

The San Luis Obispo County Farmworker Survey

Implementation of Worker Safety Regulations: A Survey of Farmworker Perspectives and Health Issues

Rupali Das, MD, MPH¹
Ximena Vergara²
Patrice Sutton, MPH²

Other Key Personnel
Susan Gabbard, PhD³
Jorge Nakamoto, PhD³

¹ Occupational Health Branch, California Department of Health Services

² Public Health Institute

³ Aguirre International

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California Department of Pesticide Regulation

Sue Edmiston

Bob Chavez

California Rural Legal Assistance

Mike Blank

Ruth Angulo

Central Coast Greenhouse Growers Association

Dan Jones

Environmental Center of San Luis Obispo

Geoff Land

Pat Veasart

Sandra Sarrouf

Pam Heatherington

Environmental Defense Center

Lori Schiraga

San Luis Obispo County Department of Agriculture/Measurement Standards

Richard Greek

Brenda Ouwerkerk

Bob Lilley

San Luis Obispo County Farm Bureau

Tom Ikeda

San Luis Obispo County Health Commission

Alice Reyes

San Luis Obispo County Public Health Agency

Greg Thomas, MD

San Luis Obispo County Environmental Health Department

Jeff Poel

Steve Carnes

San Luis Obispo County UC Cooperative Extension

Mary Bianchi

U.S. Environmental Protection Agency, Region IX

Ray Chavira

Katy Wilcoxon

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EXECUTIVE SUMMARY

Background

Farmworkers face hazardous working conditions, including exposure to pesticides. The effects of pesticides on farmworker health are of particular concern in California, where one-third of the nation's farmworkers are employed. In 1999, over 186 million pounds of pesticides were used in production agriculture in California. To reduce farmworker exposures to pesticides, the California Department of Pesticide Regulation (CDPR) promulgated the Pesticide Worker Safety Regulations (WSR), the state's equivalent of the federal Worker Protection Standard (WPS).

In 1998, the Farm Safety Initiative (FSI) was formed in San Luis Obispo County (SLO), California. The purpose of the FSI was to promote dialogue between diverse groups with interests in agriculture, farmworker health and safety, and environmental health. In May 2000, the FSI awarded a grant to the Occupational Health Branch, California Department of Health Services (CDHS) through the Public Health Institute (PHI), to conduct a study to assess the understanding and perspectives regarding the California WSR among farmworkers who work in SLO County. The grant was administered through the Environmental Center of San Luis Obispo.

Study Objectives

The objectives of the SLO Farmworker Survey (SLO-FS) were to:

- ◆ Survey SLO farmworkers to determine whether they had received pesticide safety training as required by the WSR.
- ◆ Assess the understanding and perspectives of farmworkers who work in SLO County regarding the WSR in the areas of training, hazard communication, personal protective equipment, and treatment of pesticide-related illness.
- ◆ Delineate the perspectives of farmworkers working in SLO County regarding pesticides and various issues related to their health.
- ◆ Create a model of successful participatory research in SLO County that could be reproduced elsewhere.

Methods

Based on FSI committee members' knowledge of the community, ten cities in three major geographic regions of SLO County were selected for the study. In order to obtain a representative sample of SLO farmworkers, a random sample of census blocks was obtained within areas in the identified cities. Farmworkers were identified by going door-to-door among households on the randomly selected blocks.

Farmworkers were eligible to take part in the study if they worked in crop agriculture in SLO County. Eligible farmworkers living in these households were asked to

participate in a 30-minute interview. Farmworkers who completed the survey were given a \$20 grocery store voucher and educational material. Interviews were conducted in the late summer and fall of 2000 and the spring of 2001. All interviewers were recruited locally, within SLO County. Community interviewers were utilized so that they would gain the trust of farmworkers and result in increased participation in the survey and higher likelihood of reliable (honest) answers.

The FSI committee provided suggestions and feedback for every phase of the study, including the timeline, study protocol, sampling, and instrument design. Input from the FSI was incorporated into questionnaire design and formatting of the current report. CDHS remained the final arbiter of issues related to methodology, interpretation of data, and conclusions.

Results

Nine out of ten farmworkers contacted participated in the survey. Interviews were completed for 138 farmworkers.

The SLO farmworkers surveyed were similar in many demographic characteristics to California farmworkers in general, but were slightly older, more geographically stable, and had resided in the U.S. slightly longer. The findings from this study show that farmworkers who live and work in SLO County are primarily young married males born in Mexico who live with other family members.

The study found that:

- ◆ 80% of farmworkers have received pesticide safety training in SLO County; most trainings cover many topic areas required by the WSR.
- ◆ 20% of farmworkers, including some mixers, loaders, and applicators have not received pesticide safety training in SLO County in the last five years.
- ◆ Most farmworkers are trained in SLO County by a supervisor or manager; farmworkers also rely on supervisors for safety information.
- ◆ Overall, farmworker knowledge is incomplete in the areas tested (pesticide exposure, first aid measures, routine decontamination).
- ◆ Compliance with provision of training is not the sole adequate measure of the efficacy of training.
- ◆ Farmworkers sometimes do not notify supervisors or seek medical attention following suspected pesticide exposure and pesticide-related illness.
- ◆ Farmworkers' top occupational health concerns are muscle sprains and strains, accidents in the field, and the effects of chemicals, including pesticides.
- ◆ In case of an illness, farmworkers would most commonly seek medical attention in emergency rooms/hospitals, followed by medical clinics.

Conclusions and Recommendations

The SLO-FS shows that objective methods can be applied to study local issues in a participatory process. While several of the study's findings regarding farmworker safety and health in SLO County are encouraging, there are still areas where improvements can be made. CDHS recommends the following steps for making improvements to farmworker safety:

- ◆ Collaborations should continue to improve worker and community health and safety.
- ◆ Growers and supervisors should demonstrate support for employee safety.
- ◆ All farmworkers should receive training at least every year.
- ◆ The content of worker safety trainings should be consistent.
- ◆ Trainings should be specifically developed for and at the education level of the farmworker audience.
- ◆ Trainers should be well-trained; peer-trainers should be used when possible.
- ◆ A farmworker focus group should be convened to address improvements to training and to worker health and safety.
- ◆ An employer focus group should be convened to address barriers to implementation of the regulations and ways to demonstrate support for health and safety for workers.
- ◆ Physicians should be well-trained in farmworker health issues, including those related to pesticide illness.
- ◆ Consideration should be given to reducing pesticide illness through primary prevention methods such as reducing the use of toxic substances.

INTRODUCTION

Agriculture is one of the most hazardous industries in this country (McDuffie et al., 1995). In the United States (U.S.), there are 2.5 million agricultural workers (crop and livestock), of which 1.8 million are crop workers (U.S. Commission on Agricultural Workers (U.S. CAW), 1993). While physical injuries play a considerable role in the risks posed by farm work, pesticide-related illness also affects a large number of workers each year (Villarejo and Baron, 1999). Recognizing pesticides as a significant contributor to morbidity among farmworkers, the U.S. Environmental Protection Agency (U.S. EPA) promulgated the Worker Protection Standard (WPS)¹, a regulation aimed specifically at reducing the risk of pesticide poisonings and injuries among agricultural workers and pesticide handlers (40 Code of Federal Regulations (CFR) Part 170). The intent of the WPS is to reduce farmworker pesticide illness, specifically the incidence of adverse acute, allergic, or sensitization effects, and delayed-onset health effects, including cancer, serious developmental defects, still births, and persistent neurotoxic effects (U.S. EPA, 1992).

In addition to the regulations aimed specifically at reducing pesticide illness, the Field Sanitation Standard, promulgated by the Occupational Safety and Health Administration (OSHA), specifies requirements for provision of potable water, toilets, and hand washing facilities at the worksite (29 CFR, Part 1928.110). While this standard is aimed primarily at the reduction of heat-related illness and communicable

¹ The Worker Protection Standard for agricultural workers was promulgated by the United States Environmental Protection Agency in 1992, fully implemented in 1995, and amended in 1996.

disease, and not at pesticide illness, complying with these requirements is essential to maintaining a healthy working environment.

The effects of pesticides on farmworker health are of particular concern in California, the top agricultural producing state in the U.S. (California Department of Food and Agriculture (CDFA), 2000). Over 200 million pounds of pesticide use was reported in California in 1999, of which over 90% (186 million pounds) was in production agriculture (CDPR, 2000). This was based on the requirement to report all agricultural use of pesticides and pesticide use by other licensed applicators; use by homeowners and building managers is not required to be reported. During this period, over 60 million pounds of pesticides used (30% of total reported use) were on California's list of chemicals known to cause cancer or reproductive harm (Proposition 65). To reduce farmworker exposures to pesticides through regulation, the CDPR promulgated the Pesticide Worker Safety Regulations (WSR)², the state's equivalent of the federal WPS (California Code of Regulations (CCR) Title 3, Division 6, Chapter 3, Subchapter 3, 6000 et seq.). The federal and state regulations are similar in certain areas, and differ in others. For example, fieldworker training is required every five years by both the state and federal regulations. Both sets of regulations state that farmworkers who enter an area that has been treated with a pesticide during the preceding 30 days or that is subject to a restricted entry interval must receive pesticide safety training covering specific topics related to pesticide exposure in a language they understand. One area of difference between the two regulations is in training requirements for

² The Pesticide Worker Safety Regulations were drafted in 1973, expanded in 1986 to cover non-agricultural operations, and promulgated as the current version in 1997.

agricultural workers who mix, load, and apply pesticides: the WSR requires these workers to be trained annually, while the federal law requires training every five years (Table 1). There are other differences between the federal and state regulations. The WSR is enforced by CDPR and the county agricultural commissioners (Title 3 CCR 6701). The Field Sanitation standard is enforced by the California Division of Occupational Safety and Health (DOSH) (Labor Code 6712 and Title 8 CCR 3457).

Table 1. Summary of Selected Requirements of the California Pesticide Worker Safety Regulations^{1, 2}

Requirement	Population to whom it applies³	Comments
Fieldworker training (CCR 6764)	Fieldworkers who enter area (1) treated with pesticides during previous 30 days OR (2) subject to restricted entry interval. Training must be repeated every year for pesticide handlers and every 5 years for fieldworkers. Additional training is required for workers in enclosed areas (e.g., greenhouse workers).	Must cover in a language understood by workers: <ol style="list-style-type: none"> 1. Routine and emergency decontamination 2. Meaning of restricted entry intervals and posting 3. Where pesticides are encountered 4. Routes of exposure 5. Hazards of pesticides 6. Signs & symptoms of overexposure 7. First aid measures 8. How to obtain emergency medical care 9. Warnings about taking pesticides or containers home 10. Hazard communication program requirements 11. Employee rights
Handler training (CCR 6724)	Pesticide handlers	In addition to more detail on above topics, several other topics must be covered, including personal protective equipment, engineering controls, environmental concerns, MSDS, medical supervision, etc.
Hazard communication (CCR 6761)	Fieldworkers	<ol style="list-style-type: none"> 1. Application-specific information must be posted at central location: <ul style="list-style-type: none"> • Pesticide use records • MSDS for each pesticide 2. Prior to entering treated fields, employees must be informed of the location of information.
Hazard communication for pesticide handlers (CCR 6723)	Pesticide handlers	Above, plus other requirements.
Field postings (CCR 6776)	Fieldworkers	Treated fields must be posted as specified when required by product labeling, in greenhouse applications, and for restricted entry intervals > 7 days.
Decontamination facilities (CCR 6734 and 6768)	All agricultural workers	Wash water, soap, towels
Emergency medical care (CCR 6726 and 6766)	All agricultural workers	<ol style="list-style-type: none"> 1. Must be planned for in advance 2. Employer must ensure that employee is taken for medical care in case of illness.

¹ California Code of Regulations. Title 3, Div. 6, Chapter 3, Subchapter 3.

² Not all requirements of the WSR are listed here. Refer to Title 3 CCR 6000 et seq. for more information.

³ Definition of worker populations: Agricultural workers are all persons who work on farms, ranches, nurseries (except livestock, poultry, fish). Fieldworkers are persons who work in an area where agricultural commodities are grown (excludes livestock, poultry, fish), but do not mix, load, or apply pesticides. Pesticide handlers are workers who mix, load, or apply pesticides or assist with the application, including maintaining or cleaning equipment.

Although they are intended to regulate pesticide exposures, the ability of the federal laws to protect farmworkers from adverse effects due to pesticides has been called into question. In 1992, the U.S. General Accounting Office (U.S. GAO) found that federal laws and regulations provided inadequate protection for hired farmworkers who were exposed to pesticides (U.S. GAO, 1992). In response to this and other concerns, U.S. EPA began a multi-phase process to conduct a comprehensive, national review of EPA's worker protection program, including implementation and assessment of whether the WPS program is adequately meeting its intended goals of addressing the risks to agricultural workers (U.S. EPA, 2000). The national assessment, which began in 2000, focuses on the following key areas:

- ⇒ Effectiveness of U.S. EPA's WPS implementation and enforcement efforts
- ⇒ U.S. EPA's oversight of state programs and the effectiveness and consistency of state implementation and enforcement of the WPS
- ⇒ Outreach and communications with the affected regulatory community and stakeholders
- ⇒ Scope, quality, and delivery of worker and handler training programs
- ⇒ Special needs/concerns of children and pregnant women as agricultural workers
- ⇒ Strategies for educating health care workers and the medical community.

An examination of the WPS worker training throughout the U.S. from a policy perspective identified gaps in the implementation of WPS-mandated training and barriers to successful worker trainings (Larson, 2000a). Farmworker studies have

documented incomplete implementation of the federal WPS in other states (Arcury et al., 1999a; Arcury et al., 2001a). However, states and counties may vary in their implementation of the standards and the findings from national surveys or those from other states may not be relevant to the situation in California (Larson, 2000a). Thus, in order to make practical recommendations for improvement, worker protection regulations should be evaluated at the local level.

The current study examines particular aspects of the WSR in one California county. San Luis Obispo (SLO) County employs farmworkers in the production of a variety of commodities (Table 2). In 1997, a pesticide enforcement audit conducted by the CDPR found that most farmers and pesticide applicators in SLO County were averaging above a 90% compliance level for the WSR (FSI, 1999). In contrast, a farmworker survey conducted by the Environmental Center of San Luis Obispo (ECOSLO) and Promotoras Comunitarias in 1998 reported that a majority of respondents had not received pesticide safety training. The ECOSLO study also reported that many farmworkers were reluctant to report pesticide problems, and often failed to receive proper medical treatment (Land, 1998).

Table 2. Selected Agricultural Facts About San Luis Obispo County

Rank in California agriculture, 1999 ^a	17
Main agricultural products, 1999 ^a	Wine grapes, broccoli, iceberg lettuce
Reported pesticide use, 1999, pounds (% California total) ^a	2,114,105 (1.12%)
Top five pesticides used, 1999 ^b	Pesticide (thousand pounds)
	Sulfur (805.5)
	Methyl bromide (190.5)
	Metam sodium (167.6)
	Petroleum oils (151.3)
	1,3-dichloropropene (101.3)
Farmworkers working in county, 1999 ^c N (% California farmworkers)	11,896 (1.3%)
Occupational pesticide illnesses in agriculture reported to CDPR, 1995-1999 ^{d,e} N (% occupational pesticide illnesses in agriculture reported in California)	9 (0.3%)
Pesticides associated with occupational illnesses in agricultural settings, 1995-1999 ^{d,f}	Chloropicrin, chlorothalonil, glyphosate, iprodione, lindane, malathion, methyl bromide, myclobutanil, paraquat, propargite, sulfur, thiophanate methyl

^a CDFA, 2000^b CDPR 2000^c Larson, 2000b^d CDPR, 2001^e CDPR, 2002^f Listed in alphabetical order. Some compounds were associated with multiple illness cases. Some illness cases were associated with exposure to more than one compound listed.

The conflicting results of these two reports, methodological limitations of both studies, and the desire by several county agencies and organizations to effectively utilize limited health and safety resources to improve farmworker health and safety led to the formation of the FSI Committee in 1998. The purpose of this committee was to promote dialogue between diverse groups with interests in agriculture, farmworker health and safety, and environmental health. The FSI was comprised of representatives from community advocacy groups, government, and industry (Table 3).

Table 3. Organizations Represented on the San Luis Obispo (SLO) Farm Safety Initiative Committee

California Department of Pesticide Regulation
California Rural Legal Assistance
Central Coast Greenhouse Growers Association
Environmental Center of San Luis Obispo
Environmental Defense Center
SLO County Department of Agriculture/Measurement Standards
SLO County Farm Bureau
SLO County Health Commission
SLO County Public Health Agency
SLO County Public Health Agency, Environmental Health Department
SLO County University of California Cooperative Extension
U.S. Environmental Protection Agency, Region IX

In May 2000, ECOSLO awarded a grant to the CDHS through the PHI to establish a study to evaluate pesticide worker safety standards from the perspective of farmworkers who work in SLO County. The goal of this study was to assess the understanding and perspectives regarding the California WSR among farmworkers who work in SLO County. A key and novel feature of the current study, the San Luis Obispo Farmworker Survey (SLO-FS), was to work closely with the FSI to create a model of successful collaboration between government, farm worker advocacy groups, environmental groups, and the agricultural industry.

The objectives of this study were to:

- ◆ Survey SLO farmworkers to determine whether they had received pesticide safety training as required by the WSR.
- ◆ Assess the understanding and perspectives of farmworkers who work in SLO County regarding the WSR in the areas of training, hazard communication, personal protective equipment, and treatment of pesticide-related illness.
- ◆ Delineate the perspectives of farmworkers working in SLO County regarding pesticides and various issues related to their health.
- ◆ Create a model of successful participatory research in SLO County that could be reproduced elsewhere.

The report describes various aspects of the WSR in SLO County from the perspective of farmworkers. Understanding the perspective of workers through this community-based research is a first step to successfully improving conditions for farmworkers who work in SLO County.

METHODOLOGY

Core project personnel (CDHS and PHI staff) developed and carried out the study design, working closely with members of FSI. Staff from Aguirre International were integral in designing and carrying out several parts of the study. The FSI committee provided suggestions and feedback for every phase of the study, including the timeline, study protocol, sampling, and instrument design. Input from the FSI was incorporated into questionnaire design and formatting of the current report. CDHS and PHI staff remained the final arbiter of issues related to methodology, interpretation of data, and conclusions.

The survey techniques were based on standard community survey methods (Hulley and Cummings, 1988). In order to obtain a probability sample of SLO farmworkers, a random cluster sampling method was used. A random sample of clusters of census blocks was obtained within areas identified in certain cities. Farmworkers on these blocks were then recruited as interview subjects. Interview subjects were chosen from the residential community. The study protocol was approved by the State of California's Committee for the Protection of Human Subjects in the Office of Statewide Health Planning and Development.

Selection of Census Blocks

Information on farmworker density and distribution in SLO County was not available from published sources. Rather, the study relied on local expert knowledge of the community. Based on information obtained through local experts (FSI committee members), cities in SLO County were selected for the study, based on experts' opinion that these areas were densely populated by farmworkers. Ten cities in three major geographic regions of SLO were chosen for sampling (Figure 1). The targeted regions and cities were: North Coast (San Simeon, Cambria, Morro Bay), Northern Region (Shandon, San Miguel, Paso Robles, Templeton), and Southern Region (Oceano, Grover Beach, Nipomo).

Figure 1. Cities and Regions Selected by Farmworker Safety Initiative



FSI members identified areas within the chosen ten cities that they felt were likely to house farmworkers. From the FSI-identified areas representing 355 Census Blocks, a list of 134 Census Blocks (67 blocks for initial interview, and 67 backup blocks) were

randomly selected for sampling. The study's objective was to obtain 200 farmworker interviews. This was based on available resources and the assumption that a high proportion (80%) of the residents in the areas chosen were farmworkers (see Appendix 1 for further information about sample size for this study). The density of farmworkers was not based on actual counts, as resources did not permit such enumeration and published data were not available. The number of Census Blocks chosen by Aguirre International reflected the maximum number of blocks where surveys could be conducted within the available resources to obtain the desired number of interviews. Since individuals who live on the same blocks are more likely to be similar to each other, the initial study design called for the number of interview blocks to be maximized to allow representation of a wide variety of farmworkers (see "Interview Phases" below).

The number of housing units on each of the chosen Census Blocks was assessed by visual inspection of the blocks, using 1990 Census data. Visual inspection of the Census Blocks entailed driving to each of the selected Census Blocks identified by the 1990 Census, counting the numbers of housing units, and manually drawing the block map. Guide sheets (or block contact sheets) for each of the chosen blocks were developed. Interviewers used these sheets as interview guides and to record detailed results of visits to each house.

Selection of Housing Units

Housing units were selected for interviews according to a protocol established by Aguirre International. Interviews were conducted in two phases, Phase I and Phase II (see “Interview Phases,” below). The initial goal was to obtain three interviews per block. The goal was changed to obtaining as many interviews per block as possible after two weeks of interviews to maximize the yield of farmworker respondents (see “Interview Phases”). Once a block sheet was developed, each block was assigned a random starting housing unit. Interviews were first attempted at the starting house, and then proceeded in a clockwise direction on the same block until the desired number of interviews were obtained. This process was followed for two weeks. Because farmworker density was much lower than expected, the protocol was changed after two weeks of interviews. Interviewers were instructed to obtain as many interviews as possible on each block. Because the revised protocol specified that farmworker recruitment be attempted at every housing unit on chosen blocks, random start housing units were not chosen after the first two weeks of interviews.

Housing units were defined as any place where people were sleeping, including trailers. Automobiles were not included in the enumeration of housing units. If the people sleeping in a unit shared meals and other expenses with another unit on the property, they were considered one household. Otherwise, they were listed separately. Interviewers were instructed to list all the housing units, not just those that front the street, but also those that were in backyards or on other parts of the property.

This included all apartments, trailers, occupied campers, in-law units, and units such as someone living in a garage or shed.

Selection of Farmworkers for Interview

Interviewers screened potential subjects at the housing units chosen by random selection. The screening procedures began with an explanation of the survey and questions to determine if there was someone in the housing unit who met the study criteria. Qualifying subjects were invited to participate. Potential participants were considered eligible subjects if they had performed agricultural work in SLO County within the month preceding the interview, and if they spoke either Spanish or English. Those who worked exclusively with livestock, poultry, or fish were excluded because the WSR does not apply to these workers. If there were several persons in a household who qualified for the survey, the most convenient person was interviewed (e.g., the one who opened the door or the one to whom the person who opened the door directed the interviewer). Only one farmworker per housing unit was interviewed.

If there was no response at some housing units, interviewers returned to that block a second time to attempt interviews. Interviewers also returned to conduct interviews that had been scheduled for a time that was more convenient for the farmworker. Farmworkers were typically recruited and interviews were conducted in the evenings or on weekends.

Survey Instrument

Previous farmworker surveys that have been used to assess pesticide regulations either nationwide or in specific states (the “National Agricultural Workers Survey” (NAWS, 1998) and “Farm Safety Among North Carolina Farmworkers, 1998”) were reviewed and modified for the SLO-FS by Aguirre International and Project Staff. The FSI committee was involved in offering suggestions for the purpose and emphasis of the overall questionnaire, for adding or removing specific questions, and on the wording of questions. Based on comments by the FSI, significant modifications were made to the initial questionnaire; the modified version then received a second review by FSI members. The draft was developed in English and translated into Spanish. Final modifications were made in Spanish and translated into English, following pilot testing on local farmworkers as well as on farmworkers who serve as interviewers for the NAWS outside the state of California (Appendix 2 and Appendix 3).

The 30-minute questionnaire contained the following main content areas:

Demographic Information; Health Status; Exposure-Related Knowledge and Attitudes; Occupational Exposures to Pesticides; and Employer Support for Work Safety.

Interviewers read all questions to farmworkers being interviewed and marked responses directly on the questionnaire.

The survey contained three types of questions. The majority of questions had fixed-response answers that were read to the farmworkers being interviewed; respondents were instructed to choose one or more answers from the list of available responses.

Questions where multiple responses were possible are listed in Appendix 4. The second type had fixed-response answers that were not read out loud; instead, respondents generated the answers and interviewers were instructed to categorize the responses into the available categories. The purpose of this type of question was to assess farmworker knowledge. The third and least common type of question was open-ended; these questions attempted to assess farmworker knowledge and elicited farmworker opinions, attitudes, and suggestions. There were eight completely open-ended questions in the survey (Appendix 4). Some changes were made to the questionnaire following Phase I of the survey (Appendix 5).

Interviewers

Project staff obtained recommendations for interviewers from the FSI committee. All interviewers were recruited locally, within SLO County. Community interviewers were utilized so that they would gain the trust of farmworkers and result in increased participation in the survey and higher likelihood of reliable (honest) answers.

Interviewers had to meet the following requirements: fluency in Spanish, experience working with a diverse population, and some experience doing interviewing, customer service, or work that involved obtaining client information. Interviewers were hired by Aguirre International. Three interviewer trainings were conducted by Aguirre International and Project Staff. A full-day training took place prior to the start of the interviews in August 2000. A second full-day training took place in October 2000. The second training followed a turnover of a few interviewers, including the appointment of

a new Interviewer Supervisor. These two trainings concluded with “mock interviews” with farmworkers who were compensated for their time. A third half-day training was conducted in March 2001 prior to Phase II. All the interviewers attending this half-day training had been through at least one other full-day training. The half-day session did not include mock interviews. In addition to detailed instructions on each question in the survey, interviewers received instruction on interview techniques and other aspects of conduct appropriate for interviewing farmworkers.

A community interviewer with extensive relevant experience served as the Interviewer Supervisor. The Interviewer Supervisor was responsible for visually inspecting the blocks, preparing and completing block sheets, supervising all issues related to interviews, including checking interviews for accuracy and completeness, and translating responses recorded in Spanish into English. There were two Interviewer Supervisors, one for the first phase and one for the second. The Interviewer Supervisor for the first phase voluntarily terminated her position for personal reasons. The decision to fill her position with an interviewer from the first phase of interviews was made by Aguirre International.

Interview Phases

Interviews were conducted in two phases (Table 4). The sampling process for selecting Census Blocks for conducting interviews (described above) was the same for both phases of interviews.

Phase I: Interviews began in late Summer, 2000 (August 7 - 21, 2000). The protocol specified three interviews per selected block, as described above. This process was halted after August 21, 2000, because the blocks chosen yielded substantially fewer farmworker interviews than expected. The decision to halt interviews for two months and to modify the number of interviews obtained per block was made in consultation with FSI. Interviews resumed in the Fall of 2000 (October 23 - November 6, 2000). In order to maximize the number of interviews obtained, as many farmworker interviews per block as possible were attempted in the fall.

Phase II: To maximize the number of farmworkers available for participation, interviews were halted during the winter months, when fewer agricultural activities occur, and began again in the Spring of 2001 (March 15 – April 6, 2001). The decision to begin interviews for the second phase in March 2001 was made in consultation with FSI. During this second phase, as many interviews as possible were obtained on the selected blocks.

Table 4. Summary of Interview Phase Characteristics

	Phase I¹	Phase II
Dates of interviews	(a) August 7—August 21, 2000 (b) October 23—November 6, 2000	March 15 — April 6, 2001
Sampling process	(a) Blocks randomly selected from FSI-identified cities (b) Blocks randomly selected from FSI-identified cities	Blocks randomly selected from FSI-identified cities
No. interviews per block	(a) 3 (b) As many as possible	As many as possible
Interview process on selected blocks	(a) Starting at housing unit randomly selected & specified prior to interview, interviews proceeded in a clockwise manner. (b) No random starting unit specified; interviews could begin at any house.	No random starting unit specified; interviews could begin at any house.
Questionnaire changes²	(a) Original questionnaire (b) Original questionnaire	D-1 probe changed; Questions added: J-8 & J-9
Agricultural activities that typically occur during for timeframe³	(a) <u>Region 1</u> : dryland crops harvest. <u>Region 2</u> : grape harvest, Chinese vegetables harvest, nursery planting/ shipping/ sanitation, zucchini cultivate & harvest, field-grown vegetable starts plant & ship, lettuce plant. <u>Region 3</u> : apple harvest, snow peas plant & harvest, lettuce plant. (b) <u>Region 1</u> : grape harvest, apple harvest, carrot harvest, walnut & almond harvest. <u>Region 2</u> : lettuce plant, weeding, nursery planting/ shipping/ sanitation, carrot harvest, apple harvest, strawberry fumigation, zucchini harvest. <u>Region 3</u> : apple harvest, flowers for seed harvest, snow peas plant/harvest.	<u>Region 1</u> : carrots planting. <u>Region 2</u> : strawberry harvest, Chinese vegetables harvest, nursery planting, shipping, sanitation, field-grown vegetables starts plant & ship. <u>Region 3</u> : snow peas plant & harvest.

¹ In this column, (a) and (b) refer to the two different time period during which interviews were conducted in 2000.

² See Appendix 5 for details of questionnaire changes.

³ Source: SLO County Department of Agriculture. 1998. Region 1: North County (North of Cuesta Grade; East of Santa Lucia Range); Region 2: Central (South of Cuesta Grade + Nipomo, Cuyama; East of Santa Lucia Range to Pismo Beach & South of Pismo Beach, West of Santa Lucia Range); Region 3: Coastal (Ragged Point south, West of Santa Lucia Range to Pismo Beach + Los Osos).

Outreach and Incentives

Residents were notified by means of a flyer advertising the project that interviewers would be visiting their communities to conduct a survey. The FSI was involved in the design and distribution of the flyers. The flyers were distributed in the selected farmworker communities and were posted in various locations, including grocery stores, community bulletin boards, schools, health clinics, and offices of Promotoras Comunitarias. In addition to flyers, the study was advertised through a Public Service Announcement on Spanish language radio (Appendix 6). Both the flyers and the radio announcement served to inform the farmworker community about the study and encourage participation in the event of a home visit by an interviewer. They were not used as tools for recruitment of study participants.

Interviews were attempted in the evenings and on weekends and were conducted in Spanish or English. After verbally describing the study, written consent was obtained prior to conducting an interview. Farmworkers who completed an interview received a \$20 certificate honored at a local supermarket, as well as educational material. The decision to use a monetary incentive and its amount were a result of discussions between Project Staff and FSI committee members. All farmworkers who were contacted, including those who refused to participate, were offered a packet of educational materials on the prevention of pesticide-related illness, their rights at the workplace, and other health-related resources (Appendix 7).

Data Entry & Analysis

Completed interviews from the field were sent to the project offices on a weekly basis. Discrepancies on the questions and other issues were resolved by contacting the Interviewer Supervisor. While the majority of the questionnaire was designed to allow direct data entry, a coding system was developed and applied to the questions on commodities and tasks, and the open-ended questions.

Double data entry was performed to reduce the occurrence of data entry errors. The quality and accuracy of data entry was further checked and corrected utilizing MS Access and SAS Version 8.1 software (SAS Institute, Inc., Cary, NC). Post-sampling weights were constructed and applied to responses. These weights accounted for the number of farmworkers in each household and the probability of each farmworker being selected for interview. Data analysis was performed using the SAS system (Scholtzhauer and Littell, 1997). Associations between ordinal variables (knowledge assessment questions) were assessed using Wilcoxon Rank Sum tests (Motulsky, 1995). Standard deviations for the sample, standard error of the mean, and confidence intervals for continuous variables are listed in the Results section and in Appendix 8.

Data from Phase I and Phase II of the interviews were analyzed together, with some exceptions. For the questions that were added for Phase II, no data existed for Phase I (Questions J-8 and J-9 in Appendix 2 and 3; also, see Appendix 5). For the question where the interviewer probe, but not the question, was changed for Phase II

(Question D-1) the data were analyzed separately for the two phases. Because there are separate regulations for certain agricultural workers, for relevant questions, data were analyzed separately by occupational subclassification. The following terms are used in this report to describe these workers³:

Farmworker or Agricultural Worker: A person who performs any work related to the production of an agricultural commodity on farms, ranches, or nurseries. Agricultural commodities include fruits and vegetables, grains, seeds, fiber crops, nursery stock, and ornamental flowers. Farmworkers include fieldworkers and mixers, loaders, and applicators of pesticides. Persons who work exclusively on livestock, poultry, and fish are excluded. All participants in the SLO-FS are farmworkers.

Fieldworker: Any person who performs activities in a field for compensation but does not mix, load, or apply pesticides. A field includes any area, including a greenhouse, where agricultural plant commodities are grown for commercial or research production. Fieldworkers were defined as those who answered “no” to both Questions F1a and F1b.

Mixer, Loader, or Applicator (MLA): Any farmworker who mixes, loads, or applies pesticides or assists in these activities, including cleaning, maintaining, and servicing equipment. MLAs were defined as those who answered “yes” to either Question F1a or F1b.

³ Definitions adapted from Title 3 CCR 6000 “Definitions.”

RESULTS

Interviews

Highlights of Findings

138 farmworkers were interviewed.

Fewer farmworkers were living in the study areas than anticipated.

Nine out of ten farmworkers contacted participated in the survey.

Interviewers visited all 134 blocks identified through the sampling methodology (67 on the initial list and 67 on the backup list), and obtained a total of 138 farmworker interviews (Table 4). Only two of the 138 interviews were conducted in English. The remainder was conducted in Spanish. Of the farmworkers interviewed, 66.7% asked to receive a copy of the final findings.

There were fewer farmworkers living in the areas selected for study than anticipated. However, the participation rate among the farmworkers identified in the study areas was high. For housing units identified as farmworker households, 94.5% participated in the survey. The average number of interviews obtained per every block sampled was 1.0. The average number of interviews per block where interviews were obtained was 3.6.

Table 4. Summary of Interviews Completed

Interview Phase*	City	Blocks visited (N)	Interviews obtained (N)	Refusals** (N)
Phase I (Fall)	Cambria	1	1	0
	Grover Beach	18	28	2
	Morro Bay	11	1	1
	Nipomo	7	13	2
	Paso Robles	22	22	1
	San Miguel	1	1	0
	San Simeon	1	0	0
	Shandon	2	3	0
	Templeton	4	2	0
Sub-total		65	71	6
Phase II (Spring)	Cambria	1	0	0
	Grover Beach	19	11	1
	Morro Bay	10	0	0
	Nipomo	7	3	0
	Paso Robles	22	50	1
	San Miguel	2	0	0
	Shandon	2	3	0
	Templeton	4	0	0
Sub-total		67	67	2
Total (N)	9	134	138	8

* Interview Phase I took place from August 7 – 21, 2000 and October 29 – November 6, 2000; Interview Phase II took place from March 15 – April 6, 2001.

** Refusals were defined as eligible farmworkers who declined to participate in the study.

Birthplace and Ethnicity

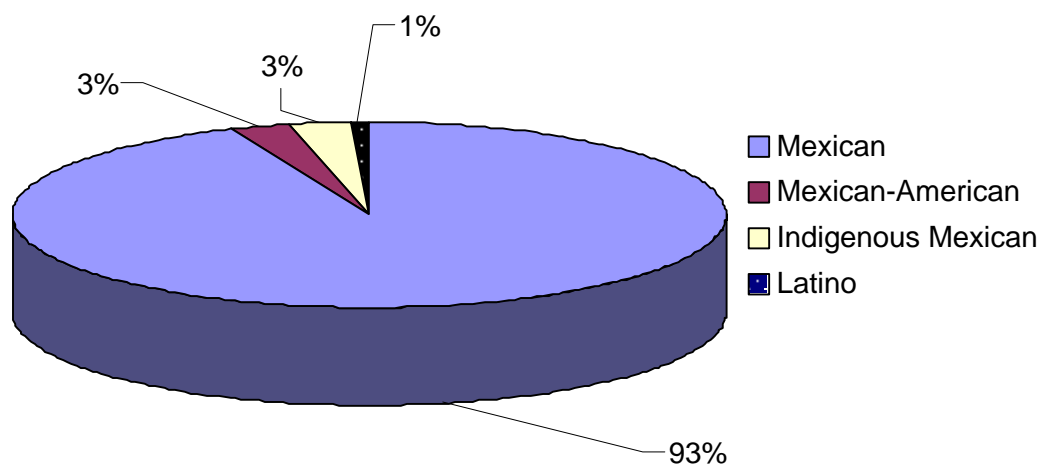
Highlights of Findings

Nearly all farmworkers were born in Mexico.

The median number of years a SLO County farmworker had spent in the U.S. was 11 years.

SLO County farmworkers interviewed were overwhelmingly foreign-born: 98.0% of those interviewed were born in Mexico and 2.0% were born in the U.S. Ethnicity categories are arbitrary and changing and may be defined differently in other countries. The SLO-FS adapted ethnicity categories from the 2000 Census. Virtually all of the farmworkers in this survey identified themselves as members of a Hispanic group, and 93.6% identified themselves as Mexican (Figure 2). The median length of time farmworkers had spent in the U.S. was 11.0 years (standard deviation (SD) 9.6 years).

Figure 2. Which of the Following Describes You? (N=138)



Demographics and Household Composition

Highlights of Findings

Eight out of ten farmworkers were men.

Their average age was 36 and their median age was 34 years.

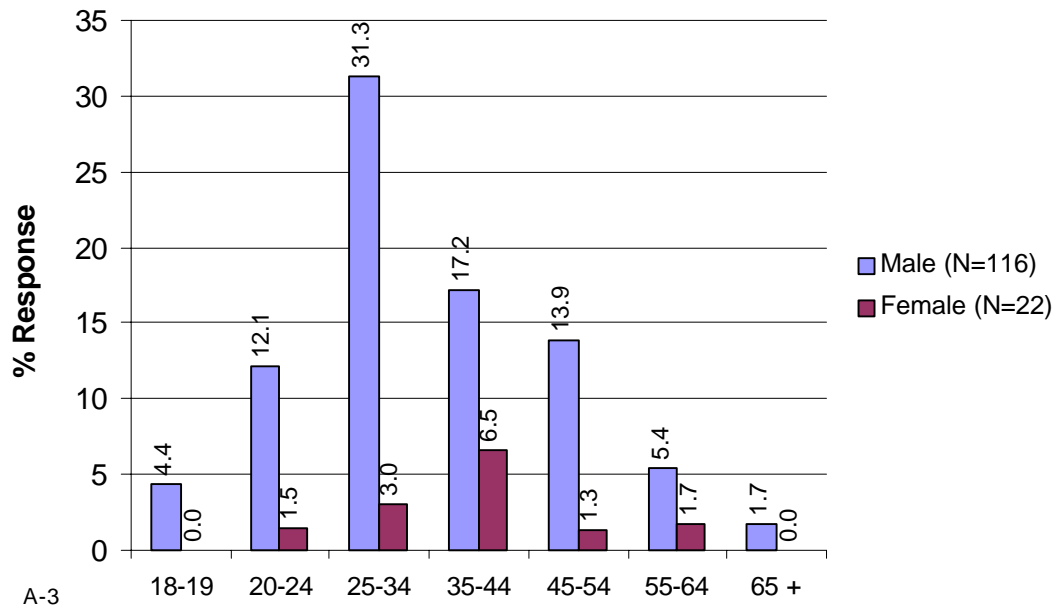
Nearly three out of four farmworkers were married.

Nearly all farmworkers lived with a family member.

Nearly nine out of ten farmworkers lived in SLO County year-round.

The average number of farmworkers per household surveyed was 2.2 and the median was 1.0 (SD 1.4). SLO farmworkers were primarily male (84%) and young, with an average age of 36.1 years and a median of 34.0 (Range: 18-77 years, SD 12.5 years) (Figure 3). Nearly three out of four farmworkers (71.9%) were married, 26.7% had never been married, and 1.5% were separated, divorced, or widowed. Nearly half of the farmworkers (46.9%) lived with their children; 16.8% lived alone, 11.0% lived with a parent; 8.5% lived with a sibling; 0.4% lived with a grandchild; 4.4% lived with another relative; and 1.1% lived with non-relatives. The average number of people living in each household surveyed was 3.4 and the median was 3.0 (SD 1.8).

Figure 3. Farmworker Age by Gender



Among farmworkers surveyed, 87.4% lived in SLO County year-round; another 11.6% lived in SLO County 6 to 12 months out of the year; and 1.0% lived in this county between one to six months of the year.

Literacy & Language

Highlights of Findings

Almost all farmworkers communicated in Spanish.

Farmworkers had typically completed six years of education.

Fewer than one in ten farmworkers reported speaking or reading English well.

Spanish was the native language of 98.9% of the farmworkers. A minority (1.1%) listed English as their native language. A few (0.7%) workers reported speaking Mixtec, but did not consider it their native language. More than one in four workers (29.8%) had attended some schooling in the U.S. The median level of education for SLO County farmworkers was 6th grade; over 70% had completed the 4th grade or higher (Figure 4). When asked to assess their own reading and speaking abilities in Spanish and English, 72.1% of farmworkers said they read Spanish well; the majority of farmworkers reported speaking and reading little or no English (Figure 5).

Figure 4. Farmworker Highest Grade Level (N=138)

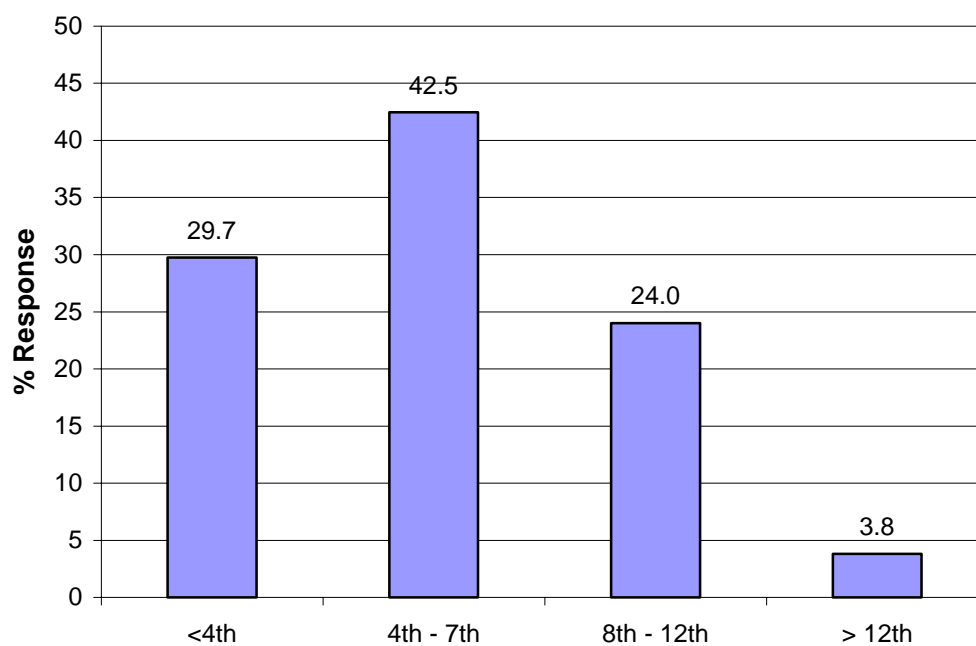
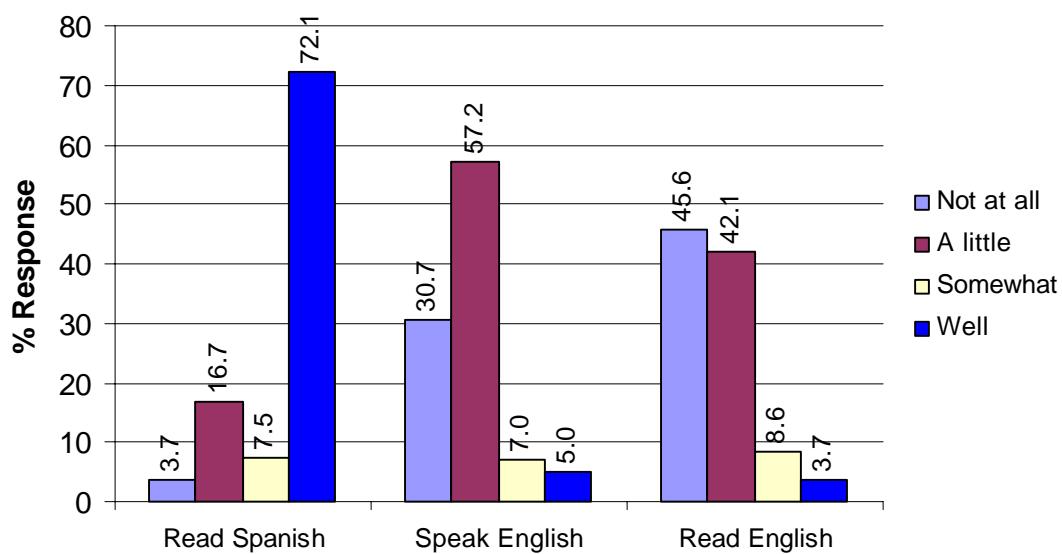


Figure 5. Farmworker Self-Reported Literacy and Language (N=138)



J-4/J-5/J-6

Occupational Characteristics

Highlights of Findings

Three of four farmworkers surveyed were fieldworkers and one in four mixed, loaded, or applied pesticides.

Nine out of ten farmworkers worked in the production of fruits, nuts, or vegetables.

Farmworkers who mixed, loaded, or applied (MLA) pesticides in the twelve months prior to the survey comprised 25.5% of the farmworkers in this study; the majority, 74.5%, were fieldworkers. For the purposes of this survey, fieldworkers were defined as farmworkers who did not mix, load, or apply pesticides in the preceding 12 months. As a group, the median number of years the workers surveyed had performed farmwork in the U.S. was 10.0 (SD 9.3). Farmworkers had worked with many commodities, especially grapes and lettuce, and performed several different tasks within a short time prior to the survey (Tables 5 and 6).

Table 5. Top Ten Crops in which SLO Farmworkers Were Employed Most Recently Prior to Survey*

Crops	Percent Response** (N=138)
Grapes	62.5
Lettuce	13.2
Broccoli	8.3
Nursery	7.4
Strawberries	6.8
Squash	6.7
Peas	5.1
Cabbage	3.8
Cauliflower	2.4
Alfalfa sprouts	0.7

C-3

* Farmworkers (N=138) may have reported being employed in multiple commodities.

** Questions with multiple responses possible may not add to 100%. See Appendix 4.

Table 6. Top Ten Tasks Performed Most Recently by SLO Farmworkers Prior to Survey*

Tasks	Percent Response** (N=138)
Pruning	40.0
Driving tractor	24.8
Planting	23.0
Picking	20.3
Tying (vines)	18.1
Stringing wire	15.4
Cutting	14.7
Irrigating	10.0
Mixing, loading, applying chemicals***	9.1
Training (vines)	4.0

C-4

* Farmworkers may have reported performing several tasks.

** Questions with multiple responses possible may not add to 100%. See Appendix 4.

*** An open-ended question. All responses that mentioned pesticides specifically or "chemicals" in general were grouped together.

Health Status, Concerns, and Care

Highlights of Findings

Three out of four farmworkers said they were in “very good health.”

Nearly nine in ten farmworkers were concerned about health outcomes related to the workplace, including strains and sprains, accidents in the field, chemicals, motor vehicle accidents, breathing, eye, and skin problems, and cancer.

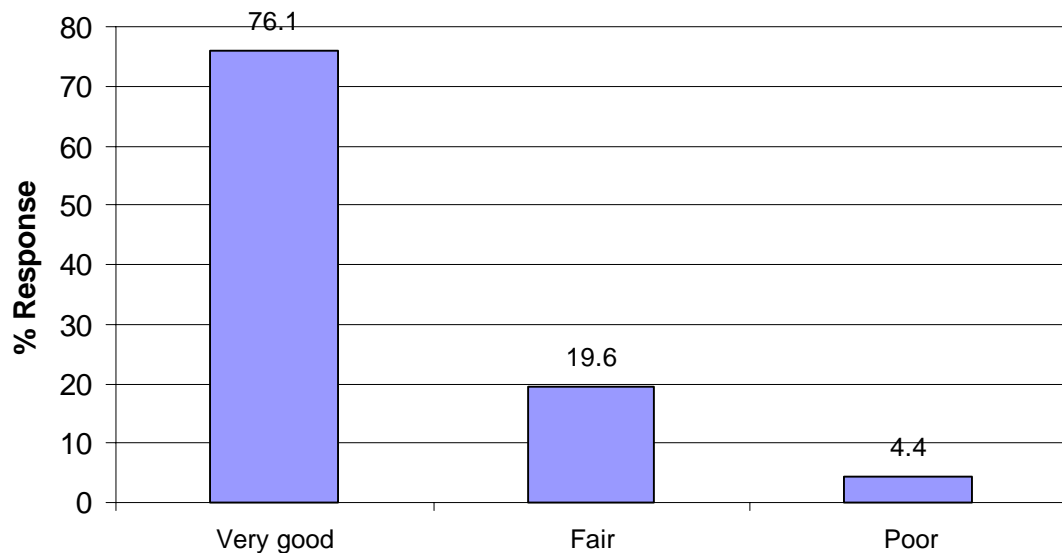
More than one in two farmworkers reported they would seek medical care in emergency rooms or hospitals in case of any illness.

Barriers to receiving health care most frequently identified by farmworkers were language and the lack of medical insurance.

Farmworkers were asked to rate their own health. Many (76.1%) stated that they were in “very good health” (Figure 6). Farmworkers were asked to indicate their top three health concerns (without ranking them) after listening to a list of occupational health conditions that was read to them. The most frequently cited responses included sprains and strains of the back, neck, arms, and other muscles (57.7%), accidents in the field (for example, cuts and fractures (56.5%)), health problems related to chemicals, including pesticides (27.6%), and motor vehicle accidents (27.2%). Farmworkers were also concerned about breathing problems such as asthma and allergies (22.5%), eye problems (22.1%), cancer (18.6%), and skin

problems such as rash and allergies (16.8%). Overall, 11.2% stated they had no health concerns.

Figure 6. Farmworker Self-Reported Health Status (N=137)



B-1

Farmworkers reported using a variety of sources to seek medical care in the event of an illness. More than half would use the emergency room or hospital (57.4%); 45.0% would first visit a doctor's office; 13.5% would use a migrant health clinic; 10.5% would treat themselves; 6.9% would seek care in their country of origin (Mexico); 4.2% would seek the assistance of a healer (sobador); and 6.1% did not know where they would seek care in the event of an illness.

Farmworkers reported a wide variety of obstacles to receiving healthcare in the U.S., most frequently citing language barriers (31.7%) and lack of medical insurance

(23.5%) (Table 7). Almost one in three farmworkers (30.3%) stated that they faced no barriers and 13.0% did not know of barriers.

Table 7. Self-Reported Barriers to Healthcare

Type of barrier	Percent Response** (N=137)
They don't speak my language	31.7
I do not have medical insurance	23.5
They don't understand my problems	13.5
Too expensive	9.9
They don't treat me with respect	6.8
I'll lose my job	6.5
I don't know where services are available	2.8
Other	2.7
Transportation	2.5
Waits are too long	2.4
They don't provide me with the services I need	0.7
Low literacy	0.7
Immigration (undocumented)	0.3
No barriers	30.3
Don't know of barriers	13.0

B-4

** Questions with multiple responses possible may not add to 100%. See Appendix 4.

Attitudes Toward Pesticides

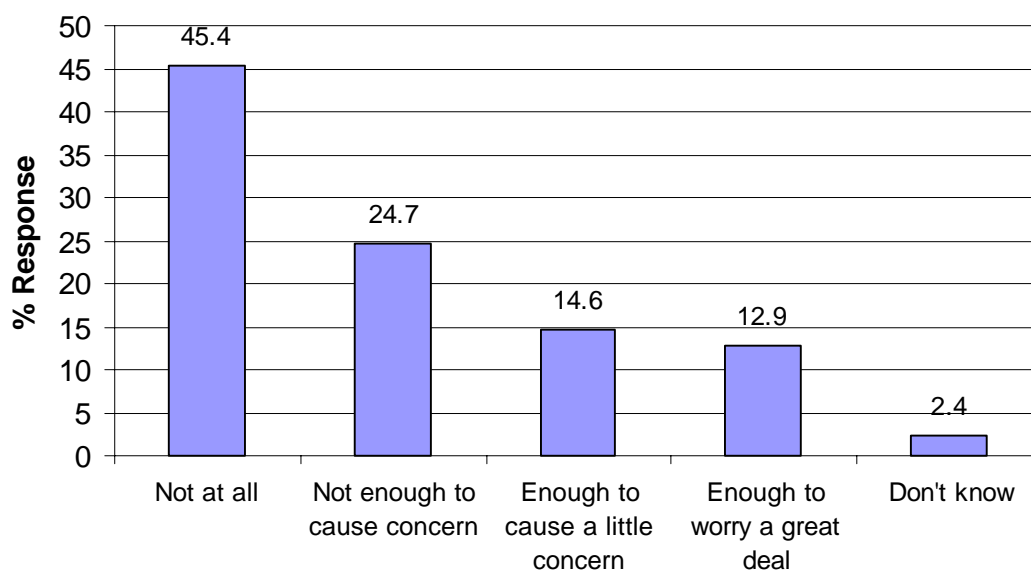
Highlights of Findings

More than one in four farmworkers believed that their health had been hurt by pesticides, enough to cause them concern or worry.

Nearly all farmworkers believed that pesticides brought home on their work clothes might harm their children.

More than one in four farmworkers stated that they believed their health had ever been hurt by pesticides "enough to worry a great deal" or "enough to cause a little concern;" most farmworkers believed that their health had been hurt by pesticides "not at all" or "not enough to cause concern" (Figure 7). Farmworkers overwhelmingly (99.0%) believed that pesticides from their work could get on their clothes and affect the health of children at home.

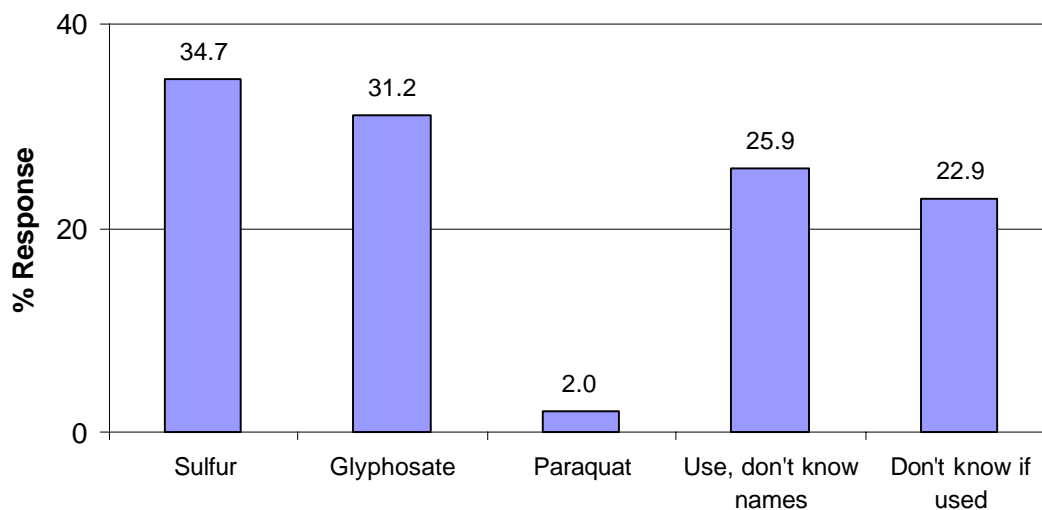
Figure 7. Farmworker Beliefs that Their Health has Been Hurt by Pesticides (N=138)



E-4

Farmworkers were asked which pesticides were used at their workplace. The two pesticides most commonly identified were: sulfur (34.7%) and glyphosate (Round-Up) (31.2%). Twenty-two other pesticides were mentioned by 16.8% of farmworkers, but each individual substance was identified by only a few workers (Figure 8). Very few (1.7%) of the farmworkers reported that no pesticides were used at work.

Figure 8. What Types of Pesticides are Used Where You Work? Please Name as Many... Top Five Responses (N=138)



E-1

Assessment of Pesticide Knowledge

Highlights of Findings

The majority of MLAs and fieldworkers could name skin as a route of pesticide exposure, but almost none knew all appropriate steps to take if pesticides spilled on the skin.

Fewer than one in five farmworkers knew all the appropriate steps to take if pesticide exposure occurred either by skin, mouth, or eyes.

Most MLAs and fieldworkers rely on their supervisor to tell them when it is safe to enter a treated field.

More than seven out of ten farmworkers stated that they obtain information about pesticides from their supervisor.

Farmworkers were asked several questions to assess their knowledge about various aspects of pesticide exposure that should have been covered in WSR training.

Because MLAs are required and expected to have more extensive training than fieldworkers, the questions assessing knowledge were analyzed separately for the two groups. The knowledge assessment portion of the survey is explained in detail below.

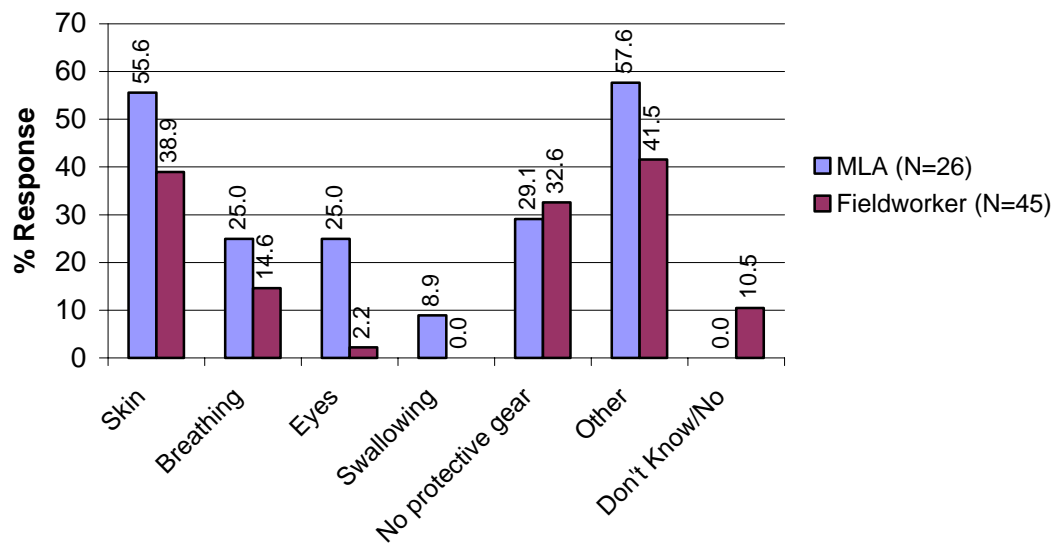
Exposure routes

To assess workers' understanding of exposure routes, workers were asked in an open-ended question to name the ways they could come into contact with pesticides (Appendices 4 and 5). During Phase I of the study, most workers did not name breathing, swallowing, or eyes as routes of exposure, and most fieldworkers did not name skin as a route of exposure (Figure 9a). However, also during Phase I of the study, 29.1% of MLAs and 32.6% of fieldworkers mentioned that not wearing protective gear was a method of pesticide contact. In addition, during Phase I of the study 57.6% of MLAs and 41.5% of fieldworkers cited other ways to come into contact with pesticides at work, such as early re-entry, mixing, loading, and applying pesticides, etc. Although the responses were indirect indicators of possible avenues of pesticide contact, these answers did not reflect the intent of the question.

Therefore, during Phase II of the study the interviewer probe or prompt, but not the actual question, was changed to clarify the question's intent. Changing the probe did not affect the way the responses for the two phases were evaluated and coded.

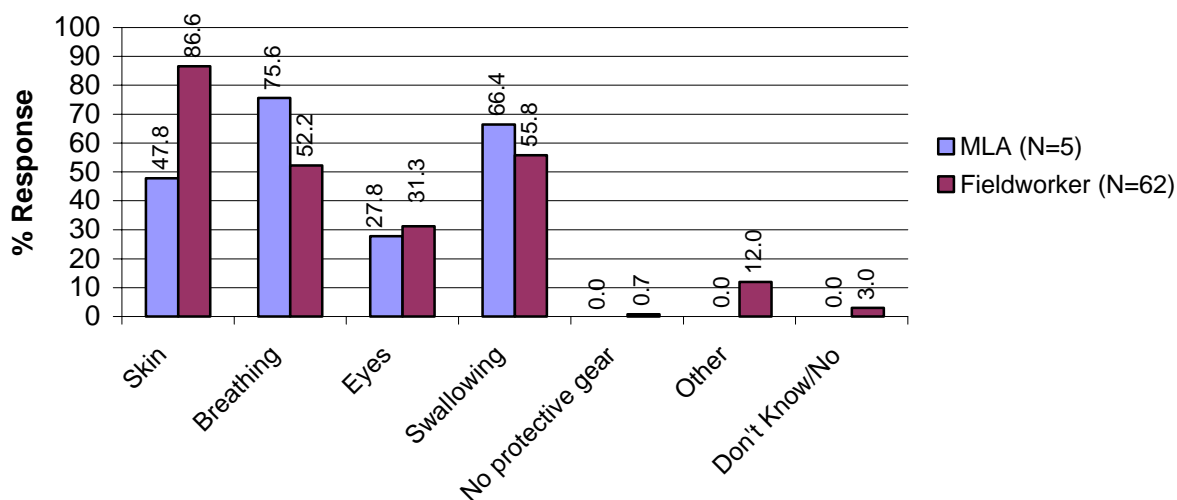
Responses during Phase II were different than during Phase I. During Phase II, many more MLAs and fieldworkers were able to name skin, swallowing, and breathing as routes of exposure; however, farmworker recognition of the eyes as a route of exposure remained poor (Figure 9b).

Figure 9a. How Do You Think Farmworkers Can Come into Contact with Pesticides While Working? Phase I



D-1/a

Figure 9b. How Do You Think Farmworkers Can Come into Contact with Pesticides While working? Phase II

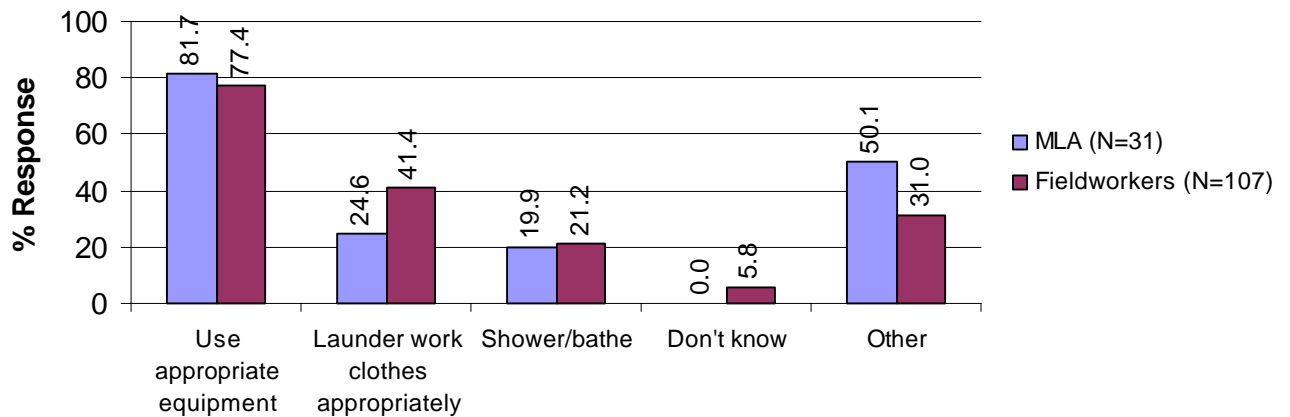


D-1/b

Ways to protect against pesticide exposure

Although most MLAs and fieldworkers were able to name the use of appropriate equipment as a method that could be used to prevent pesticide exposure, most did not cite the proper laundering of work clothes (separately), and only one in five cited showering or bathing (Figure 10). In addition, 50.1% of MLAs and 31.0% of fieldworkers mentioned miscellaneous methods such as not spraying when there is wind, following training instructions, and not entering recently sprayed fields.

Figure 10. What Are Some of the Ways to Protect Yourself from Exposure to Pesticides while Doing Farmwork?



D-2

Knowledge about steps to take in case of exposure

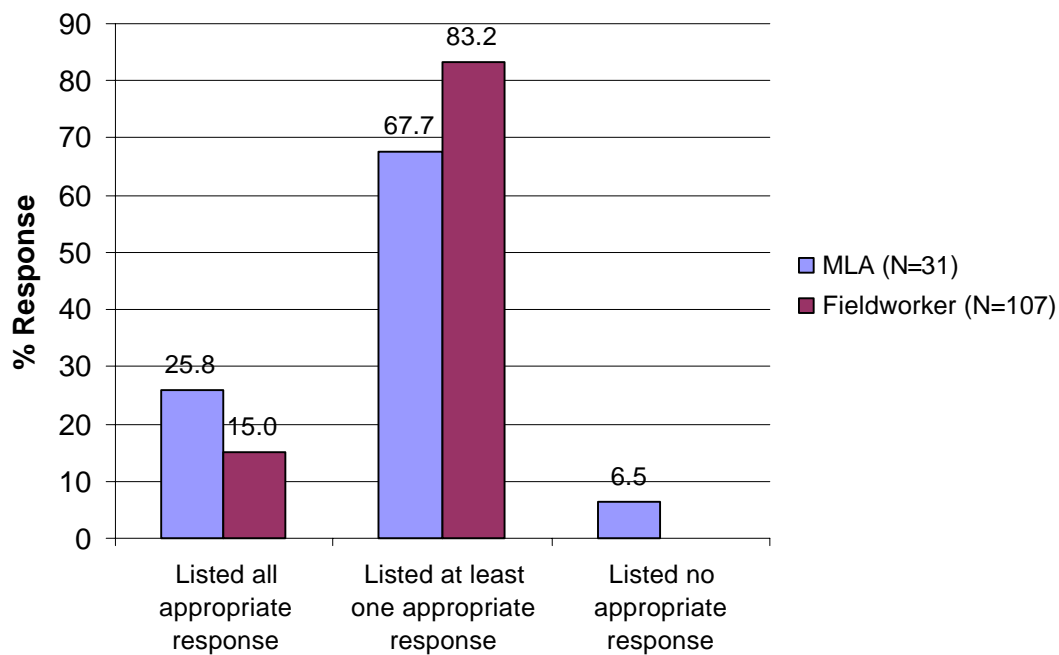
A series of questions were asked to assess knowledge about what steps should be taken in case of a pesticide exposure at work. Farmworkers were asked what they would do if pesticides splashed in their eyes, mouth, and on their skin. “Correct” responses are indicated in Table 8. These responses were deemed appropriate by the authors prior to coding the questionnaires and are based on recommended medical practice. Farmworkers were expected to generate their own responses, rather than having options read to them. Although most farmworkers mentioned at least one correct response for each type of exposure, few farmworkers mentioned all correct responses (Figures 11, 12, and 13). For these knowledge assessment questions (D-5, D-6, D-7), the number of correct responses listed by MLAs and

fieldworkers was compared using Wilcoxon Rank Sum test. No significant difference was found between these two groups of workers (eyes $p=0.4156$; mouth $p=0.1216$; skin $p=0.2387$). Knowledge about steps to take if exposed to pesticides by mouth (tells supervisors, see a doctor) was especially low, with 22.6% of MLAs and 28.0% of fieldworkers unable to list any appropriate response to this question (Figure 12). Incorrect and harmful or inappropriate responses were also mentioned (these responses were not separated by MLAs and fieldworkers): 49.3% would induce vomiting, 31.3% would drink milk, and 5.6% would drink water in the event of a mouth or swallowing exposure; if a splash occurred to the skin, 1.3% would keep working and ignore it and 3.5% would shower at home instead of rinsing immediately.

Table 8. Appropriate Responses for Various Exposures

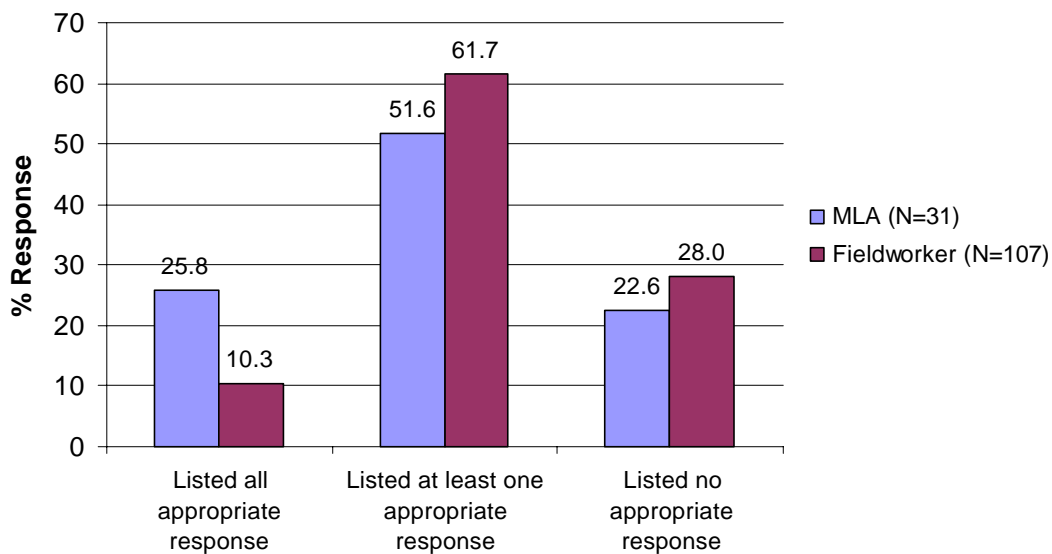
Eyes	Mouth	Skin
<ul style="list-style-type: none"> • rinse eyes immediately with water • tell supervisor • see a doctor immediately 	<ul style="list-style-type: none"> • tell supervisor • see a doctor immediately 	<ul style="list-style-type: none"> • wash skin immediately • remove contaminated clothing immediately • tell supervisor • see a doctor immediately

Figure 11. What Do You Do If You Get Pesticides in Your Eyes?



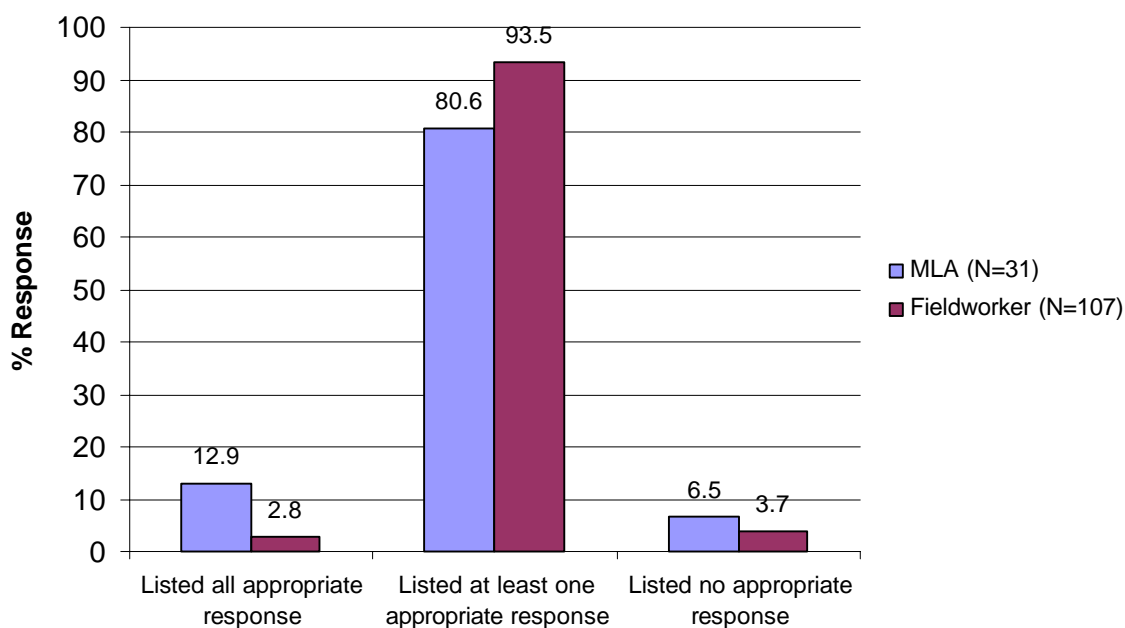
D-5

Figure 12. What Do You Do If You Get Pesticides in Your Mouth?



D-6

Figure 13. What Do You Do If Pesticides Spill on Your Skin?



D-7

Personal protective equipment use by MLAs

As one aspect of assessing the extent to which farmworkers incorporated information into practice, MLAs were asked to indicate what type of protective gear they used the last time they mixed, loaded, or applied pesticides (Table 9). The survey asked MLAs about personal protective equipment (PPE)(e.g., apparel and devices worn to protect the body from contact with pesticides including coveralls, respirators, etc.) used during mixing, loading, or applying pesticides, as well as other attire not defined as PPE but required by the label. The survey did not distinguish between “paper masks” and “disposable paper respirators,” the latter being certified by the National Institute for

Occupational Safety and Health (NIOSH). The most common types of PPE reportedly used were goggles, boots, chemically resistant clothing, heavy rubber gloves, and respirators.

Table 9. Equipment Reported Used by Farmworkers the Last Time They Mixed, Loaded, or Applied Pesticides.

Type	Percent Who Used Equipment** (N=34)
Goggles	85.3
Boots	82.4
Suit/chemically resistant clothing	79.4
Respirator	70.6
Hard hat	32.4
Paper mask (type unspecified)	32.4
Sleeves	29.4
Baseball cap	23.5
Gloves type 1 (cloth or leather)	11.8
Gloves type 2 (thin rubber)	20.6
Gloves type 3 (heavy rubber)	79.4
Bandana/handkerchief	14.7
Other	2.9

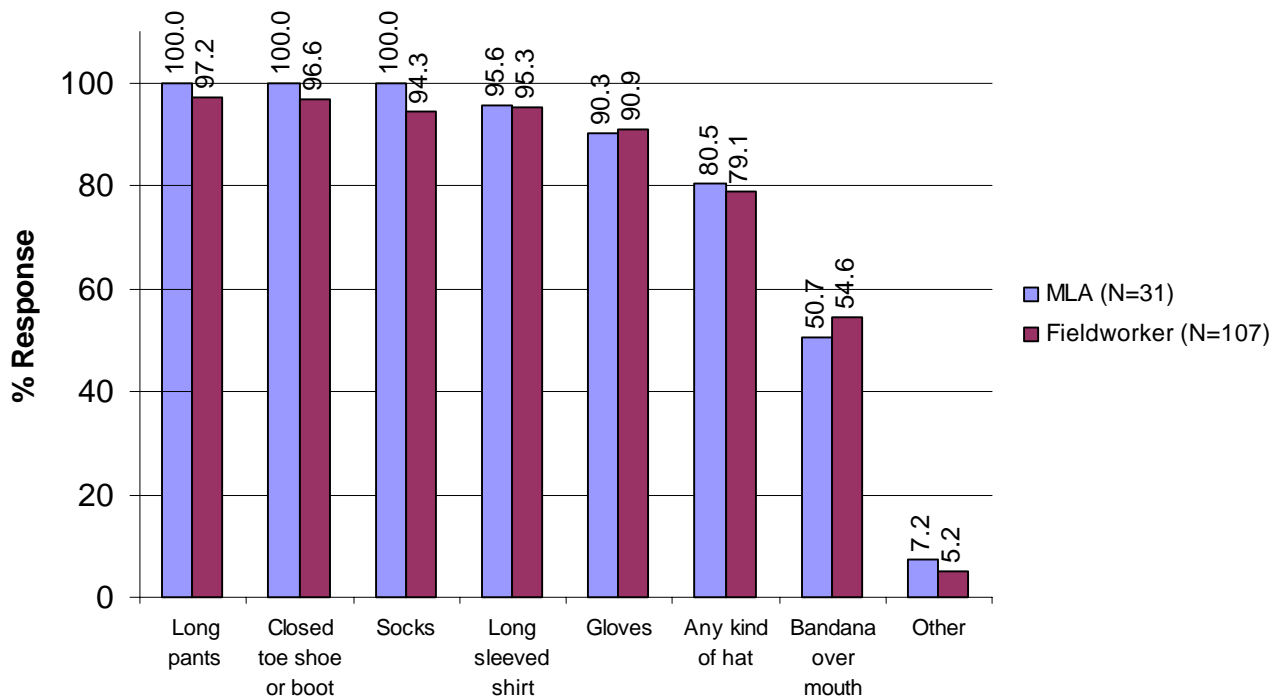
F-4

**See Appendix 4.

Clothing used by all farmworkers

All farmworkers were asked what type of clothing they typically wore to work (Figure 14). Virtually all MLAs and fieldworkers reported wearing long pants, closed-toe shoes or boots, and long-sleeved shirts. Fewer workers also reported wearing gloves and hats.

Figure 14. What Clothes Do You Usually Wear to Work?



G-11

Notification and sources of information about pesticides

The WSR has various requirements for notifying workers regarding pesticide application and safe entry into treated fields. Most farmworkers reported that they learned when it was safe to enter a field recently treated with pesticides by relying on their crew leader, supervisor, or employer to notify them. The majority of farmworkers also reported referring to signs posted in the field and in the work place. MLAs also reported using information from the pesticide label (Table 10). Apart from training, farmworkers stated that they received information about pesticides used on the job from a wide variety of sources, most commonly from their supervisors (Table 11).

Table 10. Methods Farmworkers Use to Know When It Is Safe to Begin Working in a Field That Has Been Recently Sprayed with Pesticides

Notification Method	Percent Response**	
	MLA (N=31)	Fieldworkers (N=107)
Crew leader/supervisor/employer	66.5	59.3
Signs posted in field	56.3	54.6
Signs in central work area	51.8	56.6
Pesticide label	23.1	1.8
Don't know	1.5	5.3
Other	22.4	6.3

D-4

**See Appendix 4.

Table 11. Who Gives You Information about Pesticides That May Be Used on the Job?

Sources of Information	Percent Response**	
	MLA (N=31)	Fieldworker (N=107)
Supervisors	79.7	73.3
Government agency	16.9	7.4
Fellow workers	13.5	14.6
Don't know	10.7	3.9
Friends	9.0	10.1
Insurance	6.2	7.1
Family	3.0	2.2
Union	3.0	0.0
Do not receive any information	1.5	6.1
Organizations	1.5	4.8
Employer/contractor	0.0	3.2
Medical clinic	0.0	0.9
Other - nonspecific	37.4	2.6

D-3

**See Appendix 4.

Practices at home

Farmworkers were asked about various practices at home to assess the extent to which information that might have been gained during trainings was incorporated into their daily lives (Table 12). The vast majority of farmworkers said that they shower after work, change out of their work clothes immediately after work, and launder work clothes separately from other clothes. Less than one in four farmworkers reported pesticide use at home.

Table 12. Practices at Home

Question (Question Number)	Percent Response
When do you usually bathe or shower? (I-17)	
	(N=138)
After work	94.5
Both before and after	5.2
Before work	0.3
Do you change out of your work clothes immediately after work? (I-20)	
	(N=136)
Yes	88.5
No	11.6
Do you launder work clothes separate from other clothes? (I-19)	
	(N=137)
Yes	91.4
No	8.6
Do you use pesticides in your home or garden? (J-9)	
	(N=66)*
No	75.4
Yes	23.9

* Not all farmworkers were asked this question. This question was added during Phase II of the study (Appendix 5).

Self-Reported Experiences of Pesticide Exposure

Highlights of Findings

More than seven in ten farmworkers felt they were exposed to pesticides while working.

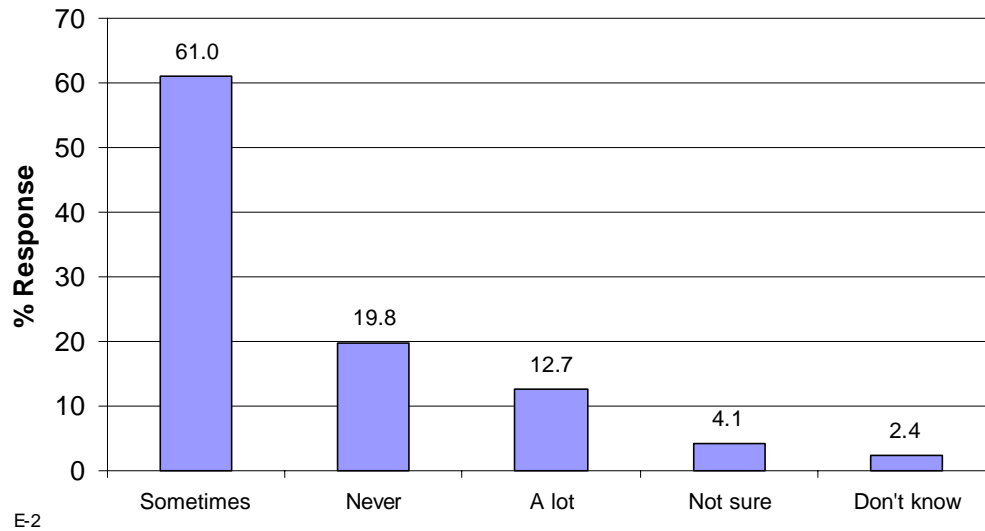
More than half the workers said they were working in the fields when they came into contact with pesticides.

Nearly two out of ten workers recalled a specific incident where they came into indirect contact with a pesticide.

Touching crops or plants after pesticide application was the most common way that farmworkers recalled being indirectly exposed to pesticides.

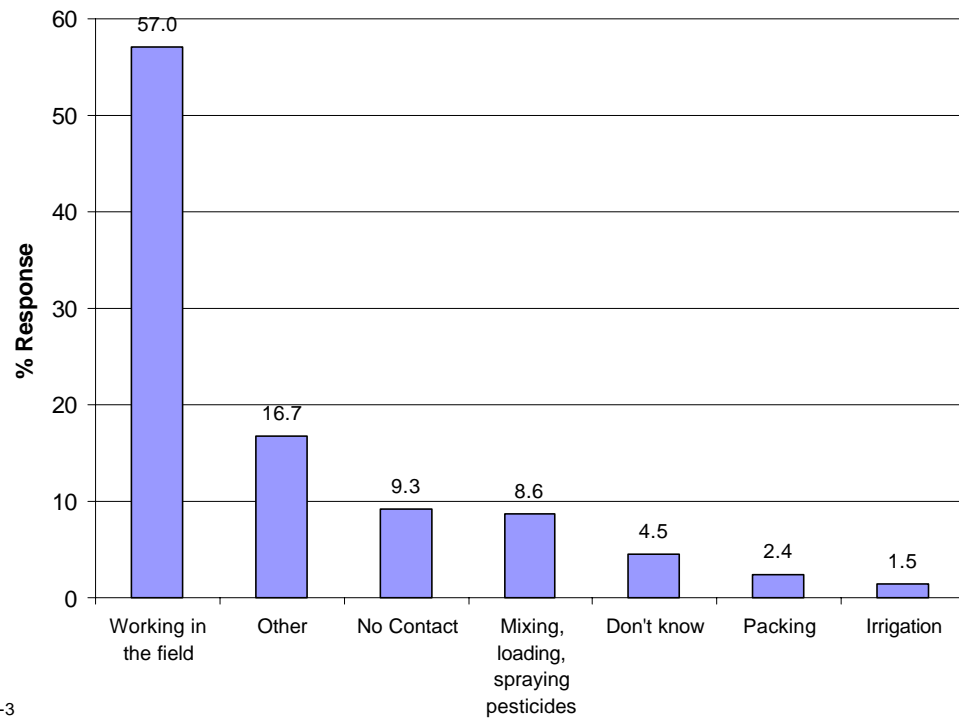
More than seven in ten farmworkers felt they were exposed to pesticides while working (Figure 15). Over half of the workers were working in the field when they came into contact with pesticides (Figure 16). Workers were also asked about the manner in which they may have indirectly come into contact with pesticides. Most workers could not recall a specific incident or manner of pesticide contact (Figure 17).

Figure 15. How Often Are You Exposed to Pesticides While Working? (N=136)



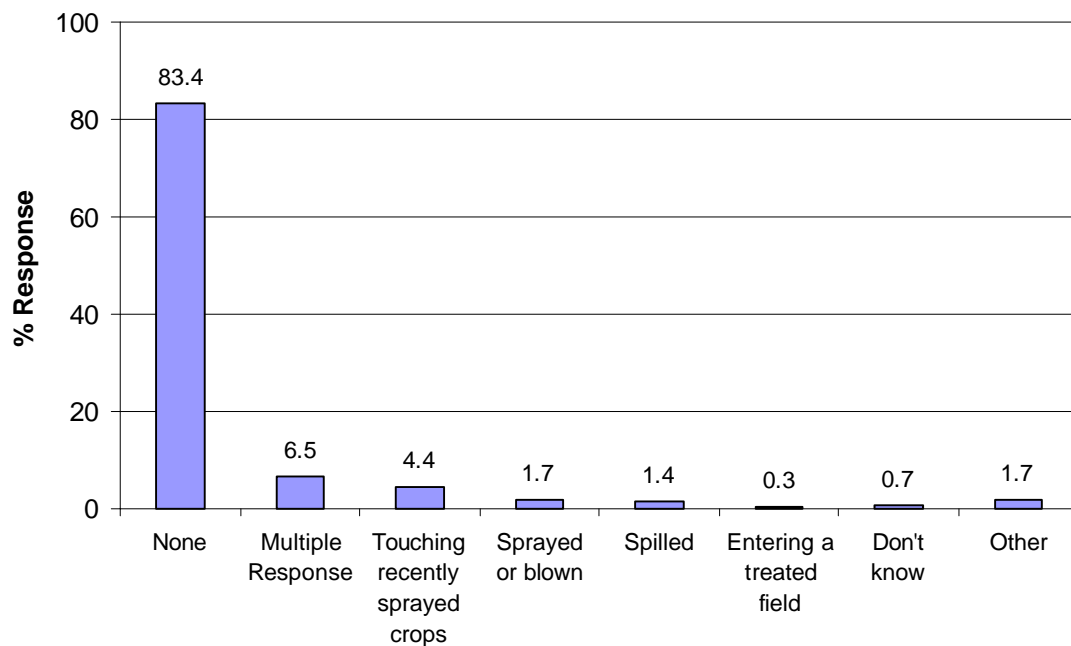
E-2

Figure 16. What Types of Work Do You Do When You Come in Contact with Pesticides? (N=135)



E-3

Figure 17. Ways in Which Farmworkers Were Indirectly Exposed to Pesticides (N=138)



G-1

Self-Reported Pesticide-Related Illness

Highlights of Findings

7.3% of workers stated that they had become ill due to contact with pesticides at the workplace.

Of those who stated they had become ill due to a pesticide exposure, fieldworkers lost an average of 1.5 days of work and MLAs lost no days of work.

Of those who stated they had become ill due to a pesticide exposure, fieldworkers worked an average of 11.6 days and MLAs worked an average of 36.6 days with symptoms.

Six out of ten farmworkers who stated they had become ill due to pesticide exposure did not notify their supervisor.

Workers who did not notify their supervisor of a pesticide-exposure incident also did not receive medical care in spite of symptomatic illness.

All workers were asked whether they had become ill due to working with pesticides in two ways: (1) direct contact while mixing, loading, or applying pesticides; and (2) indirect contact due to spills, sprays, etc. Ten of 138 (7.3%) farmworkers stated they had become ill because of contact with pesticides. Three of these workers stated they had become sick while mixing, loading, or applying pesticides in SLO in the past 12 months. Seven workers stated they had become sick while touching crops, pesticides being sprayed or blown on them, by entering a treated field, or other activities. Among the ten workers with self-reported pesticide illness, the following symptoms affected

the following organ systems: dermatologic, respiratory, gastrointestinal, and nervous system. Because the small numbers of farmworkers with self-reported pesticide illness, comparisons between illnesses due to mixing, loading, or applying pesticides and indirect or accidental exposure were not made.

The seven fieldworkers with self-reported pesticide illness lost an average of 1.5 days of work (SD 3.8); these fieldworkers continued to work with symptoms related to pesticide illness for an average of 11.6 days (Range: 0-90, SD 3.8). The three MLAs with self-reported pesticide illness did not lose work time; these MLAs continued to work with symptoms related to pesticide illness for an average of 36.6 days (Range: 1-90, SD 46.9).

Of the ten farmworkers with self-reported pesticide illness, six did not notify their supervisor of a pesticide exposure incident and also did not receive medical care, in spite of symptomatic illness. Among the four workers who notified their supervisor of a pesticide exposure incident, three sought care in a doctor's office or hospital emergency room and one received treatment cream from their supervisor. Of the three workers who sought care in a medical setting, two walked and one was driven by a supervisor to the health care facility.

Training Characteristics

Highlights of Findings

Most farmworkers had received pesticide-safety training in SLO County in the past 12 months.

Two out of ten farmworkers had not received any pesticide safety training in SLO County within the last five years.

One out of ten mixers, loaders, and applicators did not receive training in SLO County specific to their jobs.

Nearly one in three fieldworkers received training only through informal instructions in the field; nearly one in three MLAs attended a formal classroom lecture.

Training was typically conducted in Spanish, at the worksite, and with the use of videos.

Many farmworkers reported changing the way they worked as a result of training.

Farmworkers were asked in detail about pesticide safety training (Table 13). Of 138 farmworkers, 79.6% reported receiving training in SLO County in the safe use of pesticides within the past five years; 74.9% received training in the preceding 12 months; 20.3% had not received any training in SLO County in the past five years. Trainings took place at the work site (87.4%), at the County Agricultural Commissioner's office (0.5%), and at various other locations (12.1%). Training was

conducted in Spanish for 91.7% of workers; 1.4% of workers received training in English and 6.9% received bilingual training in Spanish and English.

Table 13. Training Received Regarding Working Safely around Pesticides

Question (Question Number)	Percent Response
Have you received training in the last 12 months? (H-2)*	(N=138)
Yes	74.9
No	25.1
Don't know	0.0
Have you received training in the last 5 years?** (H-3)	(N=35)
Yes	18.7
No	81.3
Don't know	0.0
Have you ever received a certification card for training in the safe use of pesticides?*** (H-1)	(N=138)
Yes	32.1
No	66.5
Don't know	1.4
Were you able to ask questions during the training? (H-11)	(N=100)
Yes	96.7
No	3.3
Don't know	0.0
Were you given any printed material? (H-12)	(N=100)
Yes	80.5
No	16.7
Don't know	2.8

*A Chi-Square test found no significant difference between MLAs and fieldworkers ($p>0.2$).

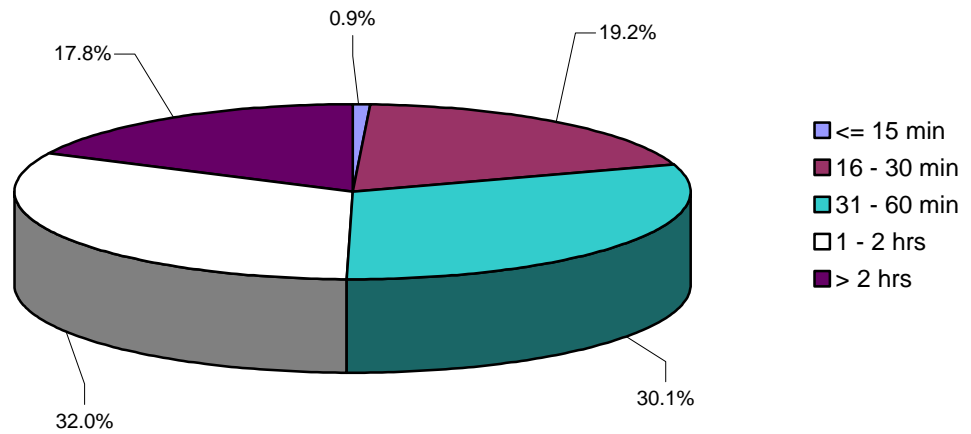
**This question was not asked of farmworkers who said "yes" to H-2.

***Only MLAs are provided cards while field workers are usually not unless EPA-approved materials are used during training. Cards are not required to be provided to any worker.

The majority of training lasted between a half-hour to two hours (Figure 18). Trainings were most often conducted with the use of videos (65.6% of MLAs and 67.6% of fieldworkers), written materials (68.1% of MLAs and 39.3% of fieldworkers), informal instructions in the field (17.7% of MLAs and 43.8% of fieldworkers), and a formal classroom lecture (33.2% of MLAs and 13.3% of fieldworkers) (Figure 19).

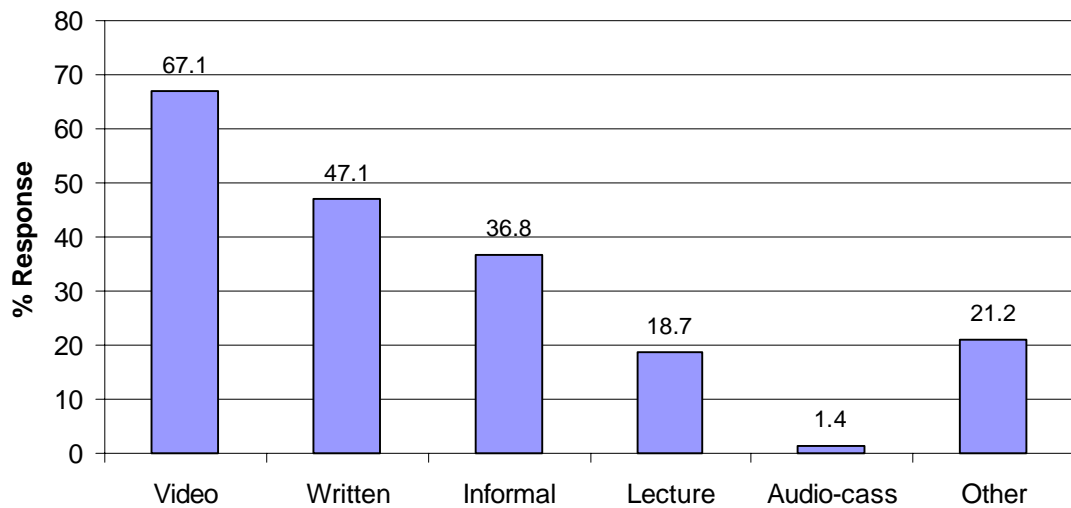
The trainings were most often conducted by managers or supervisors (43.0%), followed by growers or a designated staff person (25.8%), representatives from insurance agencies (9.3%), government (7.4%), community organizations (5.2%), and farm labor contractors (1.9%). Other sources of trainings mentioned by farmworkers were: “a chemical specialist,” “a man who goes around with paper and water,” and “a person from the county.” Farmworkers indicated that trainings most commonly included information about laws to protect workers from pesticide exposure, when it is safe to enter a field, and where to go for emergency medical care; other areas were not covered as frequently (Table 14).

Figure 18. Length of Farmworker Training (N=101)



H-7

Figure 19. Method of Training Delivery (N=100)



H-8

Table 14. Training Content

Did the training include. . .	Percent Response** (N=104)
	Yes
When it is safe to enter a pesticide field?	97.1
Where to go for emergency medical care?	87.6
Kinds of illnesses caused by pesticides?	80.6
How you can be exposed to pesticides?	73.1
What to do if exposed to or ill due to pesticides?	71.1
How to get info. about pesticides you work with?	67.6
How to protect family from pesticides?	51.5
Laws about	
(1) Protecting farmworkers from effects of pesticides	94.9
(2) Legal rights of employees	92.9
(3) Employers' responsibilities	96.8

H-10

**See Appendix 4.

Mixers, loaders, and applicators (MLAs) were asked if they had received a training specific to their jobs, as required under the WSR. Nearly all MLAs (91.9%) stated that they had received a training just for mixers, loaders, and applicators prior to working; 8.1% did not receive specific training. All MLAs who received specific training stated that the trainings included information regarding proper cleaning and maintenance of personal protective equipment. The majority of MLAs (90.6%) stated that a clean locker was available to store personal protective equipment; 6.6% did not have such a locker and 2.8% did not know.

Only farmworkers who were recruited during Phase II of the study (N=67) were asked if they changed the way they worked as a result of the training they received. Less

than half of the farmworkers (45.4%) stated that training had no effect on their work practices. Of the 54.8% who changed the way they worked as a result of the training, 49.7% said they learned to work more safely and "follow the rules." Other changes workers made were: hand washing patterns (26.0%), use of personal protective equipment (16.3%), awareness of signs (16.3%), clothes washing pattern (11.5%), using appropriate clothes and changing them (10.3%), personal preventive methods (5.1%); and miscellaneous other methods (8.3%).

Sanitation Provisions

Highlights of Findings

Nine of ten farmworkers always had drinking water and cups available.

Almost all farmworkers always had water available for hand washing.

Fewer than two of ten farmworkers have had to use the field as an "open air bathroom."

Farmworkers were asked about sanitation facilities at work. Among the 138 farmworkers, 92.2% always had drinking water and disposable drinking cups available. However, 17.7% of the farmworkers who had water available did not drink the water because they preferred their own, or liked the taste of theirs better. Among the 138 farmworkers, 95.2% always had water for hand washing and virtually all of the farmworkers (98.2%) used the water when available. Farmworkers used available water for: washing their hands before eating (91.8%), before leaving work (32.1%), before using the toilet (31.1%), after using the toilet (30.3%), before beginning work

(6.9%) and for miscellaneous reasons (11.3%). Shower facilities were available at the worksite for 44.8% of all farmworkers.

Among the 138 farmworkers, 13.8% stated that they sometimes had to use the field as an open-air bathroom. Of the 19 workers who reported using the field as an open-air bathroom, 12 said portable toilets were too far away, two said because there were no bathrooms, one said the bathrooms were too dirty, and three did not offer explanations.

Farmworker Suggestions

Highlights of Findings

Farmworkers suggested increasing the frequency of training and including more information on health effects.

Most farmworkers thought changing their own behavior would improve health and safety at work.

Farmworkers were asked for ideas on how to improve training. Of the 103 farmworkers who responded, 44.5% said no improvements were needed, 25.0% said they “didn’t know,” and 35.8% suggested a variety of improvements such as: increasing the frequency of training, more information on health effects and workers’ rights, providing different educational materials, giving more updated information, slowing down the pace, and using language and training methods which are more understandable.

When asked for suggestions about how health and safety could be better protected at work, the most common suggestion was to change employee behavior, attitude, and practices (40.2%). Other suggestions included: provide more safety training (15.8%) and information about pesticides and their health effects (12.1%). Farmworkers also cited employer field practices (14.6%), and a few wanted information on alternatives to pesticides (1.4%). Suggestions were also made for more information on the following areas: insurance coverage (4.3%) and communication with supervisors (2.7%). 16.1% had no suggestions or said that no improvements were needed.

DISCUSSION

The SLO-FS was a collaborative project that resulted in a cross-sectional analysis of farmworker perspectives in SLO County. As with all cross-sectional studies, the SLO-FS provides a glimpse of the sampled population at specific time periods during which the study was conducted. Although there were some limitations, the strengths of this study allow the generation of important conclusions with resulting recommendations for improving farmworker health and safety (Table 15).

Sampling Method

The SLO-FS utilized a random cluster sampling method. Blocks where interviews were conducted were randomly chosen for interviews from lists of Census Blocks. These Census Blocks were located in areas within ten cities that were identified based on local expert knowledge of those communities. The farmworkers interviewed for this study are representative of these areas, since their residences were randomly chosen. Because it was beyond the available resources to determine whether these areas were representative of the county as a whole, the study relied on expert community representatives to make this determination. If the cities and areas chosen by the community experts for the study accurately reflect those in which SLO farmworkers reside, then the sample chosen for the study can be considered representative of farmworkers who live and work in SLO county. For the remainder of this discussion, it is assumed that the SLO-FS sample is representative of farmworkers who live and work in SLO County.

Alternative sampling methods that were not chosen include employer-based and convenience sampling. The first sampling strategy would have entailed recruiting farmworker subjects through employers (growers and labor contractors). This method could have been structured to obtain a random sample of workers, but was rejected to minimize the possibility of response bias as well as repercussions at the workplace that may have occurred as a result of participating in the study. Another possible method would have entailed obtaining a convenience sample of farmworkers by recruiting participants at gathering places, such as churches, fairs, and community meetings. This method was rejected because it was less likely to result in a sample of farmworkers representative of SLO County.

Given unlimited resources, a random community sampling strategy would have enumerated farmworkers in the county and then chosen Census Blocks randomly based on farmworker residence. In the present study, blocks for conducting interviews were chosen from areas identified by community experts (FSI committee members) for their farmworker density. The FSI committee felt that these areas were representative of the county. Because no preexisting enumeration was available for farmworkers in SLO County, and resources for conducting an enumeration were not available, the cluster sampling method relied on the knowledge of local experts to identify areas where farmworkers were likely to live. However, interviewers found that fewer farmworkers lived in these communities than had been anticipated during the design of the study.

Several potential explanations exist for the findings of low numbers of farmworkers in the areas chosen for interview. Some factors, which may explain the findings, are listed below:

- ◆ Farmworkers live in other California counties and commute to work inside SLO County. It is not possible to assess the extent to which residence in other counties played a role in the low numbers of farmworkers. Information from Census 2000 may help to quantify the farmworker population in this and surrounding counties.
- ◆ Farmworker population in SLO County varies by season. This would be the case if farmworkers migrate to this county to temporarily reside and perform agricultural work during certain seasons. Interviews were conducted during three different seasons (late summer, fall, and early spring) to increase the numbers and variety of farmworkers in the SLO-FS. However, it is possible that the study times did not correspond with the seasons of highest farmworker population in this county. Since the seasonal variation of the farmworker population in SLO County is unknown, the relationship of study times to the number of eligible subjects cannot be quantified.
- ◆ The areas were chosen correctly, but the random block selection process was faulty and resulted in the inability to identify blocks with large numbers of farmworkers. This may have occurred on some blocks (that is, by chance, some blocks may have had smaller numbers of farmworkers). However, if the target areas accurately identified areas where farmworkers resided, it is unlikely to explain the consistently low farmworker density in most blocks.

- ◆ The Census Block information was outdated. While block information was based on 1990 Census data, it is unlikely to be the sole explanation for these findings. Information on farmworker density based on Census 2000 data would have been useful, but was not available at the time of the study.
- ◆ Target areas in the communities were misinterpreted, or errors were made in choosing Census Blocks corresponding to areas within cities identified by local experts. Because target areas were identified by rough diagrams, some Census Blocks or portions of blocks may have been outside these areas. However, unless this error occurred consistently throughout all targeted areas, it is unlikely to have caused a systematic error. All maps and corresponding census blocks were scrutinized at the completion of the study and failed to show consistent omissions or misinterpretations.
- ◆ Expert knowledge of selected areas was inaccurate or was based on previous patterns of farmworker residence. Although these areas may have housed a higher density of farmworkers in the past, changing economic climates may have resulted in higher income residents moving to these areas. Anecdotal reports from interviewers suggest that this may have been a factor accounting for the low yield of farmworker households.
- ◆ Interviewers failed to identify certain housing units. Interviewers were instructed to identify all types of housing units, including units for rent behind houses facing the street. However, it is still possible that certain housing units were missed.

- ◆ Residents on the blocks chosen for survey did not want to participate in the survey and therefore did not identify themselves as farmworkers. This is possible but its role cannot be assessed.

There are two main consequences of smaller sample size. First, a small sample size reduces the precision of the estimate, or increases the “margin of error” of the results. That is, the true value for the SLO County farmworker population for a particular question may be above or below the result obtained in the study by a larger margin than with a larger sample size. In addition, small sample sizes reduce the ability to detect significant differences between subpopulations.

In spite of low numbers of farmworkers on the blocks chosen for interviewing, the participation rate was very high. Therefore, the study was most likely not biased due to systematic non-response or refusal by potential participants. Factors that are likely to have contributed to the high participation rate include the time the interviews were attempted, the interviewers' willingness to return to conduct interviews at convenient times, the monetary incentive, and the use of community interviewers to increase farmworker trust. The role of outreach materials (flyers and public service announcements) is unclear, but may have helped to increase participation by increasing residents' familiarity with the study. Factors that may have reduced response bias are utilizing trained community interviewers, conducting interviews in homes (where subjects are less likely to feel constrained by peer or employer pressure), and subject recruitment that occurred independently of employers. The

available data suggests that the participation rate was high. The community-based sampling strategy resulted in a selection bias toward farmworker who live and work in SLO County. The farmworkers interviewed for this study are representative of those who live in the areas year-round sampled. However, workers who live outside of these areas and work in SLO County were not captured by this study. Whether or not selection bias occurred due systematic failure by interviewers to identify certain farmworker housing units is unknown. As stated previously, because the sample size is small, this study does not have the power to detect differences in responses among subgroups, and for questions with few respondents.

SLO Farmworker Population

The SLO-FS is a cross-sectional analysis that captured farmworkers living in chosen areas of SLO County at the times the survey was conducted. The findings from this study show that farmworkers who live and work in SLO County, like California farmworkers in general, are primarily young married males born in Mexico who live with other family members. Farmworkers in this sample are, on average, 3.4 years older than the California farmworker population (Rosenberg et al., 1998). On average, SLO-FS farmworkers have spent almost two more years in the U.S. than their California counterparts. As expected, most farmworkers had worked most recently in a variety of commodities, most commonly grapes, and had performed various tasks, most commonly pruning. The NAWS uses a different method to gather and code crops and tasks, so comparisons cannot be made with SLO-FS data. The crops and

tasks reported by SLO-FS farmworkers may reflect the seasons during which the survey was conducted.

The SLO-FS describes a farmworker population that primarily lives in the county year-round and is more geographically stable than their California counterparts. The NAWS reported that although 78% of California farmworkers are not willing to travel beyond daily commute distances to look for work, 57% of these farmworkers (74% of undocumented workers and 47% of legal permanent residents) migrated from one location to another to find work in 1994-1997 (Rosenberg et al., 1998). The slightly more than 10% of the SLO-FS sample who lived in SLO county for only part of the year may have been "migrant" workers. The SLO-FS did not assess the mobility of the SLO County farmworker population in the same manner as the NAWS.

Socioeconomic issues were not addressed by the SLO-FS. However, workers who live and work in the county year-round are more geographically stable, and thus may be more economically stable than those who travel longer distances and across county lines to work. The findings of the study as a whole reflect those for stable workers.

One goal of this study was to evaluate conditions relevant to the WSR in SLO County so that working conditions could be improved for all farmworkers in this county. The study design excluded farmworkers who did not live in this county at the time of the survey or who did not work in the county for the month preceding the interview. It was anticipated that by including various types of housing units in many different

neighborhoods, farmworkers who lived and worked in SLO County for only the parts of the year during which the study was conducted (migrant farmworkers) would be included in the survey. While approximately 10% of the sample appear to be migrant workers, it is unknown if this is representative of agricultural workplaces in SLO County. Possible interpretations of the SLO-FS proportion of migrant farmworkers are: (1) The findings accurately reflect working conditions during the time periods of the study; migrant farmworkers' residence varies by season; (2) The findings underestimate the proportion of migrants due to study design methods such as selecting farmworkers for interview through community residence rather than through employers.

Training

Several encouraging findings emerge from this study. Nearly 80% of farmworkers surveyed stated that they have received training, most within the last year. Slightly over half of the farmworkers asked stated that they changed their work practices as a result of the training they received. This suggests that the trainings provided some farmworkers with new information that they felt was applicable to their work. The question that asked about changes in behavior as a result of training added prior to the second phase of the study and may not reflect the SLO-FS population as a whole. Another positive finding was that according to most farmworkers, trainings covered many topics required by the WSR, including when it is safe to enter a treated field and information about pesticide safety regulations, their legal rights as workers, and

employers' responsibilities. However, this study did not assess the quality of this information or how farmworkers benefited from this knowledge.

It is important to note that about a fifth of workers, including some MLAs, have not been trained in the last five years in SLO County. While it is possible that some farmworkers were trained in other counties, the survey did not ask about trainings conducted outside SLO County. Farmworker responses indicated that many of the topics required by the WSR are covered in trainings. However, some farmworkers stated that other topics were not covered during training. Farmworker responses suggested that the following topics were not covered in all trainings: exposure mechanisms and routes, actions to take if pesticide exposure occurs, methods to reduce exposure to pesticides, and preventing secondary contamination of households and family members. However, the survey could not differentiate if trainings did not cover certain topics or if respondent did not recall if those topics were covered.

Based on previous farmworker surveys, there is considerable regional variation in farmworker self-reports of training received. According to California-wide survey of farmworkers, 57% of respondents stated that they had received training in the safe use of pesticides (Villarejo et al., 2000). In contrast, approximately a third (35.2%) of North Carolina farmworkers stated that they had ever received training about pesticide safety (Arcury et al., 1999a). When North Carolina workers did receive training, it was brief, with little opportunity for interaction. Regardless of training, North Carolina

farmworkers had poor knowledge of the sources of pesticide exposure and methods for preventing exposure.

The prevalence of pesticide safety training among SLO-FS farmworkers is higher than the rates reported in the studies described above. Various factors may account for this finding. Although employer behavior or compliance was not directly assessed by the SLO-FS, the high rate of training provides indirect evidence that employers of farmworkers who live and work in SLO County generally provide farmworkers with training, sanitation, and certain requirements of the WSR and Field Sanitation Standard. Another factor, which could explain the high rate of training, is the FSI. The FSI was created as an interagency taskforce whose purpose is to improve conditions for farmworkers; it is unique to this county. The continued work of this committee suggests that there is awareness and appreciation for issues related to farmworker health and safety among a diverse and influential group, including advocacy groups, employers, and regulators. Furthermore, the SLO-FS population is more geographically stable than the California farmworker population. This could imply both economic and occupational stability, which may be reflected in the high rate of training. Other factors, such as training programs for trainers conducted in this county (for example, the University of California, Integrated Pest Management Program's Train the Trainer Workshops) may influence the rate and quality of training, but their role was not assessed by this study (O'Connor-Marer, 2002).

It should be noted that employer compliance with training requirements does not ensure the protection of farmworker health and safety. For example, both farmworker

and employer beliefs may influence practices in the field. Researchers in North Carolina found that employers underestimate the risks of pesticide exposure faced by workers and feel that farmworkers do not want to use safety and sanitation facilities provided to them, while farmworkers report that employers do not adhere to regulations (Arcury et al., 2001a). Cultural beliefs and perceptions of lack of control may account for farmworkers' reluctance or inability to engage in safe work practices (Austin et al., 2001). Other factors, such as employer support for workplace health and safety also affect working conditions. For example, in North Carolina, fewer than half of workers surveyed (48.1%) reported that their employer told them when pesticides were applied or posted signs around treated fields (48.3%). Only 37% stated that their employers post information on pesticide applications in a central location (Arcury et al., 1999a). Employer behavior pertaining to these requirements was not assessed by the SLO-FS.

In the SLO-FS, slightly more than half of farmworkers surveyed stated that they changed their work practices as a result of training. Many farmworkers stated that the changes they made were to "follow the rules." This may reflect an emphasis of the training content or the trainer. While following rules that effectively provide protection should be encouraged, this should not be the sole focus of WSR trainings. Farmworkers who understand that some rules exist to prevent adverse health effects may be more likely to adhere to them. Trainings should focus on the education of workers regarding occupational pesticide hazards and ways to prevent illness through appropriate behavior. Although this was not assessed in the survey, farmworkers who

did not change their behavior may have been aware of the information prior to the training, may not have understood how to change their behavior, or may not have seen the relevance of the training to their work practices.

Overall, workers reported wearing long pants and shirts and closed-toe shoes while performing agricultural work. MLAs reported using a variety of equipment while mixing, loading, or applying pesticides. Some of the equipment used may not meet the WSR definition for protective equipment (Meister, 1999). However, the SLO-FS did not evaluate whether particular equipment was appropriate for the task or if it was used correctly. The survey did not distinguish between surgical-type paper masks and disposable paper respirators. The latter are certified by NIOSH (30 CFR Part 11). Surgical-type paper masks are not protective against toxic hazards (Douglas, 1991; Nelson, 1998).

Although the Field Sanitation Standard was not promulgated with the intent to prevent pesticide-related illness, these requirements help to maintain a healthy working environment. Certain requirements of the WSR, such as decontamination facilities, overlap with the Field Sanitation Standard. Other studies have indicated that the provisions specified in the Field Sanitation Standard are generally more widely provided to farmworkers than those in pesticide safety regulations. In a California survey, toilets were available to 88% of farmworkers, potable water and disposable cups to 79%, and wash water to 82% (Villarejo et al., 2000). In North Carolina, drinking water was always or usually available to the majority of farmworkers surveyed (89.6%), although disposable cups (69.9%), separate wash water (44.1%), and toilets

(28.2%) were not as prevalent (Arcury et al., 1999a). The findings of the SLO-FS are consistent with the preceding studies. Nearly all farmworkers surveyed stated that were provided with drinking water, wash water, and toilets, as required by the Field Sanitation Standard. However, it is notable that some farmworkers do not consistently get these required elements at the workplace. According to farmworker responses, showers were available less frequently than other sanitation provisions.

Knowledge Assessment

No single question can be used to assess knowledge. Furthermore, a comprehensive assessment of knowledge related to topics that should have been covered by trainings was not within the scope of this survey. The survey attempted to assess certain aspects of knowledge related to pesticides using several different questions.

Farmworkers were asked about their attitudes toward pesticides and were asked to identify potential routes of exposure, ways to protect themselves from pesticide exposure while working, sources to obtain information about pesticides, methods used to learn when it is safe to enter treated fields, and emergency measures to be used in the event of a pesticide exposure. Some of these are issues with which farmworkers should be familiar if they have been effectively trained.

Some of these questions were asked utilizing an open-ended format to avoid influencing farmworker responses by offering suggestions for answers. In addition, these types of questions were chosen to assess learning because they recreated the

type of knowledge required during an actual pesticide exposure. However, open-ended questions may be misinterpreted and are difficult to code. In particular, a large number of responses to the question assessing knowledge about routes of exposure (Question D-1) were difficult to code into the intended "correct" responses, particularly for the first phase of the study. During the first phase of the study, few workers identified all the potential routes of exposure (Question D-1). In the second phase, responses were coded more easily; this was a consequence of rewording the probe (Appendix 5). Because responses were easier to code after probe rewording, the second phase of the study most likely is a better indication of farmworker knowledge for this particular question.

Based on the various questions asked as part of this study, this farmworker population has incomplete knowledge about issues related to pesticide safety. Responses obtained during Phase II of the study indicate that most workers are generally aware of some, but not all, routes of pesticide exposure. In addition, responses obtained during Phase I of the study suggest that farmworkers may be generally aware that lack of "protective gear" may allow pesticides to enter the body and that early reentry, mixing, loading, and applying pesticides may lead to exposure. No significant difference was found between the performance of MLAs compared to fieldworkers on the knowledge assessment portion of the questionnaire (Questions D-5, D-6, D-7). The inability to find a difference may have been due to small sample size.

Farmworkers were aware that children at home could be exposed as a result of secondary contamination, although few mentioned laundering clothes or showering as a means of reducing exposure to pesticides. In contrast, farmworkers responses indicate that they shower after work and their work clothes are laundered separately from the rest of the family's laundry. This suggests that for these particular behaviors, farmworkers may be acting appropriately without realizing that these actions affect exposure to pesticides.

Based on the findings in this study, few farmworkers are able to describe what to do in the event of pesticide exposures to the eyes, skin, or by swallowing. Furthermore, many would use harmful or inappropriate measures, such as inducing vomiting or drinking milk in case of accidental ingestion. One practice that could hamper receiving medical care is the failure to notify a supervisor about a pesticide-related illness. Both the knowledge assessment portion, as well as the self-reports of pesticide illness, show that farmworkers who fail to notify a supervisor of a suspected pesticide exposure or related illness may also fail to seek or be taken to medical care.

Responses suggest that supervisors are important role models for farmworkers. Trainings were most often conducted by managers or supervisors, followed by growers or a designated staff person. Moreover, most farmworkers learn from a crew leader, supervisor, or employer when it is safe to work in a treated field. Finally, farmworkers most commonly receive information about pesticides that are used on the job from supervisors. This suggests that, growers, employers, and supervisors can

greatly influence farmworker health and safety. Thus, it is essential to ensure that all supervisors, including labor contractors, crew leaders, and employers, are well trained on the effects of pesticides and other aspects of the WSR. Previous studies have documented that growers' cultural beliefs and attitudes toward workers affect communication and training (Arcury et al., 2001a; Austin et al., 2001; Larson, 2000a). It is important to include both growers and workers in culturally-appropriate trainings. In addition to supervisors, SLO-FS farmworkers also obtain information from friends or coworkers. This suggests that peer educators may play an important role in pesticide safety training.

The median 6th grade education achieved by SLO County farmworkers is similar to findings from other California farmworker surveys (Villarejo et al., 2000; Rosenberg et al., 1998). While the majority of SLO-FS workers state that they read at least one language well, the findings suggest that many workers may have trouble obtaining information from complex printed material, regardless of the language in which they are written. This implies that printed material should be targeted to the 6th grade reading level. Moreover, printed material should not be the only method used for training.

Farmworkers in SLO County may receive training with several different instructional methods, with videos being the most common. Videos may be effective if the content is of high quality and they are accompanied by other interactive educational methods. The SLO-FS found that videos were widely used for all farmworkers, that more MLAs

received formal classroom lectures and printed materials, and more fieldworkers received informal instruction in the field. Both classroom courses and teaching at worksites, such as tailgate trainings, may be effective methods of instruction.

In spite of the finding that most trainings have positive attributes (they cover many required topic areas, are provided in an appropriate language (Spanish) and workers have the opportunity to ask questions), pesticide-related knowledge as assessed by the SLO-FS was incomplete. This suggests that quantifiable factors, such as the ability to ask questions, the language, method, and duration of training may not be a sufficient measure of training efficacy. Instead, other factors may also be important. While the study assessed several characteristics of trainings, it was not designed to analyze which aspects of training predict knowledge. Factors that impact knowledge of farmworker trainees and complexity of the subject material are: information content, the knowledge and ability of the trainer, and the frequency of training. A combination of these factors may account for the quality of knowledge in this population. In addition, workers' own prior experience with pesticide use, safety training, and cultural beliefs may affect their understanding of educational material (Arcury et al., 2001b). The complex knowledge required in agricultural work settings suggests that training every five years, as is required for fieldworkers, may not be frequent enough.

Issues Related to Health

The finding that most SLO County farmworkers felt that they were in good health contrasts with the findings of the California Agricultural Workers Survey, which documented the high prevalence of multiple medical problems among California farmworkers (Villarejo et al., 2000). This may be due to the difference between subjective self-reports of health status and objective measures of health. Additionally, farmworkers may be unaware of chronic health conditions, such as diabetes, that usually require regular access to medical care for diagnosis. The finding that musculoskeletal injuries are a common health concern among farmworkers is consistent with the findings of the NIOSH expert panel that ranked musculoskeletal conditions as the top occupational illness in this population (Villarejo and Baron, 1999). The frequency of responses does not necessarily reflect the relative importance of these health concerns for farmworkers. A scale to gauge concern was not used in this study, but could be used to address this issue. The responses in this study indicate that farmworkers are concerned about pesticides in addition to other occupational hazards.

Previous research has shown that few California farmworkers visit a health care practitioner for routine health care (Villarejo et al., 2000). Farmworkers who lack regular medical care or who have never used health care facilities may be more likely to choose an emergency room or hospital than a doctor's office (or migrant health clinic) for treatment of an acute illness because access to these facilities is easier and

they may be more aware of these services. In the event of an actual illness or injury, the type of health care facility actually utilized may be different from the response obtained in this survey. Farmworkers' choices of settings for medical care in the event of an illness have implications for the education of health care providers. Since farmworkers in the SLO-FS most commonly stated that they would seek care in an emergency room or hospital, providing education to physicians and other providers in these institutions on pesticide illness and other issues relevant to farmworker health is important. However, physician education should not be restricted to these facilities, as farmworkers may seek care in other settings as well.

Relatively few farmworkers in this study stated that they would use migrant health clinics in case of an illness. This may be because farmworkers in this survey did not distinguish between a Migrant Health Clinic, and a non-Migrant Health Clinic doctor's office. However, data are consistent with findings that the Migrant Health Care system appears to be underutilized among farmworkers nationwide (Das et al., 2001).

Factors that might account for the low preference for the migrant health clinics among SLO-FS farmworkers are: (1) lack of knowledge about the system; (2) small numbers of migrant health clinics in this county; and (3) lower use of the Migrant Health Care system by a geographically stable population. In addition, the SLO-FS workers are relatively geographically stable and may utilize the Migrant Health Care system less than those who migrate for work.

The multiple obstacles to health care cited by farmworkers in SLO County reflect those of their counterparts statewide (Azevedo, 2000). Other research has shown that issues that should be addressed to improve farmworkers' access to health care include: (1) provision of medical insurance and (2) overcoming cultural and language barriers between farmworkers and clinic staff, and between farmworkers and their employers (Austin et al., 2001; Azevedo, 2000).

Most SLO-FS farmworkers stated that they are exposed to pesticides during the course of their work. Although the SLO-FS did not assess farmworkers' risk of exposure during the normal course of work, various studies have addressed this issue (Das et al., 2001; Fenske, 1997; McCauley et al., 2001). The finding that most farmworkers report pesticide exposure while working in the fields may reflect the predominance of fieldworkers in the SLO-FS. The level of concern expressed about the effect of pesticides on health exceeds the numbers of self-reported acute pesticide-related illnesses. This suggests that farmworkers' concern over pesticides is not limited to self-reported acute illness events.

Ten of the 138 farmworkers interviewed in the SLO-FS stated that they had experienced a pesticide-related illness at some time. Workers with self-reported pesticide illness may lose work time or may continue to work while experiencing illness-related symptoms. During 1995-1999, CDPR Pesticide Illness Surveillance Program (PISP) reported nine occupationally related agricultural pesticide illness cases in SLO County (CDPR, 2001). Because of various differences between the

SLO-FS and CDPR's PISP, rates of illness cannot be compared. Of the ten workers who reported pesticide illness, six stated that they did not see a health care provider for their symptoms. Farmworkers who do not seek or are not taken to medical care for a suspected pesticide-related illness do not receive appropriate treatment and would not be identified by the physician-based pesticide illness tracking system. Pesticide illnesses may be undercounted by existing tracking systems for various reasons, including farmworkers' lack of reporting (or recognition) of pesticide illness, physicians' failure to diagnose or report pesticide illness, and loss of paperwork (Das et al., 2001). Reports to illness-tracking systems most likely under-represent the true incidence of acute pesticide illness. The number of self-reported pesticide illnesses were small, requiring caution to be exercised when generalizing the findings related to illness events to SLO County farmworkers. Although the degree of illness under-reporting by farmworkers cannot be quantified by this study, the SLO-FS findings suggest that it occurs. The findings imply that farmworkers should be specifically trained about the importance of reporting a suspected pesticide exposure or illness both to a supervisor and to a medical care facility.

Farmworker Suggestions

Farmworkers provided varied suggestions for improving training and workplace health and safety. The wide variety of suggestions for improvements made categorization of responses meaningless. This suggests that this type of survey is not the appropriate mechanism to elicit farmworker suggestions for making changes. Instead, smaller

discussion or focus groups of selected workers could best address these types of questions. The large numbers of workers who thought no improvements in training were necessary is not necessarily an indication that trainings cannot be improved. Instead, incomplete knowledge of pesticide safety suggests that SLO-FS farmworkers may have been unable to make suggestions because they either (1) did not know how to assess the quality or content of trainings; (2) had not thought about the issue; or (3) were unwilling or unable to make suggestions that might pertain to their employer. Of those that did make suggestions, most stated that changing their own behavior, rather than employer-made changes, would improve workplace health and safety. This implies that these workers feel that they should take responsibility for their own safety.

Public Health Approach to Prevention

The SLO-FS evaluated farmworker perspectives regarding regulations intended to reduce agricultural occupational illness. Although not addressed specifically by the study, an issue raised by the evaluation of pesticide-related illness and assessment of the efficacy of pesticide worker safety regulations is the amount of exposure reduction or "protection" that training and notification can provide. A public health approach to pesticide illness prevention involves simultaneous implementation of primary, secondary, and tertiary prevention measures. Decontamination following exposure to pesticides and provision of medical treatment for illnesses are examples of tertiary prevention measures, undertaken after an adverse effect has occurred. These measures help to prevent more serious health consequences from occurring.

Frequent and effective training and appropriate notification are examples of secondary prevention measures designed to reduce worker exposures to pesticides before illness occurs. However, even with perfect implementation, training and notification do not fully prevent worker exposure to pesticides. Rather, these measures are designed to reduce exposures to an “acceptable” level of risk. The reduction or elimination of the use of a toxic pesticide is an example of a primary prevention measure designed to prevent worker exposure to pesticides from occurring. Primary prevention measures are the most effective way to ensure the protection of all workers, including vulnerable sub-populations.

A public health approach is illustrated by the basic principles of industrial hygiene, which specify a hierarchy of controls to prevent exposure and illness (Table 15). The regulations evaluated in the SLO-FS primarily pertain to personal protective equipment, administrative controls (e.g., restricted entry intervals), and training. These methods serve to limit exposures, but cannot eliminate them. Under the hierarchy of controls, personal protective equipment is considered the method of last resort in reducing risks found in the workplace (Herrick, 1998). The optimal method of controlling exposures is engineering controls, which eliminate the hazard. In agriculture, this would entail the consideration of alternative agricultural practices, including but not limited to reduced use of pesticides and substitution of toxic compounds with those that are less toxic. Alternative chemicals and practices should be adopted only after adequate evaluation of efficacy and toxicity, since compounds

that are initially considered harmless may later demonstrate toxicity to health or the environment.

Table 15. Industrial Hygiene Hierarchy of Controls to Limit Workplace Exposures

Rank	Type of control	Example
1 (most preferable)	Engineering controls	Substitution with less toxic pesticide or use of non-chemical alternative
2	Administrative controls	Restricted Entry Interval; Closed mixing systems
3 (least preferable)	Personal protective equipment	Air-purifying cartridge respirator

Table 16. Summary of SLO-FS Strengths, Limitations, Conclusions, and Recommendations

Strengths	<ol style="list-style-type: none"> 1. Collaborative/participatory process was utilized. 2. By design, gathered information directly from farmworkers, utilizing community interviewers. 3. Probability sample from community allows results to be generalized to agricultural workers who live and work in SLO County. 4. High participation rate by eligible subjects. 5. Various types of questions were utilized to assess knowledge, evaluate practices, and obtain information on health.
Limitations	<ol style="list-style-type: none"> 1. Relied on expert identification of cities and communities to be sampled, not actual enumeration of farmworker communities. 2. Fewer farmworkers found on blocks chosen for interviews than had been anticipated by study design: small sample size reduces precision of estimates and ability to detect differences between subgroups. 3. By design, community-based sample did not capture SLO County residents who perform farm work outside the county or live outside the county at the time of the survey. 4. By design, did not assess the perspectives or practices of growers, manager, supervisors, and other parties involved in health and safety. 5. Some open-ended questions were difficult to code. 6. Did not assess all topics covered in WSR.
Conclusions	<ol style="list-style-type: none"> 1. Objective methods can be applied to study local issues in a participatory process. 2. Survey findings describe farmworkers who live and work in SLO County during the time periods of the study. 3. 80% of farmworkers have received pesticide safety training in SLO County; most trainings cover many topic areas required by the WSR. 4. 20% of farmworkers, including some MLAs, have not received pesticide safety training in SLO county in the last five years. 5. Most farmworkers are trained in SLO County by a supervisor or manager; farmworkers also rely on supervisors for safety information. 6. Overall, farmworker knowledge is incomplete in the areas tested (pesticide exposure, first aid measures, routine decontamination). 7. Provision of training is not the sole adequate measure of the efficacy of training. 8. Farmworkers' top workplace health concerns are muscle sprains and strains, accidents in the field, and the effects of chemicals, including pesticides. 9. Farmworkers sometimes do not notify supervisors or seek medical attention following perceived pesticide exposure and pesticide-related illness. 10. In case of an illness, farmworkers would most commonly seek medical attention in emergency rooms/hospitals, followed by medical clinics.
Recommendations	<ol style="list-style-type: none"> 1. Collaborations should continue to improve worker and community health and safety. 2. Growers and supervisors should demonstrate support for employee safety through appropriate behavior, attitude, and provision of training. 3. All farmworkers should receive training at least every year. 4. The content of worker safety trainings should be consistent. 5. Trainings should be specifically developed for and at the education level of the farmworker audience. 6. Trainers should be well-trained; peer-trainers should be used when possible. 7. Farmworker focus groups should be convened to address improvements to training and worker health and safety. 8. An employer focus group should be convened to address barriers to implementation of the regulations and ways to demonstrate support for health and safety for workers. 9. Physicians should be well trained in farmworker health issues, including those related to pesticide illness. 10. Consider and recommend techniques for primary prevention of pesticide illness, such as viable alternative agricultural methods

SUMMARY

The SLO-FS is a cross-sectional study that describes a population of farmworkers who are similar in many demographic characteristics to California farmworkers in general, but are slightly older, are more geographically stable, and have resided in the U.S. slightly longer. The study found that most farmworkers have received pesticide safety training, most trainings cover many topics specified in the WSR, and many farmworkers report changing their behavior as a result of training. However there are still some farmworkers who have not been trained as required and knowledge about how pesticide exposure occurs, its effects, and procedures to be followed in case of exposure is incomplete. Most farmworkers are trained by a supervisor or other representative of the employer. The provisions specified in the Field Sanitation Standard are more commonly available to SLO County farmworkers than the training requirements in the WSR. Farmworkers with self-reported pesticide illness may continue to work while experiencing symptoms or may lose work time. Farmworkers who do not notify a supervisor or seek medical attention in spite of symptomatic illness may not receive treatment, and their illnesses will not be detected by the existing physician-based pesticide illness surveillance system.

CONCLUSIONS AND RECOMMENDATIONS

1. The collaborative efforts exemplified by the SLO-FS demonstrate that objective science can be applied to local issues in a participatory process (Green and Mercer, 2001; MacQueen et al., 2001; Strauss et al., 2001). Participatory research in this case involved advocacy groups, employers, and multiple governmental agencies at the local, state, and federal levels, allowing the pooling of resources and knowledge. Participatory research has been found to be essential and effective for designing interventions where diverse social, cultural, political, and regulatory issues affect farmworkers' risk of pesticide exposure (Arcury et al., 1999b; Quandt et al., 2001). Continued collaboration of all parties is crucial to ensure effective comprehension and dissemination of the results.
 - ◆ The FSI Committee should develop a plan to present the study results to relevant farmworker audiences in SLO County, possibly in a public meeting forum. This should include migrant workers who do not live in SLO County. A summary of the results of this study will be sent to participants of the study. The FSI's plan should address these workers as well as a broader farmworker audience.

- ◆ FSI should convene a focus group of selected farmworkers to develop additional ideas to improve training and working conditions for farmworkers. Participants should include workers who have experience conducting successful farmworker trainings.
- ◆ FSI should convene a focus group of employers to understand their perceived barriers to implementation of the WSR and to solicit ideas to improve training and workplace health and safety. The focus group should address issues such as employers' ability to improve farmworker safety and health by implementing regulations such as the WSR. This group should also address methods that employers can use to demonstrate support for employee health and safety.
- ◆ FSI should continue to work collaboratively with workers, employers, advocacy and community groups, and governmental agencies to implement recommendations that arise from this study and to improve worker and community health and safety.

2. This study shows that 80% of farmworkers in SLO County are receiving pesticide safety training in the county. Therefore, an employer survey to assess compliance with the provision of training is not required in this county.

- ◆ Areas of compliance with the WSR that could not be addressed by the current study may be better addressed through inspections by regulatory agencies, such as the County Agricultural Commissioner, and CDPR's assessments of

compliance following pesticide applications and DOSH's Agricultural Health and Safety Inspection Program.

- ◆ Efforts should be made to extend training to all SLO County farmworkers.

3. The SLO-FS findings show that farmworkers are not able to adequately recall essential information, such as prevention of pesticide exposure and illness, and management in the event of an exposure. Provision of training alone does not improve farmworker knowledge or necessarily result in a beneficial change in health and safety-related behavior. The frequency, content, methods, and materials of training, and qualifications of trainers should be examined to improve farmworker knowledge about issues related to health and safety while working around pesticides.

- ◆ All agricultural workers should receive pesticide safety training every year. The current requirement for training every five years for fieldworkers is not sufficient for the complex knowledge required in agricultural work settings.
- ◆ Standardized curricula that address the requirements of the WSR in addition to other health and safety issues relevant to agricultural settings should be consistently used to train farmworkers.
- ◆ Trainers should themselves be trained at workshops specifically intended to teach them techniques for training farmworkers. Existing curricula and programs that may meet these criteria should be evaluated and considered for use. Pre- and post-tests should be used to assess trainers' proficiency in

training techniques and knowledge about topics on which they intend to provide training.

- ◆ To avoid making workers feel intimidated about participating and asking questions, persons other than employers or supervisors should be considered as primary or supplemental trainers. Peer trainers/educators should be used when possible. In this case, having farmworkers conduct or participate in providing training can be very effective. Where peer trainers are used, they should be trained by an experienced health educator through “train the trainer” workshops.
- ◆ The content of pesticide worker safety trainings for farmworkers should be consistent and should include, but not be limited to, topics specified in the WSR:

Pesticide exposure routes, potential short- and long-term health effects, prevention of exposure and secondary contamination, what to do in the event of an exposure (including notifying a supervisor and receiving health care).

Special emphasis should be placed on emergency first aid measures that should be performed by the ill worker or a coworker in the event of a pesticide-related illness. This includes providing information on where a worker should go (or be taken) to and the right to receive medical treatment.

Appropriate clothing and personal protective equipment, who should wear PPE, and examples of inappropriate clothing and equipment.

Employers' responsibilities, including ensuring that workers exposed to pesticides are transported to a medical facility.

In addition to following the rules, other factors that affect worker health and safety, such as the toxicity of chemicals and the manner in which they are applied, should be emphasized.

- ◆ Training curricula and materials should be developed by a health educator in conjunction with a peer trainer/educator and pilot-tested with the target audience.

Training methods and materials should be assessed for effectiveness in terms of language, cultural appropriateness, and literacy level.

Trainings and materials should use terminology that is readily understood by the target audience.

Words that are not part of everyday conversation (such as “to be exposed” or “estar expuesto”) should be kept to a minimum. Where such use of words cannot be avoided, they should be fully defined at the start of the training.

Written materials should not be relied upon heavily, given that this audience does not possess high levels of formal education, and may not use written materials to obtain information.

If written materials are used, a format that is familiar to the audience and sensitive to literacy issues should be used. Examples include fotonovelas and short pieces with simple language and extensive use of visuals.

- ◆ Training methods should be assessed for effectiveness in this population.

Training methods should be selected in accordance with adult learning principles.

Content and methods should build on participants' own knowledge and experience, as well as provide them with the opportunity to learn and practice new skills.

Wherever possible, interactive, participatory activities which provide the opportunity for dialogue and discussion should be used.

Lectures should be kept to a minimum. Where verbal presentations are given, they should be accompanied by graphics and other visual materials or demonstrations.

A variety of training methods (e.g., videos, fotonovelas) may be combined to achieve the most effective mix for this audience.

Training should continue to be conducted in the language most comfortable for the participants, preferably by a native speaker.

Health educators who provide health-based training should be considered for provision of information on pesticide safety and health, as a supplement to training that is specific to the WSR.

Trainings should include a pre- and post-test to assess learning.

4. Supervisors play a key role in pesticide illness prevention. Most farmworkers receive their training as well as information about when it is safe to enter a treated field from supervisors. Farmworkers also rely on field postings.

- ◆ Growers, managers, and supervisors should demonstrate that preventing pesticide-related and other illnesses is a high priority in the workplace as a practical supplement to formal training.

Consistent and appropriate posting of treated fields and posting of all information at central locations is important.

- ◆ Supervisors and other trainers should themselves be adequately trained in pesticide safety and other aspects of the WSR and should be provided appropriate curricula, materials, equipment, and space for teaching.
- ◆ Even if they do not serve as trainers, employers and supervisors should be well trained themselves. An important topic that should be stressed for this audience is the responsibility of employers to ensure that employees receive emergency medical care and are transported to a medical care facility if an illness occurs at the workplace, as required by the WSR (Title 3 CCR 6726 & 6766).

5. In the event of a work-related pesticide illness, most farmworkers seek medical attention in an emergency room or hospital, followed by a health clinic.

- ◆ Physicians and other health care providers in these, as well as other, health care settings should be trained on the recognition, diagnosis, management, and reporting of pesticide illness in addition to other occupational health issues relevant to farmworker health. Training should raise awareness of the obstacles farmworkers face in receiving medical care and address ways to remove the barriers.

6. Training and notification alone can affect only a limited amount of workers' pesticide exposures. A public health approach considers primary prevention as the most effective way to ensure the protection of all workers. In addition to ensuring that workers are adequately trained about pesticide safety issues, attempts should be made to reduce worker exposure to pesticides through primary prevention methods that include substitution and elimination of harmful substances and promotion of alternative agricultural methods.

- ◆ The FSI should consider primary prevention efforts in addition to making improvements in the implementation of the WSR. This may be best accomplished by continuing to collaborate with current partners and by consulting with various experts in primary prevention of illness and alternative agricultural methods.

REFERENCES

Arcury TA, Quandt SA, Austin CK, Preisser J, Cabrera LF. Implementation of EPA's Worker Protection Standard Training for Agricultural Laborers: An Evaluation Using North Carolina Data. *Public Health Reports*. 1999a;114:459-468.

Arcury TA, Austin CK, Quandt SA, Saavedra R. Enhancing Community Participation in Intervention Research: Farmworkers and Agricultural Chemicals in North Carolina. *Health Educ & Behav*. 1999b; 26:563-578.

Arcury TA, Quandt SA, Cravey AJ, Elmore RC, Russell GB. Farmworker Reports of Pesticide Safety and Sanitation in the Work Environment. *Am J Ind Med*. 2001a; 39:487-498.

Arcury TA, Quandt SA, Rao P, Russell GB. Pesticide Use and Safety Training in Mexico: The Experience of Farmworkers Employed in North Carolina. *Human Organization*. 2001b; 60:56-66.

Austin C, Arcury TA, Quandt SA, Preisser JS, Saavedra FM, Cabrera LF. Training Farmworkers about Pesticide Safety: Issues of Control. *J Health Care Poor Underserved*. 2001; 12:236-249.

Azevedo K. Medical Insurance Coverage and Usage among Farmworker Families: A Case Study. *California Program on Access to Care*. California Policy Research Center, University of California. 2000; 12:1-4. Available at: <http://www.ucop.edu/cprc/azevedobrf.pdf>.

California Department of Food and Agriculture (CDFA). Resource Directory 2000. Available at: <http://www.cdfa.ca.gov/index.htm>.

California Department of Pesticide Regulation (CDPR). Summary of Pesticide Use Report Data 1999: Indexed by Chemical: Preliminary Data. CDPR, 2000. Available at: <http://www.cdpr.ca.gov/docs/pur/purmain.htm>.

California Department of Pesticide Regulation (CDPR). Results from the California Pesticide Illness Surveillance Program. California Environmental Protection Agency, CDPR. Written communication from L. Mehler, November 1, 2001.

California Department of Pesticide Regulation (CDPR). Results from the California Pesticide Illness Surveillance Program. California Environmental Protection Agency, CDPR. Written communication from L. Mehler, February 27, 2002.

Das R, Steege A, Baron S, Beckman J, Harrison R. Pesticide Illness among Migrant Farmworkers in the United States. *Int J Occup Environ Health*. 2001; 7:303-312.

Douglas DD. Respiratory Protective Devices. In Clayton GD and Clayton FE, editors. Patty's Industrial Hygiene and Toxicology. 4th edition. Volume I, General Principles. 1991. John Wiley & Sons, Inc: New York. Pages 675-717.

Farm Safety Among North Carolina Farmworkers 1998. English and Spanish Questionnaires. Wake Forest University School of Medicine. Winston-Salem, NC.

Farmworker Safety Initiative (FSI). Model Pilot Study. 1999. White paper.

Fenske RA. Pesticide Exposure Assessment of Workers and their Families. Occupational Medicine: State of the Art Reviews. 1997; 12:327-345.

Green LW, Mercer SL. Can Public Health Researchers and Agencies Reconcile the Push from Funding Bodies and the Pull from Communities. Am J Public Health. 2001; 12:1926-1929.

Herrick RF. Overview and Philosophy of Personal Protection. In: Stellman JM, Editor. Encyclopaedia of Occupational Health and Safety. 4th Edition. 1998.

Hulley SB and Cummings SR. Designing Clinical Research. 1988. Williams & Wilkins: Baltimore, MD.

Land G. Pesticide Safety and Farmworkers: A San Luis Obispo County Survey. Environmental Center of San Luis Obispo County. 1998.

Larson A. An Assessment of Worker Training under the Worker Protection Standard. Final Report. 2000(a). Prepared for U.S. EPA.

Larson A. Migrant and Seasonal Farmworker Enumeration Profiles Study: California. 2000(b). Prepared for the Migrant Health Program: Bureau of Primary Health Care: Health Resources and Services Administration (HRSA). Available at: www.bphc.hrsa.gov/migrant/enumeration/enumerationstudy.htm.

MacQueen KM, McLellan E, Metzger DS, Kegeles S, Strauss RP, Scotti R, Blanchard L, Trotter II RT. What Is Community: An Evidence-Based Definition for Participatory Public Health. Am J Public Health. 2001; 91:1929-1938.

McCauley LA, Lasarev MF, Higgins G, Rothlein J, Muniz J, Ebbert C, Phillips J. Work Characteristics and Pesticide Exposures among Migrant Agricultural Families: A Community-Based Research Approach. Environ Health Perspect. 2001;109:533-538.

McDuffie HH, Dosman JA, Semchuk KM, Olenchock SA, Senthilselvan A (editors). Introduction. Agricultural Health and Safety. 1995; Boca Raton: CRC Press.

Meister R, Editor. Farm Chemicals Handbook. 1999. Meister Publishing Company: Willoughby, OH. Pages E43-E45.

Motulsky H. Intuitive Biostatistics. Oxford University Press: New York. 1995.

O'Connor-Marer, PJ. University of California, Integrated Pest Management Program. Personal communication. February 26, 2002.

National Agricultural Workers Survey (NAWS) 1998. Cycle 32, Fall 1998. OMB 1225-0044.

Nelson TJ. Respiratory Protection. In Stellman JM, editor. Encyclopaedia of Occupational Health and Safety. 4th edition. 1998. Pages 31.21-31.30.

Proposition 65. Safe Drinking Water and Toxic Enforcement Act of 1986. Title 22, California Code of Regulations, Section 12306 (22 CCR 12306).
http://www.oehha.ca.gov/prop65/prop65_list/Newlist.html.

Quandt SA, Arcury TA, Austin CK, Cabrera LF. Preventing Occupational Exposure to Pesticides: Using Participatory Research with Latino Farmworkers to Develop an Intervention. J Immigrant Health. 2001; 3:85-96.

Rosenberg HR, Steirman A, Gabbard SM, Mines R. Who Works on California Farms? U.S. Department of Labor NAWS Report No. 7. Oakland, CA: University of California. Agricultural and Natural Resources, 1998; Publication 21583.

Scholtzhauer SD and Littell RC. SAS System for Elementary Statistical Analysis. 2nd ed. SAS Institute: Cary, NC. 1997.

Strauss RP, Sengupta S, Crouse Quinn S, Goepfinger J, Spaulding C, Kegeles S, Millett G. The Role of Community Advisory Boards: Involving Communities in the Informed Consent Process. Am J Public Health. 2001; 91:1938-1943.

U.S. Commission on Agricultural Workers (U.S. CAW): Report of the Commission on Agricultural Workers, 1992; Appendix I. Case Studies and Research Reports. Appendix II. Hearings and Workshops. Washington D.C., CAW, 1993.

U.S. Environmental Protection Agency (U.S. EPA). Office of Pesticide Programs. Regulatory Impact Analysis of Worker Protection Standard for Agricultural Pesticides. 1992.

U.S. Environmental Protection Agency (U.S. EPA). National Assessment of the Worker Protection Program. Executive Summary. June, 2000. U.S. EPA & National Environmental Education & Training Foundation.
<http://www.epa.gov/oppfead1/safety/newnote/execsumm.htm>.

U.S. General Accounting Office (GAO). Hired Farmworkers' Health and Well-Being at Risk. GAO/HRD-92-46. 1992.

Villarejo D, Baron S. The Occupational Health Status of Hired Farmworkers. Occupational Medicine: State of the Art Reviews 1999; Philadelphia: Hanley & Belfus, Inc. 14:613-635.

Villarejo D, Lighthall D, Williams D, Souter A, Mines R, Bade B, Samuels S, McCurdy S. Suffering in Silence: A Report on the Health of California's Agricultural Workers. California Institute of Rural Studies. 2000.

APPENDIX 1

Sample Size and Confidence Level

For these calculations, an SLO farmworker population size of 12,000 was used (Larson 2000b). Based on previous studies (Land, 1998; Arcury, 1999a), it was estimated that 40% of SLO county farmworkers had received mandatory pesticide safety training. With a sample size of 92, there would be a confidence level of 95% that the study's findings regarding the proportion of farmworkers trained had 10% precision (10% above and 10% below 40%). In other words, if 40% of the farmworkers in SLO County have received pesticide safety training, a sample size of 92 would be required for a 95% confidence level that the findings are within 10% of this value. For a precision level of 5% (5% above and 5% below the estimate), a sample size of 358 would be needed. At the desired sample size of 200 farmworkers, we would have a 95% confidence level that the precision of our estimate is between 5% and 10%, based on the assumption that 40% of workers are trained.

Post-study information

For a sample size of 138, assuming 40% of workers were trained, at the 95% confidence level, there is approximately 8% precision. For the same sample size, with 80% trained, at the 95% confidence level, the precision level is between 7-8%.

APPENDIX 2

English Questionnaire

SECTION A: HOUSEHOLD GRID _____

Farmworker ID

A-1	A-2	A-3	A-4	A-5/A-6	A-7	A-8	A-9	A10	A-11	A-12	A-13	A-14	A-15	A-16	A-17
NAME (FIRST NAME ONLY)	RELATION [CODE]	SEX	MARITAL STATUS	BIRTH DATE [MM/YY FOR WORKER ONLY]. AGE FOR ALL	PLACE OF BIRTH [CODE]	HIGHEST GRADE	COUNTRY SCHOOL [CODE]	ANY U.S.A. SCHOOL (EVER)?	DO YOU LIVE IN SAN LUIS OBISPO COUNTY: ...	LIVE WITH YOU NOW?	[IF BORN "AB," ASK]: YEAR FIRST ENTERED U.S.A.?	YEAR FIRST DID FW IN THE U.S.A.?	HOW MANY YEARS HAVE YOU DONE FW?	IN THE LAST 12 MONTHS, ANY FW IN THE U.S.A.?	[FOR UNDER 18 YEARS OLD ONLY]: LAST 12 MONTHS, EVER ACCOMPANIED YOU TO THE SITE (FIELD) OF YOUR FW ?
A. (FARMWORKER)		M F	S M O	[AGE & B- DAY]				Y N N/A	1 ... YEAR ROUND? 2 ... 6-12 MONTHS? 3 ... 1-6 MONTHS?						
B.		M F	S M O	[AGE ONLY]						Y N				Y N N/A	Y N N/A
C.		M F	S M O	[AGE ONLY]						Y N				Y N N/A	Y N N/A
D.		M F	S M O	[AGE ONLY]						Y N				Y N N/A	Y N N/A
E.		M F	S M O	[AGE ONLY]						Y N				Y N N/A	Y N N/A
F.		M F	S M O	[AGE ONLY]						Y N				Y N N/A	Y N N/A
G.		M F	S M O	[AGE ONLY]						Y N				Y N N/A	Y N N/A
H.		M F	S M O	[AGE ONLY]						Y N				Y N N/A	Y N N/A

CODES FOR A2:

- 1 = SPOUSE/COMMON LAW SPOUSE
- 2 = OWN CHILD, DEPENDENT OR ADOPTED
- 3 = SIBLING
- 4 = PARENT
- 5 = GRANDCHILD
- 6 = OTHER RELATIVE COUSINS, UNCLES, ETC.)
- 7 = OTHER: _____

(COUNTRY CODES) FOR A7 AND A9:

- 1= U.S.A.
- 2= PUERTO RICO
- 3= MEXICO
- 4= CENTRAL AMERICA
- 5= SOUTH AMERICA
- 6= CARIBBEAN

- 7= SOUTHEAST ASIA (INDONESIA, CAMBODIA, VIETNAM, LAOS, THAILAND)
- 8= PACIFIC ISLANDS (THE PHILIPPINES, GUAM, FIJI, ETC.)
- 9= ASIA (CHINA, JAPAN, KOREA, ETC.)
- 97=OTHER: _____
- 99=NOT ANSWERED

A-18/22 [THESE QUESTIONS REFER TO OTHER INDIVIDUALS WHO LIVE WITH THE WORKER, BUT WERE NOT MENTIONED IN THE PREVIOUS GRID. DO NOT INCLUDE PERSONS MENTIONED IN THE HOUSEHOLD GRID]

A-18 In addition to those you mentioned earlier, how many other people live with you now? TOTAL: Out of those (total), how many....	A-19 How many do FW?	A-20 How many do NF?	A-21 How many do NW?
a... are adults (18 years or older)?			
b... are minor (under 18 years old)?			
c... don't know age?			

SECTION B: HEALTH STATUS

[INTERVIEWER]: As we mentioned earlier, this study is about health in the workplace. But before we begin asking our questions, we want to know...

B-1 ...overall, how would you rate your health? (How is your health?/How do you feel?)

- 1 _____ Very good
- 2 _____ Fair
- 3 _____ Poor
- 98 _____ Don't know
- 99 _____ Refused

B-2 As a farmworker, what health problems concern you the most? Please choose up to three from the following list **[Read list]...**

- 1___ Accidents in the field, cuts, fractures
- 2___ Sprains and strains (back, neck, arms, other muscles)
- 3___ Chemicals (including pesticides)
- 4___ Motor vehicle accidents
- 5___ Cancer
- 6___ Breathing problems (asthma, allergies)
- 7___ Skin problems (rash, allergies)
- 8___ Eye problems
- 9___ Other, specify _____

B-3 If you get sick where would you go to get medical help? **[Check all that apply]**

- 1 _____ Migrant clinic
- 2 _____ Doctor's office
- 3 _____ Emergency room/hospital
- 4 _____ Call 911
- 5 _____ Healer (sobador)
- 6 _____ Go to Mexico/my country
- 7 _____ Self-medication
- 8 _____ Other: _____
- 98 _____ Don't know
- 99 _____ Refused

B-4 When you want to get health care in the U.S., what are the main difficulties you face?

[Check all that apply]

- 1_____ Do not have medical insurance
- 2_____ Don't know where services are available
- 3_____ Health center not open when I need it
- 4_____ They don't provide the services I need
- 5_____ They don't speak my language
- 6_____ They don't treat me with respect
- 7_____ They don't understand my problems
- 8_____ I'll lose my job
- 9_____ Too expensive
- 10_____ Other: _____
- 98_____ Don't know
- 99_____ Refused

C. AGRICULTURAL BACKGROUND

In the last 3 months, what crops and tasks have you worked with in San Luis Obispo County?

C1	C2	C3	C4
FROM (MONTH/DAY)	TO (MONTH/DAY)	CROPS	TASKS/ACTIVITIES

SECTION D: EXPOSURE-RELATED KNOWLEDGE AND ATTITUDES

[INTERVIEWER]: Now I'd like to ask you some questions about the pesticides that may be used on the plants with which you work. A pesticide is any substance that is used to kill unwanted plants, insects, fungi, and rodents.

D-1 How do you think farm workers can come into contact with pesticides while working (FW)?

[Probe: Can you think of at least three ways pesticides can enter your body or organs? Enter all if more than three]

98 _____ Don't know
99 _____ Refused

D-2 What are some of the ways you can protect yourself from exposure to pesticide while doing FW?

[If "don't know", probe: Have you heard about ways to protect yourself from exposure to pesticides when doing "FW"? Check all that apply]

1___ Use appropriate equipment
2___ Shower/bathe
3___ Launder work clothes properly
4___ Other:

98 _____ Don't know
99 _____ Refused

D-3 Who gives you information about pesticides that may be used on the job? **[Read list and check all that apply]**

1___ Supervisors?
2___ Fellow workers?
3___ Medical clinic?
4___ Friends?
5___ Union?
6___ Family?
7___ Organizations? Specify:

8___ Other? Specify:

9___ Do not receive any information
98 _____ Don't know
99 _____ Refused

D-4 How do you know when it is safe to begin working in a field that has been recently sprayed with pesticides?

[Do not read list, check all that apply]

1___ Signs in the work place, not in the field
2___ Field posting signs
3___ Crew leader, supervisor, or employer tells you
4___ From the pesticide label
5___ Other, specify:

98 _____ Don't know
99 _____ Refused

[INTERVIEWER]: Next I am going to ask you some questions about what you should do if you are exposed to pesticides.

D-5 Please tell me, what you should do if you get pesticides in your eyes?

[DO NOT read list, check all that apply]

- 1 _____ Rinse your eyes with water immediately
- 2 _____ Go see a doctor immediately
- 3 _____ Keep working, go to doctor later
- 4 _____ Keep working, ignore
- 5 _____ Tell supervisor
- 6 _____ Other, specify:

98 _____ Don't know

99 _____ Refused

D-6 Now tell me, what should you do if you accidentally get pesticides in your mouth?

[DO NOT read list, check all that apply]

- 1 _____ Go see a doctor immediately
- 2 _____ Keep working, go to doctor later
- 3 _____ Keep working, ignore
- 4 _____ Make yourself vomit
- 5 _____ Drink milk
- 6 _____ Drink water
- 7 _____ Tell supervisor
- 8 _____ Other, specify:

98 _____ Don't know

99 _____ Refused

D-7 Now tell me, what should you do if you accidentally get spilled with pesticides on your skin?

[DO NOT read list, check all that apply]

- 1 _____ Go see a doctor immediately
- 2 _____ Keep working, go to doctor later
- 3 _____ Keep working, ignore
- 4 _____ Wash skin immediately
- 5 _____ Remove contaminated clothing immediately
- 6 _____ Shower at home
- 7 _____ Tell supervisor
- 8 _____ Other, specify:

98 _____ Don't know

99 _____ Refused

SECTION E: SELF-REPORTED EXPERIENCES OF EXPOSURE

[INTERVIEWER]: Please remember for the next few questions: A pesticide is any substance that is used to kill unwanted pests, insects, fungi, and rodents.

E-1 What types of pesticides are used where you work? Please name as many as you can think of...

1 _____ Do not use pesticides where I work **[skip to E-4]**

2 _____ Use pesticides, don't know names

98 _____ Don't know

99 _____ Refused **[skip to E-4]**

E-2 How often are you exposed to pesticides while working? Would you say...

- 1 _____ Never?
- 2 _____ Sometimes?
- 3 _____ A lot?
- 4 _____ Not sure?
- 98 _____ Don't know?
- 99 _____ Refused?

E-3 What types of work do you do when you come in contact with pesticides?

- 1 _____ Mixing, loading, spraying pesticides
- 2 _____ Working in the field (picking, hoeing, etc.)
- 3 _____ Packing?
- 4 _____ Other, specify: _____
- 98 _____ Don't know
- 99 _____ Refused

[INTERVIEWER]: Some people believe that exposure to pesticides probably causes some health problems, while others do not believe this. I want to ask your opinion about this.

E-4 Do you believe that your health has ever been hurt by pesticides? Would you say ...

- 1 _____ Not at all?
- 2 _____ Not enough to cause concern?
- 3 _____ Enough to cause a little concern?
- 4 _____ Enough to worry a great deal?
- 98 _____ Don't know
- 99 _____ Refused

E-5 Do you believe that pesticides from FW can get on clothes and affect the health of children at home? Would you say ...

- 0 _____ No?
- 1 _____ Yes?
- 98 _____ Don't know
- 99 _____ Refused

SECTION F: WORKING WITH PESTICIDES (DIRECT CONTACT)

F-1 While working in San Luis Obispo County have you mixed, loaded, or applied pesticides or cleaned or repaired containers or equipment used for applying or storing pesticides? ...

a ... in the last 12 months, working with your current employer in San Luis Obispo?

- 0 _____ No
- 1 _____ Yes

b ... in the last 12 months, but NOT with your current employer in San Luis Obispo?

- 0 _____ No
- 1 _____ Yes

[If NO to F-1a AND F-1b, skip to "G-1." If YES to either "F-1a" OR "F-1b," continue with "F-2"]

F-2 In San Luis Obispo County, did you receive a training just for mixers, loaders or applicators of pesticides before you started working?

- 0 _____ No **[skip to F-4]**
- 1 _____ Yes
- 98 _____ Don't know **[skip to F-4]**
- 99 _____ Refused **[skip to F-4]**

F-3 Did the training include the cleaning and maintenance of your personal protective equipment?

- 0 _____ No
- 1 _____ Yes
- 98 _____ Don't know
- 99 _____ Refused

F-4 The last time you did this work **[in F-1]** did you wear/use any of the following equipment?
[Show picture and probe and enter any "other"]

- a ☐ Nothing
- b ☐ Gloves type1 (cloth/leather)
- c ☐ Gloves type 2 (thin rubber)
- d ☐ Gloves type 3 (thick/heavy rubber)
- e ☐ Sleeves
- f ☐ Suit / chemically resistant clothing
- g ☐ Boots
- h ☐ Respirator
- i ☐ Hard hat
- j ☐ Goggles
- k ☐ Paper mask
- l ☐ Bandana / handkerchief
- m ☐ Baseball cap
- n ☐ Other: _____

F-5 In the last 12 months, did you become sick or have any reaction because of this type of work **[in "F-1"]**?

- 0 ☐ No **[skip to F-14]**
- 1 ☐ Yes
- 98 ☐ Don't know **[skip to F-14]**
- 99 ☐ Refused **[skip to F-14]**

F-6 What health problems did you have? (How did it make you sick?) (**Probe: please describe the problem or symptom**)

- 98 ☐ Don't know **[skip to F-14]**
- 99 ☐ Refused **[skip to F-14]**

F-7 How many days did you continue to work with this health problem?

- _____ Days
- 98 ☐ Don't know
- 99 ☐ Refused

F-8 How many days did you miss work because of this health problem?

- _____ Days
- 98 ☐ Don't know
- 99 ☐ Refused

F-9 Did you tell your boss that you got sick because of pesticides?

- 0 ☐ No **[If no]:** Why not?:

- 1 ☐ Yes **[If yes]:** What did your boss do?:

- 98 ☐ Don't know
- 99 ☐ Refused

F-10 Did you receive any treatment because of this pesticide exposure?

- 0 ☐ No **[skip to F-14]**
- 1 ☐ Yes
- 99 ☐ Refused

F-11 Where did you go to receive this treatment?

- 1 _____ Migrant clinic
2 _____ Doctor's office
3 _____ Emergency room/hospital
4 _____ Healer (sobador) **[if not relevant, skip to F-14]**
5 _____ Went to home country **[skip to F-14]**
6 _____ Self-medication, specify:
_____ **[skip to F-14]**
7 _____ Other, specify:
_____ **[if not relevant, skip to F-14]**

F-12 What was the name of the clinic/hospital/other **[in F-11]** where you received medical care?

- 98 _____ Don't know
99 _____ Refused

F-13 How did you get there **[in F-11]**?

- 1 _____ Walk
2 _____ Drove myself
3 _____ Supervisor took me in **MY** vehicle
4 _____ Supervisor took me in his/her vehicle
5 _____ Co-worker took me in his/her car
6 _____ Took public transportation
7 _____ Family member took me after work
8 _____ Other, specify:

- 98 _____ Don't know
99 _____ Refused

F-14 In your current work site, is there a clean locker to store your personal protective equipment?

- 0 _____ No
1 _____ Yes
98 _____ Don't know
99 _____ Refused

SECTION G: CONTACT WITH PESTICIDES (INDIRECT OR ACCIDENTAL)

G-1 Besides what I asked you already about working with pesticides, has any pesticide spilled, been sprayed, or come in contact with any part of your body accidentally ...

- 1 _____ ...by having them sprayed or blown on you?
2 _____ ...by having them spilled on you?
3 _____ ...by touching crops or plants after pesticides had been applied?
4 _____ ...by cleaning or repairing containers or equipment used for applying or storing pesticides?
5 _____ ...when driving equipment (such as a tractor, setter, harvester)?
6 _____ ...by entering a field treated with pesticide?
7 _____ none **[skip to G-11]**
9 _____ other, specify:

- 98 _____ Don't know **[skip to G-11]**
99 _____ Refused **[skip to G-11]**

G-2 Did you become sick or have any reaction because of that incident **[from G-1]**?

- 0 _____ No **[skip to G-11]**
1 _____ Yes
98 _____ Don't know **[skip to G-11]**
99 _____ Refused **[skip to G-11]**

G-3 What health problems did you have? (How did it make you sick?) **(probe: "please describe the problem or symptom")**

- 98 _____ Don't know **[skip to G-11]**
99 _____ Refused **[skip to G-11]**

G-4 How many days did you continue to work with this health problem?

- _____ Days
98 _____ Don't know
99 _____ Refused

G-5 How many days did you miss work because of this health problem?

- _____ Days
98 _____ Don't know
99 _____ Refused

G-6 Did you tell your boss that you got sick because of pesticides?

0 _____ No **[If no]:** Why not?:

1 _____ Yes **[If yes]:**
What did your boss do?:

- 98 _____ Don't know
99 _____ Refused

G-7 Did you receive any treatment because of this pesticide exposure?

- 0 _____ No **[skip to G-11]**
1 _____ Yes
99 _____ Refused **[skip to G-11]**

G-8 **[If "yes" in "G-7"]**, Where did you go to receive this treatment?

- 1 _____ Migrant clinic
2 _____ Doctor's office
3 _____ Emergency room/hospital
4 _____ Healer (sobador) **[if not relevant, skip to G-11]**
5 _____ Went to home country **[skip to G-11]**
6 _____ Self-medication, specify:
_____ **[skip to G-11]**
7 _____ Other, specify:
_____ **[if not relevant, skip to G-11]**

G-11]

G-9 What was the name of the clinic/ hospital/ other **[in G-8]**?

- 98 _____ Don't know
99 _____ Refused

G-10 How did you get there **[in G-8]**?

- 1 _____ Walk
2 _____ Drove myself
3 _____ Supervisor took me in **MY** vehicle
4 _____ Supervisor took me in his/her vehicle
5 _____ Co-worker took me in his/her car
6 _____ Took public transportation
7 _____ Family member took me after work
8 _____ Other, specify:

- 98 _____ Don't know
99 _____ Refused

G-11 In your current job, do you usually wear ...

- 1 _____ Long sleeved shirt?
2 _____ Long pants?
3 _____ Closed shoes or boot **[no sandals]**?
4 _____ Socks?
5 _____ Gloves?:
 a _____ type 1 (cloth/leather)
 b _____ type 2 (thin rubber)
 c _____ type 3 (thick/heavy rubber)
6 _____ Any kind of hat?
7 _____ Bandana or something to cover your face and mouth?
8 _____ Other: _____
99 _____ Refused

SECTION H: TRAINING

H-1 Have you ever received a certification card for training in the safe and effective use of pesticides?

- 0 _____ No
1 _____ Yes **[If yes]:** When was the last time you received this card? _____ month _____ year

- 98 _____ Don't know
99 _____ Refused

[Interviewer]: Now I would like to ask you some questions about information or training you have received in San Luis Obispo County about how to work safely with pesticides.

H-2 In the last 12 months with your current employer in San Luis Obispo County, has anyone given you training in the safe use of pesticides?

- 0 _____ No
1 _____ Yes **[skip to H-4]**
98 _____ Don't know
99 _____ Refused

H-3 ...And in the last **5 YEARS**, with any employer in San Luis Obispo County, have you received any training (in the safe use of pesticides)?

- 0 _____ No **[skip to H-17]**
1 _____ Yes
98 _____ Don't know **[skip to H-17]**
99 _____ Refused **[skip to H-17]**

H-4 When did the training take place? **[If more than one training in "H-2" OR "H-3," ask for the last or more recent training]**

_____ month _____ year

- 98 _____ Don't know, don't remember
99 _____ Refused

H-5 Where was the training conducted?

- 1 _____ At the place at which I was working
2 _____ At the clinic
3 _____ At the county agriculture department office
4 _____ At a training session given by the county agriculture department
5 _____ Other, specify

98 _____ Don't know, don't remember
99 _____ Refused

H-6 In what language was the training presented?

- 1 _____ Spanish
2 _____ English
3 _____ Bilingual: Spanish and English
4 _____ Mixteco
5 _____ Tagalog/Ilocano
6 _____ Other, specify:

-
- 98 _____ Don't know, don't remember
99 _____ Refused

H-7 How long did the training last?

- 1 _____ 15 minutes or less
2 _____ 16 to 30 minutes
3 _____ 31 to 60 minutes
4 _____ More than 1 hour to 2 hours
5 _____ More than 2 hours

H-8 How was the training or instructions delivered? **[Check all that apply]**

- 1 _____ By video
2 _____ By audio-cassette
3 _____ Through a formal class lecture
4 _____ Through written information/materials
5 _____ Through informal instructions out in the field
6 _____ Other, specify:

-
- 98 _____ Don't know, don't remember
99 _____ Refused

H-9 Who provided the training? **[Check all that apply]**

- 1 _____ Grower or staff
2 _____ Manager/supervisor
3 _____ Farm labor contractor or staff
4 _____ Government agency
5 _____ Insurance agency
6 _____ Union
7 _____ Community organization
8 _____ Other, specify:

-
- 98 _____ Don't know, don't remember
99 _____ Refused

H-10 Did the training include information on? Did it include...**[Check all that apply, make sure the respondent does not feel s/he has to say yes to everything. Read choices]:...**

- 1 _____ How to know when it is safe to enter a field treated with pesticides?
- 2 _____ What kinds of illnesses are caused by pesticides?
- 3 _____ Where to go or who to contact for emergency medical care?
- 4 _____ How you can be exposed to pesticides while working?
- 6 _____ What to do if you think you are exposed to, or ill due to pesticides?
- 7 _____ How to get information about the pesticides you work with?
- 8 _____ How to protect your home and family from pesticides?
- 98 _____ Don't know
- 99 _____ Refused

H-11 Were you able to ask questions about or discuss what was being presented?

- 0 _____ No
- 1 _____ Yes
- 98 _____ Don't know, don't remember

H-12 Were you given any printed materials (brochures, booklets, pamphlets) to take with you?

- 0 _____ No
- 1 _____ Yes
- 98 _____ Don't know, don't remember

H-13 (At the training) Did anyone mention that there are many laws that protect farmworkers from the effects of pesticides?

- 0 _____ No
- 1 _____ Yes
- 98 _____ Don't know, don't remember

H-14 (At the training) Did any one mention that you have legal rights under these laws? **(the law that is to protect farmworkers from the effects of pesticides)**

- 0 _____ No
- 1 _____ Yes
- 98 _____ Don't know, don't remember

H-15 (At the training) Did any one mention or discuss your employer's / boss's responsibilities that are part of the laws?

- 0 _____ No
- 1 _____ Yes
- 98 _____ Don't know, don't remember

H-16 In your opinion, how could the training have been improved (better)?

- 98 _____ Don't know
- 99 _____ Refused

H-17 Now while you are at work, is there anyone you can ask for information about pesticides?

- 0 _____ No
- 1 _____ Yes
- 98 _____ Don't know, don't remember

[Interviewer: If respondent asks about the laws, please mention that an information packet will be given to the respondent after the interview. Respondents can also call the toll free number provided both in the consent form and at the end of the interview]

SECTION I: EMPLOYER SUPPORT FOR WORK SAFETY

Now, I am going to ask you some questions about the facilities where you work

I-1 Does your employer post notices when the field has been sprayed with pesticides?

- 0 _____ No
- 1 _____ Yes
- 98 _____ Don't know, don't remember
- 99 _____ Refused

I-2 Do you know how to get information on the pesticides that are being used where you work?

- 0 _____ No
- 1 _____ Yes
- 2 _____ Pesticides are not used where I work
- 98 _____ Don't know, don't remember
- 99 _____ Refused

I-3 Have you ever tried to get information on the pesticides that are used where you work?

[INTERVIEWER: Ask: What? From where or whom? And Outcome?]

- 0 _____ No
- 1 _____ Yes
- 98 _____ Don't know, don't remember
- 99 _____ Refused

I-4 When you are doing agricultural work, is there always clean water and disposable drinking cups for you to use?

- 0 _____ No ***[skip to I-7]***
- 1 _____ Yes
- 98 _____ Don't know ***[skip to I-7]***
- 99 _____ Refused ***[skip to I-7]***

I-5 Do you drink the water?

- 0 _____ No
- 1 _____ Yes ***[skip to I-7]***
- 98 _____ Don't know ***[skip to I-7]***
- 99 _____ Refused ***[skip to I-7]***

I-6 Why don't you drink it?

(Probe: If answer is "I bring my own." ask why? and enter response in "Other")

- 1 _____ Too far away
- 2 _____ Dirty
- 3 _____ Other, specify:

-
- 98 _____ Don't know
 - 99 _____ Refused

I-7 When you are doing agricultural work, is there always water to wash your hands?

- 0 _____ No ***[skip to I-13]***
- 1 _____ Yes
- 98 _____ Don't know ***[skip to I-13]***
- 99 _____ Refused ***[skip to I-13]***

I-8 Do you use it?

- 0 _____ No
- 1 _____ Yes ***[skip to I-10]***
- 98 _____ Don't know
- 99 _____ Refused

I-9 Why don't you use it?

- 1 _____ Too far away
2 _____ Dirty
3 _____ Other, specify _____

- 98 _____ Don't know
99 _____ Refused

I-10 When do you use it?

[Check all that apply]

- 1 _____ Before using the toilet
2 _____ After using the toilet
3 _____ Before eating
4 _____ Before beginning work
5 _____ Before leaving work to go home
6 _____ Other, specify _____
98 _____ Don't know
99 _____ Refused

I-11 With your current employer, do they provide soap to wash your hands EVERY DAY?

- 0 _____ No
1 _____ Yes
98 _____ Don't know
99 _____ Refused

I-12 With your current employer, do they provide towels to dry your hands EVERY DAY?

- 0 _____ No
1 _____ Yes
98 _____ Don't know
99 _____ Refused

I-13 With your current employer, have you ever had to "go to"/"use the bathroom" in the field/"open air"?

- 1 _____ No **[skip to I-15]**
2 _____ Yes
98 _____ Don't know **[skip to I-15]**
99 _____ Refused **[skip to I-15]**

I-14 Why did you have "to do it" in the field/"open air"?

- 1 _____ "Bathroom" is too far away
2 _____ Other, specify: _____

- 98 _____ Don't know
99 _____ Refused

I-15 **WHERE YOU WORK**, is there a place for you to shower?

- 1 _____ No
2 _____ Yes. If "yes", ask:
a _____ "regular" shower? OR
b _____ "decontamination" shower?
98 _____ Don't know
99 _____ Refused

I-16 And...**WHERE YOU LIVE**, is there a place for you to bathe or shower?

- 1 _____ No
2 _____ Yes
98 _____ Don't know
99 _____ Refused

I-17 When do you usually bathe or shower **[Read options]** ...would you say...

- 1 _____ ...Before work?
2 _____ ...After work?
3 _____ ...Other, specify: _____

- 98 _____ Don't know
99 _____ Refused

I-18 Where do you usually wash your work clothes?

- 1 _____ Washing machine where I live
- 2 _____ Hand wash where I live
- 3 _____ Laundromat
- 4 _____ Other, specify

-
- 98 _____ Don't know
 - 99 _____ Refused

I-19 Do you launder work clothes separate from other clothes?

- 0 _____ No
- 1 _____ Yes
- 98 _____ Don't know
- 99 _____ Refused

I-20 Do you change out of your work clothes immediately after work?

- 0 _____ No
- 1 _____ Yes
- 98 _____ Don't know
- 99 _____ Refused

SECTION J: OTHER DEMOGRAPHICS

J-1 Which of the following describes you? (**Check all that apply**)

- 1 _____ American Indian, Alaskan Native
- 2 _____ Asian
- 3 _____ Black
- 4 _____ Chicano
- 5 _____ Filipino
- 6 _____ Indigenous Mexican
- 7 _____ Mexican-American
- 8 _____ Mexican
- 9 _____ Puerto Rican
- 10 _____ White
- 11 _____ Other, specify:

-
- 99 _____ Refused

J-2 What languages do you speak? (**Check all that apply**)

- 1 _____ English
- 2 _____ Spanish
- 3 _____ Tagalog/Ilocano
- 4 _____ Mixtec
- 5 _____ Other, specify:

-
- 99 _____ Refused

J-3 What languages do you speak with your family? (**Check all that apply**)

- 1 _____ English
- 2 _____ Spanish
- 3 _____ Tagalog/Ilocano
- 4 _____ Mixtec
- 5 _____ Other, specify:

-
- 99 _____ Refused

[If respondent speaks Spanish (yes to 2 in "J-2" and/or "J-3," continue. If respondent does not speak Spanish skip to J-6]

J-4 How well do you read Spanish?

- 1 _____ Not at all
- 2 _____ A little
- 3 _____ Somewhat
- 4 _____ Well

J-5 How well do you speak English?

- 1 _____ Not at all
- 2 _____ A little
- 3 _____ Somewhat
- 4 _____ Well

J-6 How well do you read English?

- 1 _____ Not at all
- 2 _____ A little
- 3 _____ Somewhat
- 4 _____ Well

J-7 Do you have any suggestions about how your health and safety at work could be better protected?

J-8 As a result of the pesticide training you received at work, did you change the way you work?

0 _____ No

1 _____ Yes (see below)

What changes did you make in the way you work?

98 _____ Don't know

J-9 A pesticide is any substance that is used to kill unwanted plants, insects, fungi, and rodents. Do you use pesticides in your home or garden?

0 _____ No

1 _____ Yes

98 _____ Don't know

J-10 Is there anything we have not asked you about your health and safety at work that you think is important?

END OF INTERVIEW

[Interviewer. Please mention]:

Thank you for your participation. I would like to give you a pamphlet about protecting yourself from pesticides. You will also get a list of phone numbers to call if you need more information about pesticides in San Luis Obispo County. Also, I will give you some information on how to get medical care and other benefits if there is an injury or illness resulting from work.

We will write a report of our findings. Would you like us to send you a copy?

_____ No

_____ Yes. If yes:

_____ Spanish? OR

_____ English?

Von's voucher given to participant?

_____ No

_____ Yes

of Certificate:

APPENDIX 3
Spanish Questionnaire

SECTION A: HOUSEHOLD GRID _____

Farmworker ID

A-1	A-2	A-3	A-4	A-5/A-6	A-7	A-8	A-9	A-10	A-11	A-12	A-13	A-14	A-15	A-16	A-17
NAME (FIRST NAME ONLY)	RELATION [CODE]	SEX	MARITAL STATUS	BIRTH DATE [MM/YY FOR WORKER ONLY]. AGE FOR ALL	PLACE OF BIRTH [CODE]	HIGHEST GRADE	COUNTRY SCHOOL [CODE]	ANY U.S.A. SCHOOL (EVER)?	DO YOU LIVE IN SAN LUIS OBISPO COUNTY: ...	LIVE WITH YOU NOW?	[IF BORN "AB," ASK]: YEAR FIRST ENTERED U.S.A.?	YEAR FIRST DID FW IN THE U.S.A.?	HOW MANY YEARS HAVE YOU DONE FW?	IN THE LAST 12 MONTHS, ANY FW IN THE U.S.A.?	[FOR UNDER 18 YEARS OLD ONLY]: LAST 12 MONTHS, EVER ACCOMPANIED YOU TO THE SITE (FIELD) OF YOUR FW ?
A. (FARMWORKER)		M F	S M O	[AGE & B- DAY]				Y N N/A	1 ... YEAR ROUND? 2 ... 6-12 MONTHS? 3 ... 1-6 MONTHS?						
B.		M F	S M O	[AGE ONLY]						Y N				Y N N/A	Y N N/A
C.		M F	S M O	[AGE ONLY]						Y N				Y N N/A	Y N N/A
D.		M F	S M O	[AGE ONLY]						Y N				Y N N/A	Y N N/A
E.		M F	S M O	[AGE ONLY]						Y N				Y N N/A	Y N N/A
F.		M F	S M O	[AGE ONLY]						Y N				Y N N/A	Y N N/A
G.		M F	S M O	[AGE ONLY]						Y N				Y N N/A	Y N N/A
H.		M F	S M O	[AGE ONLY]						Y N				Y N N/A	Y N N/A

CODES FOR A2:

1 = SPOUSE/Common Law Spouse
 2 = Own Child, Dependent or Adopted
 3 = Sibling
 4 = Parent
 5 = Grandchild
 6 = Other Relative Cousins, Uncles, Etc.)
 7 = Other: _____

(Country Codes) for A7 and A9:

1= U.S.A.
 2= Puerto Rico
 3= Mexico
 4= Central America
 5= South America
 6= Caribbean

7= Southeast Asia (Indonesia, Cambodia, Vietnam, Laos, Thailand)
 8= Pacific Islands (The Philippines, Guam, Fiji, Etc.)
 9= Asia (China, Japan, Korea, Etc.)
 97=Other: _____
 99=Not Answered

A-18/22 [ESTAS PREGUNTAS SE REFIEREN A LAS PERSONAS QUE VIVEN CON EL ENTREVISTADO, PERO NO FUERON MENCIONADAS EN LA TABLA ANTERIOR!!]

A-18 Además de las personas que me mencionó anteriormente, cuántas otras viven con Ud. ahora? TOTAL: De estas (total), ¿cuántas personas son...	A-19 ¿Cuántas hacen FW?	A-20 ¿Cuántas hacen NF?	A-21 ¿Cuántas no trabajan (NW)?	A-22 ¿Cuántas son sus parientes o familiares?
a... adultas (mayores de 18 años)?				
b... menores (menores de 18 años)?				
c... no sabe la edad?				

SECCIÓN B: ESTADO DE SALUD

[ENCUESTADOR]: Como mencioné, este estudio trata sobre la salud en el lugar de trabajo. Primero queremos saber...

B-1 ...en general, ¿cómo considera que está de salud? (¿Cómo se siente?)

- 1 _____ Muy bien
- 2 _____ Más o menos
- 3 _____ Mal
- 98 _____ No sé
- 99 _____ Rehusa

B-2 Como trabajador(a) de campo, ¿qué problemas de salud son los que más le preocupan? Escoja hasta tres de la siguiente lista **[Lea lista]...**

- 1 _____ Accidentes en el campo (cortaduras, fracturas, etc.)?
- 2 _____ Torceduras y dolores musculares? (espalda, cuello, brazos, etc)?
- 3 _____ Químicos (incluye pesticidas)?
- 4 _____ Accidentes en vehículos?
- 5 _____ Cáncer?
- 6 _____ Problemas respiratorios (asma, alergias)?
- 7 _____ Problemas de la piel (ronchas, alergias)?
- 8 _____ Problemas de los ojos?
- 9 _____ Otro? Especificar _____

B-3 Si se enferma, ¿adónde iría para recibir asistencia médica? **[Marque todas las respuestas]**

- 1 _____ Clínica migrante
- 2 _____ Consultorio médico
- 3 _____ Sala de emergencia/hospital
- 4 _____ Llamada al 911
- 5 _____ Sobador (curandero)
- 6 _____ Voy a México/mi país
- 7 _____ Decide auto-medicarse
- 8 _____ Otro: _____
- 98 _____ No sé
- 99 _____ Rehusa

B-4 Cuándo necesita asistencia médica (en los EE.UU.), ¿cuáles son las principales dificultades que encuentra? **[Marque todas las respuestas]**

- 1 _____ No tengo seguro médico /"aseguranza"
- 2 _____ No sé dónde hay servicios de asistencia médica
- 3 _____ No están abiertos cuando los necesito
- 4 _____ No ofrecen lo que necesito
- 5 _____ No hablan mi idioma
- 6 _____ No me tratan con respeto
- 7 _____ No entienden mis problemas
- 8 _____ Perdería mi trabajo/empleo
- 9 _____ Muy caro
- 10 _____ Otro: _____
- 98 _____ No sé
- 99 _____ Rehusa

C. HISTORIA LABORAL EN LA AGRICULTURA (3 MESES)

En los últimos 3 meses, ¿en qué cultivos y tareas ha trabajado en el condado de San Luis Obispo?

C1	C2	C3	C4
DESDE (MES/DÍA)	HASTA (MES/DÍA)	CULTIVO	TAREAS/ACTIVIDADES

SECTION D: PRESENCIA DE PESTICIDAS: CONOCIMIENTO Y ACTITUD

[ENCUESTADOR]: Ahora voy a preguntarle sobre los pesticidas que pueden ser usados en los cultivos en su trabajo. Los pesticidas son químicos que sirven para eliminar hierbas malas, insectos, enfermedades de plantas, y roedores.

D-1 En qué formas puede contaminarse con los pesticidas mientras trabaja (FW)?

[Sondear: ¿Puede decirme por lo menos tres maneras cómo los pesticidas pueden entrar en el cuerpo o en los órganos? Escriba todas si son más de tres]

D-2 ¿En qué formas se puede Ud. proteger de los pesticidas cuando trabaja en el campo?

[Si es “no sé”, sondear: ¿Sabe o ha escuchado de algunas formas de protección contra la contaminación de los pesticidas en el campo? Marque todas]

- 1 _____ Usar equipo apropiada
- 2 _____ Bañarse/”ducha”/”regadera”
- 3 _____ Lavar la ropa de trabajo apropiadamente
- 4 _____ Otro:

- 98 _____ No sé
- 99 _____ Rehusa

D-3 ¿Quién le da a Ud. información sobre los pesticidas que puedan ser usados en su trabajo.
[Lea la lista y marque todas las respuestas]

- 1 _____ Supervisor o mayordomo?
- 2 _____ Compañeros de trabajo?
- 3 _____ Clínica?
- 4 _____ Amigos?
- 5 _____ “Unión” / Sindicato?
- 6 _____ Familia?
- 7 _____ Organizaciones? Especifique:

- 8 _____ Otro? Especifique:

- 9 _____ No recibo información
- 98 _____ No sé
- 99 _____ Rehusa

D-4 ¿Cómo sabe cuándo es seguro comenzar a trabajar en un campo (“field”) que ha sido recientemente rociado con pesticidas?
(NO LEA LA LISTA, marque todas las que correspondan)

- 1 _____ Avisos en un lugar céntrico en el trabajo – pero no en el “field”
- 2 _____ Los letreros, avisos en el “field”
- 3 _____ Mayordomo / patrón / supervisor me informa
- 4 _____ Las etiquetas de los pesticidas
- 5 _____ Otro, especifique:

- 98 _____ No sé
- 99 _____ Rehusa

[ENCUESTADOR]:

Ahora voy a hacerle algunas preguntas acerca de lo que haría Ud. si se expone o tiene contacto con pesticidas.

D-5 Por favor dígame: ¿qué es lo que haría si le cae/entra pesticidas en los ojos?

(NO LEA LA LISTA, marque todas las que correspondan)

- 1 _____ Enjuagar inmediatamente los ojos con agua
- 2 _____ Ir inmediatamente al doctor
- 3 _____ Seguir trabajando, después ir al doctor
- 4 _____ Seguir trabajando, ignorar el problema
- 5 _____ Decirle al supervisor o mayordomo
- 6 _____ Otro, especifique:

98 _____ No sé
99 _____ Rehusa

D-6 ¿Qué es lo que haría si accidentalmente toma (bebe/traga/ingiere) pesticidas?

(NO LEA LA LISTA, marque todas las que correspondan)

- 1 _____ Ir al doctor inmediatamente
- 2 _____ Seguir trabajando, después ir al doctor
- 3 _____ Seguir trabajando, ignorar el problema
- 4 _____ Vomitar/arrojar
- 5 _____ Tomar/beber leche
- 6 _____ Tomar/beber agua
- 7 _____ Decirle al supervisor o mayordomo
- 8 _____ Otro, especifique:

98 _____ No sé
99 _____ Rehusa

D-7 ¿Qué es lo que haría si accidentalmente le cae (derraman) pesticidas en la piel?

(NO LEA LA LISTA, marque todas las que correspondan)

- 1 _____ Ir al doctor inmediatamente
- 2 _____ Seguir trabajando, después ir al doctor
- 3 _____ Seguir trabajando, ignorar el problema
- 4 _____ Lavarse la piel inmediatamente
- 5 _____ Quitarse/cambiarse la ropa contaminada inmediatamente
- 6 _____ Bañarse en casa
- 7 _____ Decirle al supervisor o mayordomo
- 8 _____ Otro, especifique:

98 _____ No sé
99 _____ Rehusa

SECTION E: TESTIMONIOS DE EXPERIENCIAS CON PESTICIDAS

[ENCUESTADOR]: Por favor recuerde que para las siguientes preguntas los pesticidas son químicos que sirven para eliminar hierbas malas, insectos, enfermedades de plantas y roedores.

E-1 ¿Qué pesticidas usan en el lugar donde trabaja (rancho)? Por favor dígame todos los que se acuerde...

- 1 _____ No usan pesticidas donde trabajo **[pase a E-4]**
- 2 _____ Usan pesticidas, pero no sé cuáles son
- 98 _____ No sé
- 99 _____ Rehusa **[pase a E-4]**

E-2 ¿Cuántas veces tiene contacto con los pesticidas mientras trabaja (FW)? Diría Ud. que...

- 1 _____ Nunca?
2 _____ A veces?
3 _____ Muchas veces?
4 _____ No estoy seguro(-a)?
98 _____ No sé
99 _____ Rehusa

E-3 ¿Qué tareas hace cuando tiene contacto con los pesticidas?

- 1 _____ Mezclando, cargando, rociando pesticidas
2 _____ Trabajando en el "field" ("pizcando", "azadón", etc.)
3 _____ Empacando
4 _____ Otro: _____
98 _____ No sé
99 _____ Rehusa

[ENCUESTADOR]: Algunos creen que el estar expuestos a los pesticidas puede causar problemas de salud, pero hay otros que no creen eso. Quisiera saber cuál es su opinión...

E-4 ¿Cree Ud. que su salud ha sido afectada por los pesticidas? Diría Ud. ...

- 1 _____...De ninguna manera ("para nada")?
2 _____...No lo suficiente como para preocuparme?
3 _____...Lo suficiente como para preocuparme un poco?
4 _____...Lo suficiente como para preocuparme mucho?
98 _____ No sé
99 _____ Rehusa

E-5 ¿Cree Ud. que los pesticidas del campo se pegan (impregnan) en la ropa y luego afectan la salud de los niños en casa? Diría que...

- 0 _____...No?
1 _____...Sí?
98 _____...No sé
99 _____ Rehusa

SECCIÓN F: TRABAJOS CON PESTICIDAS (CONTACTO DIRECTO)

F-1 Durante su trabajos en el condado de San Luis Obispo, ¿ha mezclado, cargado, aplicado pesticidas o ha limpiado o reparado recipientes o maquinaria para guardar o aplicar pesticidas? ...

a ... en los últimos 12 meses, con su empleador/"patrón" actual en San Luis Obispo?

- 0 _____ No
1 _____ Sí

b ... en los últimos 12 meses, pero NO con su empleador/"patrón" actual en San Luis Obispo?

- 0 _____ No
1 _____ Sí

[Si es "NO" en "F-1a" y "F-1b", pase a "G-1". Si es "Sí" en "F-1a" O "F-1b", continúe con "F-2"]

F-2 (En San Luis Obispo) antes de empezar a hacer ese trabajo **[en "F1"]**, ¿recibió entrenamiento sólo para mezcladores, cargadores, o aplicadores de pesticidas?

- 0 _____ No **[pase a F-4]**
1 _____ Sí
98 _____ No sé **[pase a F-4]**
99 _____ Rehusa **[pase a F-4]**

F-3 En el entrenamiento, ¿le enseñaron cómo limpiar y mantener su equipo de protección?

- 0 _____ No
1 _____ Sí
98 _____ No sé
99 _____ Rehusa

F-4 La última vez que hizo este trabajo **[en F-1]**, ¿usó alguno de los siguientes equipos de protección? **[MUESTRE LÁMINA. MARQUE LAS QUE CORRESPONDAN]**

- a _____ Nada
- b _____ Guantes: tela/cuero
- c _____ Guantes: hule delgado
- d _____ Guantes: hule grueso
- e _____ Manguillas
- f _____ Traje de protección contra químicos
- g _____ Botas
- h _____ Respirador
- i _____ Casco
- j _____ Lentes/anteojos/gafas
- k _____ Mascarilla de papel
- l _____ Bandana / pañuelo
- m _____ Sombrero / "cachucha"
- n _____ Otro: _____

F-5 En los últimos 12 meses, por causa de ese trabajo **[en "F1"]** se enfermó o tuvo alguna reacción?

- 0 _____ No **[pase a F-14]**
- 1 _____ Sí
- 98 _____ No sé **[pase a F-14]**
- 99 _____ Rehusa **[pase a F-14]**

F-6 ¿Qué problemas (de salud) tuvo? (Describe la enfermedad) **(Sondear: "por favor describa el problema o síntoma")**

- 98 _____ No sé **[pase a F-14]**
- 99 _____ Rehusa **[pase a F-14]**

F-7 ¿Cuántos días continuó trabajando con ese problema (de salud)?

- _____ Días
- 98 _____ No sé
- 99 _____ Rehusa

F-8 ¿Cuántos días dejó de trabajar por causa de ese problema (de salud)?

- _____ Días
- 98 _____ No sé
- 99 _____ Rehusa

F-9 ¿Le mencionó a su patrón que se enfermó por causa de los pesticidas?

- 0 _____ No **[Si es "no"]**:¿Por qué no?:

1 _____ Sí **[Si es "sí"]**:¿Qué es lo que hizo su "patrón"?:

- 98 _____ No sé
- 99 _____ Rehusa

F-10 Por causa de ese problema (de salud), ¿recibió algún tratamiento por ese problema?

- 0 _____ No **[pase a F-14]**
- 1 _____ Sí
- 99 _____ Rehusa **[pase a F-14]**

F-11 ¿Adónde fue para recibir ese tratamiento?

- 1 _____ Clínica migrante
2 _____ Consultorio del doctor
3 _____ Sala de emergencia / hospital
4 _____ “Sobador”/curandero **[si no es relevante, pase a F-14]**
5 _____ Regresé a mi país **[pase a F-14]**
6 _____ Decidió auto-medicarse, especifique:
_____ **[pase a F-14]**
7 _____ Otro, especifique:
_____ **[si no es relevante, pase a F-14]**

F-12 ¿Cómo se llama la clínica/ hospital/ otro **[en “F-11”]**?

- 98 _____ No sé
99 _____ Rehusa

F-13 ¿Cómo llegó a ese lugar **[en “F-11”]**?

- 1 _____ Caminando
2 _____ Yo mismo manejé
3 _____ El mayordomo me llevó en **MI** vehículo
4 _____ El mayordomo me llevó en **SU** vehículo
5 _____ Un compañero me llevó en su vehículo
6 _____ Usé transporte público
7 _____ Un miembro de mi familia me llevó después del trabajo
8 _____ Otro, especifique:

- 98 _____ No sé
99 _____ Rehusa

F-14 En su trabajo actual, ¿hay algún lugar limpio para guardar su equipo personal de protección?

- 0 _____ No
1 _____ Sí
98 _____ No sé
99 _____ Rehusa

SECCIÓN G: CONTACTO CON PESTICIDAS (INDIRECTO O ACCIDENTAL)

G-1 Aparte de lo que le he preguntado acerca de trabajar con pesticidas (accidentalmente), alguna vez le derramaron o rociado o caído pesticida a alguna parte de su cuerpo, por ejemplo ...

- 1 _____ ...Ha sido rociado o por causa del viento?
2 _____ ...Le derramaron (por accidente)?
3 _____ ...Cuando tocaba cultivos o plantas después que los pesticidas fueron aplicados en ellos?
4 _____ ...Limpiando o reparando recipientes o máquinas de aplicar pesticidas?
5 _____ ...Manejando maquinaria (como tractor, segadora, cosechadora)?
6 _____ ...Entrando a un campo rociado o tratado con pesticidas?
7 _____ ...Nada **[pase a G-11]**
9 _____ ...Otro, especifique:

- 98 _____ No sé **[pase a G-11]**
99 _____ Rehusa **[pase a G-11]**

G-2 Por causa de ese incidente **[en “G-1”]**, se enfermó o tuvo alguna reacción?

- 0 _____ No **[pase a G-11]**
1 _____ Sí
98 _____ No sé **[pase a G-11]**
99 _____ Rehusa **[pase a G-11]**

G-3 ¿Qué problemas (de salud) tuvo? **(Sondear: “por favor describa el problema o síntoma”)**

- 98 _____ No sé **[pase a G-11]**
99 _____ Rehusa **[pase a G-11]**

G-4 ¿Cuántos días continuó trabajando con ese problema (de salud)?

- _____ Días
98 _____ No sé
99 _____ Rehusa

G-5 ¿Cuántos días dejó de trabajar por causa de ese problema (de salud)?

- _____ Días
98 _____ No sé **[pase a G-11]**
99 _____ Rehusa **[pase a G-11]**

G-6 ¿Le mencionó a su patrón que se enfermó por causa de los pesticidas?

0 _____ No **[Si es "no"]**: ¿Por que no?:

1 _____ Sí **[Si es "sí"]**: ¿Qué es lo que hizo su "patrón"?:

- 98 _____ No sé
99 _____ Rehusa

G-7 Y...por ese problema (de salud), ¿recibió algún tratamiento?

- 0 _____ No **[pase a G-11]**
1 _____ Sí
99 _____ Rehusa **[pase a G-11]**

G-8 ¿Adónde fue para recibir este tratamiento?

- 1 _____ Clínica migrante
2 _____ Consultorio del doctor
3 _____ Sala de emergencia / hospital
4 _____ "Sobador"/curandero **[si no es relevante, pase a G-11]**
5 _____ Regresé a mi país **[pase a G-11]**
6 _____ Decidió auto-medicarse, especifique: **[pase a G-11]**
7 _____ Otro, especifique: **[si no es relevante, pase a G-11]**

G-9 ¿Cómo se llama la clínica/ hospital/ otro **[en "G-8"]**?

- 98 _____ No sé
99 _____ Rehusa

G-10 ¿Cómo llegó a ese lugar **[en "G-8"]**?

- 1 _____ Caminando
2 _____ Yo mismo manejé
3 _____ El mayordomo me llevó en **MI** vehículo
4 _____ El mayordomo me llevó en **SU** vehículo
5 _____ Un compañero me llevó en su vehículo
6 _____ Usé transporte público
7 _____ Un miembro de mi familia me llevó después del trabajo
8 _____ Otro, especifique:

- 98 _____ No sé
99 _____ Rehusa

G-11 En su trabajo actual, ¿generalmente usa ...

- 1 _____ Camisa de manga larga?
2 _____ Pantalones (largos)?
3 _____ Zapatos o botas **[no sandalias]**?
4 _____ Medias, calcetines?
5 _____ Guantes?
a _____ tela/cuero
b _____ hule delgado
c _____ hule grueso
6 _____ Sombrero (cualquier tipo)?
7 _____ Una "bandana", pañuelo, o algo parecido para cubrirse la boca?
8 _____ Otro, especifique: _____
99 _____ Rehusa

SECTION H: ENTRENAMIENTO

H-1 ¿Ha recibido alguna tarjeta de certificación por entrenamiento en el uso adecuado de pesticidas?

- 0 _____ No
1 _____ Sí **[Si es "sí"]**: ¿Cuándo recibió esa tarjeta **[última vez]**?
_____ mes _____ año
98 _____ no sé
99 _____ rehusa

[Encuestador]: Las siguientes preguntas se refieren a la información o entrenamiento que puede haber recibido en San Luís Obispo acerca de medidas de seguridad en el uso de pesticidas.

H-2 En los últimos 12 meses, con su actual empleador en el condado de San Luis Obispo, ¿alguien le ha dado entrenamiento acerca de medidas de seguridad en el uso de pesticidas?

- 0 _____ No
1 _____ Sí **[pase a H-4]**
98 _____ No sé
99 _____ Rehusa

H-3 Y...en los últimos **5 AÑOS, con cualquier otro “patrón” en San Luís Obispo**, ¿ha recibido algún entrenamiento (acerca de medidas de seguridad en el uso de pesticidas)?

- 0 _____ No **[pase a H-17]**
1 _____ Sí
98 _____ No sé **[pase a H-17]**
99 _____ Rehusa **[pase a H-17]**

H-4 ¿Cuándo fue (se realizó) ese entrenamiento?
[Si más de un entrenamiento en “H-2” O “H-3” pregunte por el último o más reciente]

_____ mes _____ año

- 98 _____ No sé, no recuerdo
99 _____ Rehusa

H-5 ¿Dónde se realizó ese entrenamiento?

- 1 _____ En el (lugar del) trabajo
2 _____ En la clínica
3 _____ En la oficina del departamento de agricultura del condado
4 _____ En un entrenamiento del departamento de agricultura del condado
5 _____ Otro, especifique:

98 _____ No sé, no recuerdo
99 _____ Rehusa

H-6 ¿En qué idioma se realizó ese entrenamiento?

- 1 _____ Español
2 _____ Inglés
3 _____ Bilingüe: español e inglés
4 _____ Mixteco
5 _____ Tagalog/Ilocano
6 _____ Otro, especifique:

- 98 _____ No sé, no recuerdo
99 _____ Rehusa

H-7 ¿Cuánto tiempo duró el entrenamiento?

- 1 _____ Menos de 15 minutos
2 _____ De 16 a 30 minutos
3 _____ De 31 a 60 minutos
4 _____ 1 a 2 horas
5 _____ Más de 2 horas

H-8 ¿Cómo hicieron la presentación del entrenamiento? (¿Qué materiales usaron?)
[Marque todas las que correspondan]

- 1 _____ Cintas de video
2 _____ Cintas de audio-cassette
3 _____ Conferencia formal / clase
4 _____ Materiales impresos
5 _____ Instrucciones informales en el campo
6 _____ Otro, especifique:

- 98 _____ No sé, no recuerdo

H-9 ¿Quién hizo (llevó a cabo) el entrenamiento?
[Marque todas las que correspondan]

- 1 _____ “Patrón” o su personal
2 _____ “Mayordomo/supervisor”
3 _____ Contratista o su personal
4 _____ Agencia del gobierno
5 _____ Agencia de seguros/“aseguranza”
6 _____ “Unión” / sindicato
7 _____ Organización de la comunidad
8 _____ Otro, especifique:

- 98 _____ No sé, no recuerdo

H-10 ¿Qué temas trataron en el entrenamiento?
[Marque todas las que correspondan.
Asegúrese de no hacer sentir al entrevistado
obligado a responder “sí” a todas las opciones.
Lea las opciones]: ¿mencionaron...

- 1 _____ Cuándo entrar a un campo rociado con
pesticidas?
2 _____ Enfermedades causadas por los
pesticidas?
3 _____ Dónde o a quién acudir por asistencia
médica en caso de emergencia?
4 _____ Cómo puede exponerse (contaminarse)
con los pesticidas mientras trabaja?
6 _____ Qué hacer si Ud. cree que ha estado
expuesto o se ha contaminado con los
pesticidas?
7 _____ Cómo recibir información acerca de los
pesticidas con los que Ud. trabaja?
8 _____ Cómo proteger su casa y su familia de
los pesticidas?
98 _____ No sé
99 _____ Rehusa

H-11 Durante el entrenamiento, ¿pudo hacer
preguntas o comentarios acerca de lo que se
presentaba en el entrenamiento?

- 0 _____ No
1 _____ Sí
98 _____ No sé, no recuerdo

H-12 (En el entrenamiento) ¿Le dieron (regalaron)
algún tipo de material impreso como libros,
panfletos, folletos?

- 0 _____ No
1 _____ Sí
98 _____ No sé, no recuerdo

H-13 (En el entrenamiento) ¿Le mencionaron que
existen leyes que protegen a los trabajadores de
campo de los efectos de los pesticidas?

- 0 _____ No
1 _____ Sí
98 _____ No sé, no recuerdo

H-14 (En el entrenamiento) ¿Le mencionaron que
sus derechos legales están protegidos bajo estas
leyes? **(Las leyes de protección de los**
trabajadores contra los efectos de los
pesticidas)

- 0 _____ No
1 _____ Sí
98 _____ No sé, no recuerdo

H-15 (En el entrenamiento) ¿Le mencionaron las
responsabilidades de su patrón que son parte de
esas leyes?

- 0 _____ No
1 _____ Sí
98 _____ no sé, no recuerdo

H-16 En su opinión, ¿cómo cree que podría haber
mejorado el entrenamiento?

- 98 _____ No sé
99 _____ Rehusa

H-17 En su trabajo actual, ¿hay alguna persona a
quien Ud. pueda pedir información acerca del uso
de pesticidas?

- 0 _____ No
1 _____ Sí
98 _____ No sé, no recuerdo

[Entrevistador: Si el trabajador pregunta acerca de las leyes, respóndale que al final de la encuesta recibirá un folleto con esta información. También recibirá un número de teléfono de llamada gratis junto con la hoja de autorización para esta entrevista]

SECCIÓN I: SALUBRIDAD EN EL LUGAR DE EMPLEO

Ahora le voy a preguntar acerca de las condiciones de salubridad en su lugar de trabajo

I-1 Su empleador coloca avisos en el campo cuando éste ha sido rociado con pesticidas?

- 0 _____ No
1 _____ Sí
98 _____ No sé, no recuerdo
99 _____ Rehusa

I-2 ¿Sabe cómo obtener información de los pesticidas que usan donde trabaja?

- 0 _____ No
1 _____ Sí
2 _____ No usan pesticidas donde trabajo
98 _____ No sé, no recuerdo
99 _____ Rehusa

I-3 ¿Alguna vez ha tratado de obtener información sobre los pesticidas que usan en su trabajo? **[Encuestador: pregunte ¿qué?/¿de quién? O ¿de dónde? ¿resultado?]**

- 0 _____ No: _____
98 _____ No sé, no recuerdo
99 _____ Rehusa

I-4 Cuando está trabajando (FW), ¿hay agua potable y vasos desechables, TODOS LOS DÍAS?

- 0 _____ No **[pase a I-7]**
1 _____ Sí
98 _____ No sé **[pase a I-7]**
99 _____ Rehusa **[pase a I-7]**

I-5 ¿Bebe Ud. el agua?

- 0 _____ No
1 _____ Sí **[pase a I-7]**
98 _____ No sé **[pase a I-7]**
99 _____ Rehusa **[pase a I-7]**

I-6 ¿Por qué no la bebe?
(Sondear: Si dice: "Yo traigo mi propia agua". Pregunte: ¿Por qué? Y escriba la respuesta en "Otro")

- 1 _____ Muy lejos
2 _____ Sucia
3 _____ Otro, especifique

-
- 98 _____ No sé
99 _____ Rehusa

I-7 Cuando está trabajando (FW), ¿hay agua para lavarse las manos TODOS LOS DÍAS?

- 0 _____ No **[pase a I-13]**
1 _____ Sí
98 _____ No sé **[pase a I-13]**
99 _____ Rehusa **[pase a I-13]**

I-8 ¿Ud. la usa? (esa agua para lavarse?)

- 0 _____ No
1 _____ Sí **[pase a I-10]**
98 _____ No sé
99 _____ Rehusa

I-9 ¿Por qué no la usa?

- 1 _____ Muy lejos
2 _____ Sucia
3 _____ Otro, especifique

- 98 _____ No sé
99 _____ Rehusa

I-10 ¿Cuándo la usa?

[Marque todas las que correspondan]

- 1 _____ Antes de usar el "toilet"
2 _____ Después de usar el "toilet"
3 _____ Antes de comer
4 _____ Antes de comenzar el trabajo
5 _____ Antes de regresar a casa
6 _____ Otro, especifique

- 98 _____ No sé
99 _____ Rehusa

I-11 (Con su empleador actual) ¿Ponen jabón para lavarse las manos TODOS LOS DÍAS?

- 0 _____ No
1 _____ Sí
98 _____ No sé
99 _____ Rehusa

I-12 (Con su empleador actual) ¿Ponen toallas para secarse las manos TODOS LOS DÍAS?

- 0 _____ No
1 _____ Sí
98 _____ No sé
99 _____ Rehusa

I-13 Con su empleador actual, ¿alguna vez ha tenido que hacer sus necesidades al "aire libre"?

- 0 _____ No **[pase a I-15]**
1 _____ Sí
98 _____ No sé **[pase a I-15]**
99 _____ Rehusa **[pase a I-15]**

I-14 ¿Por qué tuvo que hacer sus necesidades "al aire libre?"

- 1 _____ "Toilet"/baño muy lejos
2 _____ Otro, especifique:

- 98 _____ No sé
99 _____ Rehusa

I-15 En **SU TRABAJO**, ¿hay algún lugar donde pueda bañarse?

- 0 _____ No
1 _____ Sí (Si es "sí", pregunte):
a _____ regadera/ducha "regular"? O
b _____ regadera/"ducha" de
"decontaminación"?

- 98 _____ No sé
99 _____ Rehusa

I-16 Y...(en el lugar) **DONDE VIVE** ahora, ¿tiene dónde bañarse ("ducha"/"regadera" o tina)?

- 0 _____ No
1 _____ Sí
98 _____ No sé
99 _____ Rehusa

I-17 Generalmente, ¿cuándo se baña ("ducha", "regadera" o tina)? ¿Diría ...

- 1 _____ Antes del trabajo?
2 _____ Después del trabajo?
3 _____ Otro, especifique:

- 98 _____ No sé
99 _____ Rehusa

I-18 Generalmente, ¿dónde lava su ropa de trabajo?

- 1 _____ Lavadora donde vivo
- 2 _____ A mano donde vivo
- 3 _____ Lavandería
- 4 _____ Otro, especifique:

I-19 ¿Lava su ropa de trabajo en forma separada (o aparte) de otras?

- 0 _____ No
- 1 _____ Sí
- 98 _____ No sé, no recuerdo
- 99 _____ Rehusa

I-20 ¿Se cambia de ropa de trabajo inmediatamente después del trabajo?

- 0 _____ No
- 1 _____ Sí
- 98 _____ No sé, no recuerdo
- 99 _____ Rehusa

SECCIÓN J: OTROS DATOS DEMOGRÁFICOS

J-1 ¿Cómo se describe Ud.? [Lea las opciones y marque las respuestas]

- 1 _____ Indio americano, nativo de Alaska
- 2 _____ Asiático
- 3 _____ Afro-americano o negro
- 4 _____ Chicano
- 5 _____ Filipino
- 6 _____ Indígena Mexicano
- 7 _____ Mexicano-Americano
- 8 _____ Mexicano
- 9 _____ Puerto Riqueño
- 10 _____ Blanco
- 11 _____ Otro, especifique:

99 _____ Rehusa

J-2 ¿Qué idiomas habla Ud.? [Marque todas las que correspondan]

- 1 _____ Inglés
- 2 _____ Español
- 3 _____ Tagalog/Ilocano
- 4 _____ Mixteco
- 5 _____ Otro, especifique:

99 _____ Rehusa

J-3 ¿Qué idiomas habla en casa con su familia?

- 1 _____ Inglés
- 2 _____ Español
- 3 _____ Tagalog/Ilocano
- 4 _____ Mixteco
- 5 _____ Otro, especifique:

99 _____ Rehusa

[Si habla español (en "J-2" y/o "J-3") continúe. Si no habla español, pase a J-6]

J-4 ¿Qué tan bien lee el español?

- 1 _____ Nada
- 2 _____ Un poquito
- 3 _____ Algo
- 4 _____ Bien

J-5 ¿Qué tan bien habla el inglés?

- 1 _____ Nada
- 2 _____ Un poquito
- 3 _____ Algo
- 4 _____ Bien

J-6 ¿Qué tan bien lee el inglés?

- 1 _____ Nada
- 2 _____ Un poquito
- 3 _____ Algo
- 4 _____ Bien

J-7 Por favor, dígame en que formas puede mejorar el cuidado y protección de su salud y su seguridad en el trabajo?

J-8 Como resultado del entrenamiento acerca de pesticidas que recibió Ud. (en el trabajo), ¿ha cambiado Ud. Su manera de trabajar ?

0 _____ No

1 _____ Sí

¿Qué cambios ha hecho en su manera de trabajar?

98 _____ No sé

J-9 Los pesticidas son químicos que sirven para eliminar hierbas malas, insectos, enfermedades de plantas y roedores. ¿Usa Ud. pesticidas en su casa o en su jardín?

0 _____ No

1 _____ Sí

98 _____ No sé

J-10 ¿Hay algo que no le he preguntado acerca de su salud y la seguridad en el trabajo que cree Ud. que sea importante?

FIN DE LA ENTREVISTA

[Encuestador, mencione lo siguiente al participante]:

Muchísimas gracias por su participación. Le voy a entregar un folleto con información acerca de cómo protegerse de los pesticidas. También le voy a dar una lista de teléfonos para que Ud. pueda llamar y recibir más información acerca de los pesticidas en el Condado de San Luís Obispo. Además le daré información para que sepa cómo obtener asistencia médica y otros beneficios si Ud. es víctima de alguna enfermedad o dolencia causada por los pesticidas.

Nosotros escribiremos un informe con los resultados de este estudio. ¿Le gustaría recibir una copia de este informe?

_____ No

_____ Sí. Si la respuesta es “sí”, pregunte:
¿en qué idioma quiere el informe?:

_____ Español? O

_____ Inglés?

¿Le dió el “Cupón de Von’s” al participante?

_____ No

_____ Sí

del Cupón:

APPENDIX 4

Multiple Response, Open-ended and Prompted Questions

Questions		
<i>Multiple Response*</i>	<i>Open-ended</i>	<i>Prompted**</i>
B-2, B-3, B-4		B-2
C-3, C-4	C-3, C-4	
D-2, D-3, D-4, D-5, D-6, D-7	D-1	D-1 (Probe), D-2 (Probe), D-3
	E-1	
F-4, F-11, F-13	F-6	F-4 (Picture), F-6 (Probe)
G-1, G-8, G-11	G-3	
H-8, H-9, H-10		H-4 (Probe)
I-10	I-3	I-3 (Probe), I-6 (Probe), I-17
J-1, J-2, J-3	J-7, J-8, J-10	

*Responses to these questions may not add to 100%.

**Prompted is read all that apply questions unless otherwise noted in parentheses.

APPENDIX 5

Changes Made to Survey Instrument in Phase II

The following changes were made:

1. **D-1: The Probe was changed because Project Staff felt that respondents were misinterpreting question.**

Old Probe:

*[Probe: Can you think of at least three ways you can be exposed/come into contact?
Enter all if more than three]*

New Probe:

[Probe: Can you think of at least three ways pesticides can enter your body or organs? Enter all if more than three]

2. **A new question was added (previous question with same number was renumbered J-10):**

J-8

As a result of the pesticide training you received at work, did you change the way you work?

0 _____ No

1 _____ Yes (see below)

What changes did you make in the way you work?

98 _____ *Don't know*

3. **A new question was added:**

J-9

A pesticide is any substance that is used to kill unwanted plants, insects, fungi, and rodents. Do you use pesticides in your home or garden?

0 _____ No

1 _____ Yes

98 _____ *Don't know*

APPENDIX 6

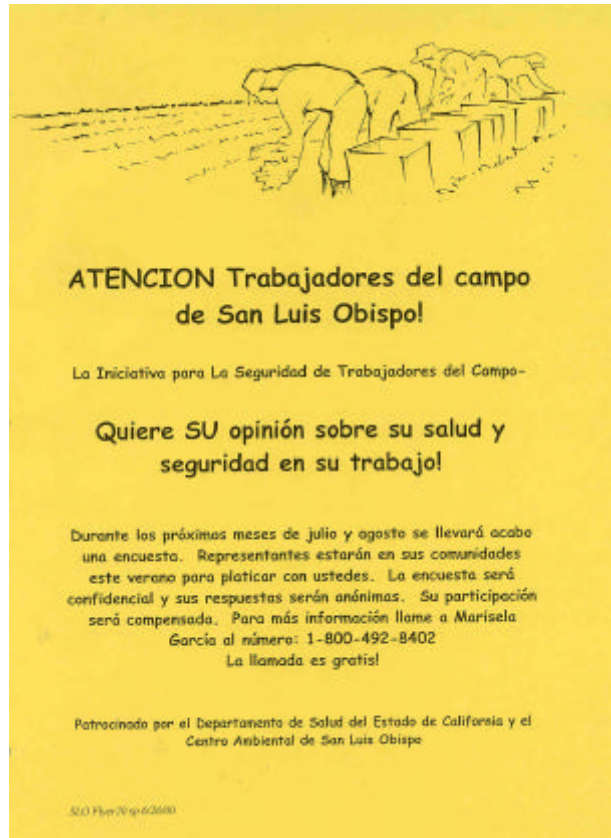
Confidence Intervals for Continuous Variables

Variable	Average	Standard Deviation (SD)	Standard Error*	95% Confidence Interval
Age	36.13	12.46	1.06	34.04 – 38.23
Highest grade	6.27	3.48	0.30	5.68 - 6.86
Number of children under 15 in household	2.03	1.31	0.18	1.72 – 2.34
Number of children under 15 not living with farmworker	1.95	1.35	0.31	1.30 – 2.60
Years in the U.S.	12.32	9.56	0.82	10.69 – 13.95
Years in farmwork in U.S.	11.73	9.30	0.80	10.15 – 13.32
Years in farmwork	10.92	9.46	0.82	9.29 – 12.55

* Standard Error = $\frac{SD}{\sqrt{N}}$ Where N = Sample size

APPENDIX 7

Flyer and Public Service Announcement



ANUNCIO PUBLICO

¡ATENCION Trabajadores del campo de San Luis Obispo!

¡La Iniciativa para La Seguridad de Trabajadores del Campo quiere SU opinión sobre la salud y seguridad en su trabajo! Durante los proximos meses de junio, julio, y agosto se llevara acabo una encuesta.

Representantes estarán en sus comunidades para platicar con ustedes. La encuesta sera confidencial y sus respuestas seran anonimas. Su participación será compensada.

Para mas información llame a Marisela García al número:
1-800-492-8402
¡La llamada es gratis!

Patrocinado por el Departamento de Salud del Estado de California y el
Centro Ecológico de San Luis Obispo.

APPENDIX 8

Educational Materials Provided to Farmworkers

Is This a Legal Use of Pesticides? (Pamphlet)

How to Report Concerns about Pesticide Use

San Luis Obispo County Department of Agriculture

Measurement Standards

*Pesticidas En El Campo: Protegiendo Su Salud y Conociendo Sus Derechos
(Booklet)*

Asistencia Legal Rural De California

Centro para la Defensa del Medioambiente

Centro Ecológico del Condado de San Luis Obispo

Recursos Para Proteger Su Salud en Su Trabajo (Handout)

Centro Ecológico del Condado de San Luis Obispo

Protección de Su Salud (Fotonovela)

San Luis Obispo County Department of Agriculture

Measurement Standards