CHAPTER FOUR

THE SURVEY

This section describes the survey process undertaken in this research. It starts off by presenting the difficulties faced by the enumerators in gathering accurate and reliable information, and the challenges faced by the principal investigator in designing the survey instrument. A description of the three groups of respondents that were targeted for this survey is provided, with the rationale for choosing these groups. Finally, the survey variables by area of classification are discussed.

The Challenges: Administration and Design of Survey

The survey was completed via personal interviews using carefully constructed survey questionnaires (Appendix A). Interviews were conducted over a period of three and a half months, from November of 1997 to February of 1998. This period which coincided with the beginning of the dry season, also considered the vegetable season in the region[16]. The first two months of the vegetable season are the most intensive in terms of labor requirements because of land preparation and planting. Hence, from November through December, interview times were limited to lunch hour and late afternoon sessions, usually after farmers returned to their homes from a day's work in the fields. Ideally, information must be gathered right after the cropping season to make it easier for respondents to remember details of their operations and avoid any recall problems. For this survey, farmers were asked to recall information about their vegetable growing practices from a year ago (the 1996-1997 dry season). Naturally, some farmers had a hard time thinking back and may have given less accurate information especially about their pesticide usage.

The instrument was pre-tested on three separate occasions among farmers in Sto.Tomas, Nueva Ecija. As a result of the pre-testing, the following modifications were made: 1) on questions that used Likert scales to ask respondents to rate the severity of their pest problems and the degree of importance of the various risk categories, the questions had to be reworded using descriptive terms like negligible, moderate, and extreme (or not important, somewhat important, and very important), and reducing the 5-

[16]Most farmers in the region follow a rice-vegetable cropping system and vegetables are predominantly grown during the dry season.

point numerical scale to a 3-point scale with more descriptive terminology; 2) on the contingent valuation questions, the intention was to elicit respondents' willingness-to-pay for avoidance of low, medium, and high risks associated with 5 impact categories—in effect, asked respondents to offer 15 different price valuations that made the CV survey complicated and difficult to administer. The CV questions were therefore reduced to 5 willingness-to-pay questions corresponding to the 5 risk categories; 3) on the question that involved ranking the different categories in order of importance, enumerators used a separate form wherein the five risk categories were listed. In addition to this list of categories, specific examples known to be familiar to the respondents were used to describe each category more clearly. For example, in ranking the importance of avoiding human health risks, specific health symptoms like dizziness, nausea, skin irritations, and stomach problems were mentioned. The question used was-'*what rank would you assign to the importance of avoiding these specific health problems that are associated with pesticide exposure*'. For the farm animal category, the cow and the carabao were used as examples; the "tilapia" was used for the fish and other aquatic species category, and for beneficial insects, examples used were the spiders and dragonflies[17]. These modifications made ranking decisions easier compared to verbally enumerating the 5 general categories and asking the farmers to assign numerical rankings. In addition, associating specific examples to each impact category made the questions easier to comprehend.

The objective in mind when the survey instrument was designed was to make questions simple, direct and nonrepetitive, using as many examples and visual aids as possible. The reason for aiming for clarity and simplicity was that the survey involved farmers who may have had very limited educational backgrounds and may not have had any previous survey or personal interview experience. All the modifications mentioned above were therefore necessary to achieve this objective.

A brief introduction about the researchers and institutions involved in the study, and a general description of the topic and objectives of the survey were presented at the beginning of each interview. In each of the study sites, the standard operating procedure

[17] The dragonfly and the spider were reported to be the most familiar natural enemies known to farmers in San Jose, Nueva Ecija (Lazaro et al, 1995)

prior to conducting interviews that proved very helpful, was to make courtesy calls to the elected village heads, referred to locally as barangay captains (or Kapitan)[18]. This was particularly useful in getting directions to selected respondents' homes. In some cases, subordinates of the barangay captain (the barangay "tanods") were sent to gather the respondents in the barangay hall where interviews were conducted[19], and in other cases the "tanods" went with the researchers from house to house. Not only was this system helpful in finding the respondents, but it also helped in obtaining the farmers' cooperation to participate in the survey. Some respondents were reluctant to share information and their time partly because of the inconvenience involved and partly because of unfavorable experiences in the past. Other farmers expected compensation by way of free seeds or free fertilizers (especially when PhilRice and IRRI were mentioned as collaborators) and were unwilling to participate if none was offered.

The most crucial and difficult information that had to be acquired was on farmers' pesticide usage. Confusion about the chemicals applied to rice pests and onion pests was common. Enumerators had to be specific in asking about the kinds and amounts of pesticides used on onions. Some respondents could only recall using a small, medium, or large bottle of a pesticide which usually meant a 250-ml, 500-ml, or a 1-liter bottle of pesticide. The strategy adopted by the enumerators in getting more accurate information was to ask respondents to show them samples of pesticide bottles or labels they have used during the onion season.

The Respondents

A total of 176 onion farmers were interviewed. Of this number, 110 respondents were drawn from the San Jose sites (the San Jose Group), thirty (30) farmers were drawn from Bongabon (the NOGROCOMA group), 36 were from Munoz. Figure IV.1 shows the breakdown of respondents in each group.

The list of onion farmers was obtained from the office of the Municipal Agriculturist in San Jose City. A random sample of farmers in each of the identified sites

[18] Barangay Captains of Abar 1st, Palestina, Sto.Tomas, and Munoz were all approached prior to conducting interviews in these sites. In Bongabon, a NOGROCOMA official was the contact person.

[19] The first 15 respondents in Palestina were gathered and interviewed in the barangay hall. Although this system made it logistically easier for the enumerators, it also made it difficult to record pesticide usage, because in order to get specific information about the toxicity or amount of active ingredients in the chemicals the bottles or labels had to be seen.

was taken from this master list. Three groups of respondents were considered—the first group of respondents is a random sample of farmers from three barangays in San Jose, Nueva Ecija-- Sto.Tomas, Palestina, and Abar 1st. These three sites together with three other barangays were pre-selected sites for the IPM-CRSP activities. These barangays were chosen based on the following criteria: 1) proximity to the Philippine Rice Research Institute (PhilRice); 2) similarity in farmers' practices; 3) farmers' willingness to cooperate; 4) presence of farmer organizations or cooperatives; 5) vegetable growing before and after rice; 6) heavy insecticide use; and 7) no IPM training among farmers. Currently, there are several on-going field experiments on alternative pest management strategies, such as the use of biological controls, weed experiments, and cultural methods that are being conducted by IPM-CRSP researchers in these areas.

The second group is a random sample of farmers that are members of the National Onion Growers Cooperative, Marketing Association, Inc. (NOGROCOMA) in Bongabon, Nueva Ecija. This group of respondents—the Bongabon Group can be characterized as uniquely comprised of a different breed of farmers compared to the more independent farmers in San Jose. The NOGROCOMA farmers are an organized group with proactive members. Members of the group have had extensive training on alternative ways of farming, including pest management techniques and are very open to adoption of new technologies. The group's exposure to novel and more safe ways of farming is made possible by their aggressive President and General Manager- Ms. Dulce Ilagan Gozon. She continually seeks advice from agricultural scientists and facilitates technology transfer through interactive training and symposia. This group almost has guaranteed credit support and marketing tie-ups through their association with Ms. Gozon, also an influential onion-wholesaler.

Some IPM-CRSP experiments have also been laid-out in member-farmers' plots and therefore the impacts of the program can likewise be estimated using this sample of farmers. Moreover, the influence or effect of membership in an organized cooperative in terms of IPM-technology transfer and adoption can be measured, providing insights into effective ways of intervention.

The third group of respondents represents a sample of farmers in the municipality of Munoz, Nueva Ecija. Farmers in this area have been exposed to integrated pest management techniques by way of IPM-training on rice, conducted by the Department of Agriculture. This sample of respondents is composed of a mix of farmers with and without rice-IPM training.

Evaluating the differences in personal characteristics, pest management practices, knowledge and perceptions about the effects of pesticides, and other socio-economic and environmental factors across the three different groups is useful in determining specific conditions or variables that may increase the probability of adoption and degree of integration of IPM technologies.

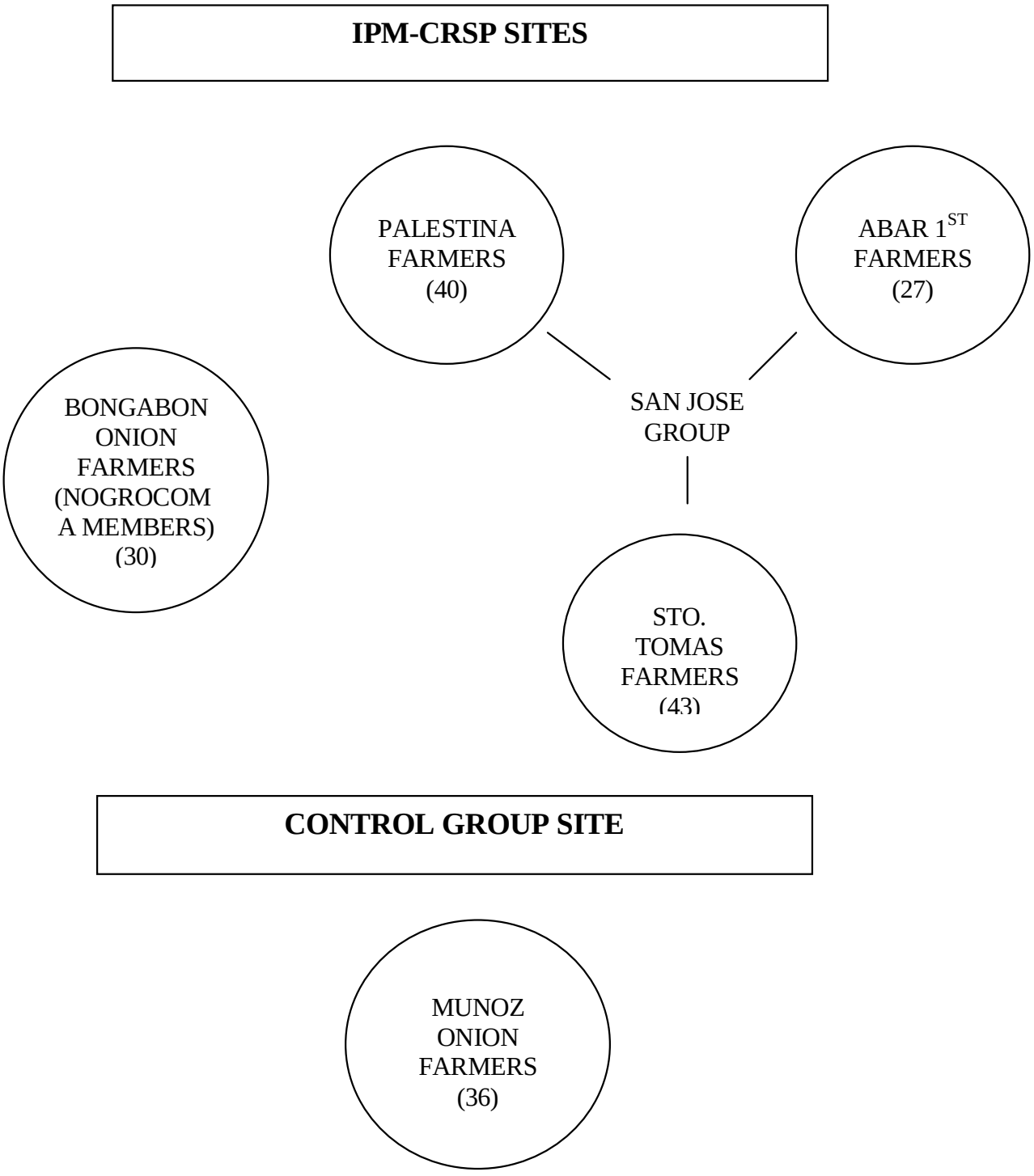

Figure IV.1. Breakdown of Respondents by Site

The Variables

The survey questionnaire was designed to secure information about onion farmers' farm operations/managerial inputs, personal characteristics, pest management practices, knowledge about IPM and adoption of IPM practices, and their perceptions about the health and environmental impacts of pesticides. In addition, questions about the respondents' willingness-to-pay for avoidance of risks to human health, birds, farm animals, beneficial insects, fish and other aquatic species were derived using the contingent valuation method. Table IV.1 shows the different variables or information gathered in the survey by area of classification.

Table IV.1. List of Survey Variables by Category

CATEGORY	VARIABLE
FARM CHARACTERISTICS	Farm Size
	Crops Planted
	Yields and Total Returns
	Soil Type
	Source of Water
FARMER CHARACTERISTICS	Farming Experience
	Age
	Educational Attainment
	Time Spent On-Farm/Off-Farm
	Net Income from Farming
	Tenure Status
PEST MANAGEMENT PRACTICES	Severity of Pest Problems
	Most Important Onion Pests
	Pest Control Methods
	Source of Pest Control Advice
	Pesticide Usage (dosage; frequency)
	Pesticide Expenses
	Factors Considered in Choosing Pesticides
KNOWLEDGE OF IPM AND ADOPTION OF IPM PRACTICES	Awareness of IPM Concepts
	Source of IPM Knowledge
	Description of IPM Techniques Learned
	Percentage Reduction of Pesticide Use
	Willingness-to-Adopt IPM-CRSP Technologies
PERCEPTIONS ABOUT THE HEALTH AND ENVIRONMENTAL IMPACTS OF PESTICIDES	Experience with Pesticide Impacts
	Degree of Importance of Pesticide Impacts
	Importance Ranking of Impact Categories
WILLINGNESS-TO-PAY AND RELATED INFORMATION	Protective Measures Against Pesticide Exposure
	Wage Differentials
	Price Premium on Risk Avoidance