not?
3. Written material:
- a. has farmer received written material on control of pests and diseases encountered in his field? How many, on what pests/diseases, when last, from where/whom?
  - b. did written material received tell farmer about safe use of pesticides? was it clear about what to do and not to do?
  - c. Has farmer seen posters telling them about safe use of pesticides? Where, when, and did he understand what the poster was saying? What did it say?

B. Personal contacts

1. Extension

- a. does farmer know extension field officer for his area? know his name?
- b. does farmer know where to meet extension field worker for his area? where?
- c. how often does farmer meet extension field officer per month? when last consulted him? on what did he consult extension officer?
- d. is the advice/information received from extension officer useful? has he used any advice received from extension officer? what? when? what was the result?

2. Research

- a. does farmer know any research officer at the research station? who? in what area does he work?
- b. does farmer consult research officers on problems of pests and diseases prevention and control? how often per season? when last consulted them? what was the need or problem on which you consulted research officer? why consulted research officer and not extension field officer?
- c. is the advice/information received from research officer useful? has he used any advice received from research officer? what? when? what was the result?

C. Other sources

1. Does farmer attend extension meetings, field days, demonstrations, training courses, seminars, etc.? when last? how often? on what subject? was it useful? did he use any of the information/advice? what? what was the result?
  
2. Does farmer get needed information on control of pests and diseases from any of the following:  
  
suppliers of inputs  
family  
friends and neighbors  
others

VIII. USE OF METHYL BROMIDE

1. Knowledge of safe and correct use of methyl bromide.  
  
Questions to be developed in Jordan after obtaining more information on this subject.
2. Current practice with respect to the use of methyl bromide.  
  
Questions to be developed in Jordan after obtaining more information on this subject.

IX. RECENT BEHAVIORAL CHANGE

- A. Has farmer done anything different in handling, storing, and applying of pesticides, and harvesting of produce during the last three months? what ? why?



## II. EXTENSION AND COMMUNICATION METHODS USED

- A. Mass media  
The use of radio, television, video, and written materials; information on timing, frequency, duration, content, language, etc.; observe and participate where possible; collect copies of written materials: examine content, language, clarity, etc.
- B. Personal contacts  
The use of office visits, farm visits, farmer groups, farmer leaders, meetings, seminars, training courses, demonstrations, field days, etc.  
Timing, frequency, duration, content, language, teaching-learning methodology, farmers participation (attendance and involvement); observe some activities if possible.
- C. Farmer-farmer communication  
Existence of farmer groups, group leaders; use of 'contact farmers,' etc.
- D. Farmer-vendor communication  
Use of vendors to disseminate information on safe use of pesticides.

## III. EXTENSION OFFICERS' PERCEPTION OF FARMERS' USE OF PESTICIDES

- A. Extension officers' perception of Farmers' attitude towards the use of pesticides  
Do farmers use pesticides when it is not necessary? why?

Do farmers use pesticides that are more potent than necessary? why?

Do farmers use higher application rates than are necessary? why?

Do farmers apply pesticides more often than is necessary?

Are non-chemical methods of prevention and control of pests and diseases available? why they are not used by farmers?

Why farmers do not practice prevention rather than control of pests and diseases?

- B. Extension officers' perception of farmers belief  
Do farmers believe pesticides are harmful:  
if they get on your skin,  
or if inhaled while handling or spraying,  
or if produce recently sprayed is eaten?

#### IV. EXTENSION OFFICERS' USE OF PROTECTIVE MATERIALS

Does Extension Officer have protective materials? What does he/she have?

Does he/she use protective clothing, gloves, respirators, etc.  
Is his/her current behavior different from that prior to the project? In what way?

**APPENDIX 111: INTERVIEW GUIDE FOR VENDORS OF PESTICIDES**

**I. VENDORS' KNOWLEDGE OF PESTS AND DISEASES AND CORRECT PESTICIDES**

Do vendors know the pests and diseases prevalent in the area? how do they identify them when prescribing pesticides? how are application rates arrived at?

**II. RECOMMENDATIONS FOR SAFE USE OF PESTICIDES**

What advice is given to purchasers of pesticides on the safe handling, transporting, storing, and applying of pesticides? in what form is this advice given: verbal, written on container, leaflet, etc.?

**III. DO VENDORS PRACTICE SAFETY IN PESTICIDE STORAGE AND HANDLING**

Observe handling and storage of pesticides by vendors.

**IV. DID VENDORS CHANGE THEIR PRACTICES RECENTLY**

Did vendors improve their handling and storage of pesticides within the last three months? if so why and when? What are their sources of information on safe handling and storage of pesticides?

**V. VENDORS' PERCEPTION OF THE DANGER IN MISUSE OF PESTICIDES**

**A. Produce:**

1. Do pesticides get into the fruit when sprayed?
2. If pesticide gets into the fruit or vegetable, will the pesticide be destroyed by cooking?
3. If pesticides are seen on the outside of fruits and vegetables, can the fruit or vegetable be eaten?
4. If pesticides are on the outside of fruits and vegetables, is it safe to use it after washing with

water?

5. Are some pesticides safer than others if they get into the fruit or if they are on the outside of the fruit or vegetable? If so which ones are safe and which are not?
6. Why do the instructions on the pesticide container say not to pick the produce until a certain amount of days has elapsed?

B. People:

1. If pesticide gets on a person's skin or eyes while spraying, what would be the likely outcome?:
  - a. nothing will happen to him.
  - b. it will itch his skin only.
  - c. it will make him sick:
    - i. some discomfort, not really sick.
    - ii. sick for a short time only.
    - iii. very sick for a short time.
    - iv. very sick for a long time.
    - v. very sick and die.
2. If pesticide is inhaled by someone while spraying what would be the likely outcome?:
  - a. nothing will happen to him.
  - b. it will itch his skin only.
  - c. it will make him sick:
    - i. some discomfort, not really sick.
    - ii. sick for a short time only.
    - iii. very sick for a short time.
    - iv. very sick for a long time.
    - v. very sick and die.
3. If a little pesticide gets onto the food eaten by someone what would be the likely outcome?:
  - a. nothing will happen to him.
  - b. it will itch his skin only.
  - c. it will make him sick:
    - i. some discomfort, not really sick.
    - ii. sick for a short time only.
    - iii. very sick for a short time.
    - iv. very sick for a long time.
    - v. very sick and die.
4. If someone eats fruit or vegetable after washing out the pesticide that was on its outside what would be the likely outcome?:
  - a. nothing will happen to him.
  - b. it will itch his skin only.
  - c. it will make him sick:

- i. some discomfort, not really sick.
  - ii. sick for a short time only.
  - iii. very sick for a short time.
  - iv. very sick for a long time.
  - v. very sick and die.
5. If someone eats fruit or vegetable picked too early after spraying pesticide what would be the likely outcome?:
- a. nothing will happen to him.
  - b. it will itch his skin only.
  - c. it will make him sick:
    - i. some discomfort, not really sick.
    - ii. sick for a short time only.
    - iii. very sick for a short time.
    - iv. very sick for a long time.
    - v. very sick and die.

APPENDIX 1 INTERVIEW GUIDE FOR  
APPLICATORS OF PESTICIDES

I. USE OF PROTECTIVE MATERIALS

What types of protective materials are used when handling and applying pesticides? If protection used is inadequate, why is it inadequate?

Observe applicators in action.

II. IMPROVEMENT IN SAFETY IN THE USE OF PESTICIDES

Did applicators make any changes during the last three months in their handling and applying of pesticides? if so, what changes? where did they get the information that led to the changes?

II. APPLICATORS PERCEPTION OF DANGER IN MISUSE OF PESTICIDES

A. Produce:

1. Do pesticides get into the produce when sprayed?
2. If pesticide gets into the fruit or vegetable, will the pesticide be destroyed by cooking?
3. If pesticides are seen on the outside of fruits and vegetables, can the fruit or vegetable be eaten?
4. If pesticides are on the outside of fruits and vegetables, is it safe to use it after washing with water?
5. Are some pesticides safer than others if they get into the fruit or if they are on the outside of the fruit or vegetable? If so which ones are safe and which are not?
6. Why do the instructions on the pesticide container say not to pick the produce until a certain amount of days has elapsed?

B. People:

1. If pesticide gets on a person's skin or eyes while spraying, what would be the likely outcome?:
  - a. nothing will happen to him.
  - b. it will itch his skin only.
  - c. it will make him sick:
    - i. some discomfort, not really sick.
    - ii. sick for a short time only.
    - iii. very sick for a short time.
    - iv. very sick for a long time.
    - v. very sick and die.

2. If pesticide is inhaled by someone while spraying what would be the likely outcome?:
  - a. nothing will happen to him.
  - b. it will itch his skin only.
  - c. it will make him sick:
    - i. some discomfort, not really sick.
    - ii. sick for a short time only.
    - iii. very sick for a short time.
    - iv. very sick for a long time.
    - v. very sick and die.
  
3. If a little pesticide gets onto the food eaten by someone what would be the likely outcome?:
  - a. nothing will happen to him.
  - b. it will itch his skin only.
  - c. it will make him sick:
    - i. some discomfort, not really sick.
    - ii. sick for a short time only.
    - iii. very sick for a short time.
    - iv. very sick for a long time.
    - v. very sick and die.
  
4. If someone eats fruit or vegetable after washing out the pesticide that was on its outside what would be the likely outcome?:
  - a. nothing will happen to him.
  - b. it will itch his skin only.
  - c. it will make him sick:
    - i. some discomfort, not really sick.
    - ii. sick for a short time only.
    - iii. very sick for a short time.
    - iv. very sick for a long time.
    - v. very sick and die.
  
5. If someone eats fruit or vegetable picked too early after spraying pesticide what would be the likely outcome?:
  - a. nothing will happen to him.
  - b. it will itch his skin only.
  - c. it will make him sick:
    - i. some discomfort, not really sick.
    - ii. sick for a short time only.
    - iii. very sick for a short time.
    - iv. very sick for a long time.
    - v. very sick and die.