

**AN ASSESSMENT OF  
WORKER TRAINING  
UNDER THE  
WORKER PROTECTION STANDARD  
FINAL REPORT**

by

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Requiring Worker Protection Standard worker training is a good start in helping to assure workers are aware of and practice safety around pesticides. It is hoped this document will help make the reality even more effective.

# TABLE OF CONTENTS

	<u>Page</u>
I. Introduction and Background	1
II. Methodology	6
A. General Research Description	6
B. Secondary Source Review	7
1. Research Studies and Reports	7
2. Existing Data Bases	7
A. Structured Dialog	8
1. Agricultural Employer-Related Respondents	10
2. Worker-Related Respondents	11
3. Government-Related Respondents	12
A. Questionnaire Summary	13
B. Data Analysis	15
C. Terms Used in this Report	16
D. Research Limitations	16
I. Findings	18
A. Secondary Sources	18
1. Review of Relevant Reports and Documents	18
2. Review of Related Data Bases	18
B. Dialog	27
B 1. The Extent of Worker Training	27
C 2. Workers Not Being Trained	28
D 3. Cards Used for Proof of Training	29
E 4. Agents Doing WPS Training	31
5. Techniques for Presenting Training	34
6. Training Making a Difference	43
7. Other Problems Employers Have With Providing Worker Training	49
8. WPS Enforcement and Overlap with Other Regulations	50
9. Activities in WPS Industries Outside of Field Agriculture	52
10. SLA Specific Findings	54
C. Questionnaires	58
1. Employer-Related Questionnaire Response	59
2. Trainer (Worker-Related) Questionnaire Response	60
3. AFOP AmeriCorps Members Questionnaire Response	60
I. Discussion	62
A. Introduction	62
B. Discussion Points	62
1. Is WPS Worker Training Happening?	62
2. What are the Barriers to WPS Worker Training?	68

3. What is the Extent of State Level Activity Around WPS Worker Training?	74
	<b>Page</b>
4. Are Training Verification Cards Used and Accepted?	75
I. Recommendations	79
A. Introduction	79
B. Increase WPS Worker Training	80
C. Utilize More Effective WPS Worker Training Methods	94
D. Examine and Publicize Evidence of the Need for Training Workers on Basic Pesticide Health and Safety Issues	98
E. Design More Systems to Provide Effective Training for Short-Term Agricultural Workers and Establish a Trustworthy Method for Training Verification	105
I. Appendices	
A. Bibliography	110
B. Study Instruments, Questionnaires and Interview Guides	115
C. Questionnaire Response	132

## TABLE OF TABLES

	<u>Page</u>
Table 1: Study Respondent by Type, States Represented by Study Respondents	10
Table 2: Selection Criteria for Choosing Fifteen SLA Sample States	14
Table 3: Summary of AFOP AmeriCorps Community Needs Assessments, 1995 and 1996	26
Table 4: AFOP AmeriCorps Community Needs Assessment, 1995 and 1996, Comparison of Farmworker and Grower Responses	27

## **I. INTRODUCTION AND BACKGROUND**

After eight years of discussion, the Environmental Protection Agency (EPA), in 1992 updated the Worker Protection Standard (WPS) of 1974, issued under authority of the Federal Insecticide, Fungicide and Rodenticide Act. This change expanded *“the scope of the standard to include not only workers performing hand labor operations in fields treated with pesticides, but employees in forests, nurseries, and greenhouses, and employees who handle (mix, load, apply, etc.) pesticides for use in these locations”* (U.S. EPA, WPS Final Rule, 1992).

Training requirements had always been a consideration for inclusion with much debate on what should be required, when and how it should be taught and who should do the teaching. The final regulation required training of both pesticide handlers and workers, the latter group was included if they were to enter an area in which pesticides were applied or a restricted-entry interval (REI) had been in effect in the last 30 days.

Some states already had pesticide handler training, and two states required workers to be trained. (Although in one of these only employers of a certain size were covered.) Hazard Communication regulations of the Occupational Safety and Health Administration (OSHA), U.S. Department of Labor, were the only other federal standards addressing worker pesticide training. These applied to operations with a certain number of employees and required less formal training than the WPS (U.S. Department of Labor, Hazard Communications Final Rule, 1987). OSHA field sanitation requirements addressed the availability of washing and drinking water for workers.

The WPS placed ultimate responsibility for training on the agricultural employer no matter if tasks were subcontracted. Later guidance has tried to clarify exactly who is the “employer” when labor contractors are involved. Discussion by those working with EPA to develop materials and systems for implementation showed concern that the burden for training not be shifted to the worker; i.e., he/she would not be hired unless already trained.

Although educating a more permanent workforce seemed doable, many employers, worker advocates and regulators were concerned over how to provide pesticide safety training to the estimated 1.6 to 6 million seasonal laborers covered by the WPS. Their short-term employment and mobility presented problems, plus individuals within this huge work force constantly change from year to year.

A phase-in period for the WPS tied to new label specifications meant training was not required until containers with the new label were in use. In addition, time was needed to develop tools, materials and systems to help with teaching. Originally

scheduled to take effect in April of 1994, complaints by employers, state agents and others resulted in delay for training implementation until January 1, 1995.

The EPA also built into training specifications a grace period between the time of hiring and deadline for training. Until October 1997, workers did not have to be trained before they had been employed sixteen days. After that date, workers would need to be trained before the sixth day of employment. This phase-in period was needed to acquaint employers with requirements and actually train workers. The EPA later, after receiving many comments, shortened the time frame for implementation of the five day grace period to January 1, 1996.

Interest groups were still not satisfied with the five day delay in training, and in 1995, the EPA added the requirement employers provide a brief overview of pesticide safety before workers entered affected areas. The full WPS training was still expected by the sixth day of employment. The EPA prepared a small booklet, *Steps to Protect Yourself from Pesticides*, which could be given to workers to fulfill these immediate training needs.

Since initial passage of the WPS, retraining of workers every five years has been a requirement. If an employer knows/can prove a worker has been trained within five years, the individual does not have to be trained again.

Worker training must cover eleven basic pesticide health and safety points:

- *Where and in what form pesticides may be encountered during work activities.*
- *Hazards of pesticides resulting from toxicity and exposure, including acute effects, chronic effects, delayed effects and sensitization.*
- *Routes through which pesticides can enter the body.*
- *Signs and symptoms of common types of pesticide poisoning.*
- *Emergency first aid for pesticide injuries or poisonings.*
- *How to obtain emergency medical care.*
- *Routine and emergency decontamination procedures, including emergency eyeflushing techniques.*
- *Hazards from chemigation and drift.*
- *Hazards for pesticide residues on clothing.*

- *Warnings about taking pesticides or pesticide containers home.*
- *An explanation of the WPS requirements for workers and protection against retaliatory acts by employers on workers reporting non-compliance. (U.S. EPA, WPS Final Rule, p. 38160)*

These points must be taught to workers *“in a manner the trainees can understand”* and *“must use non-technical terms.”* Trainers may use either written or audiovisual material for training, may present the training either orally or audiovisually and must respond to trainees’ questions. The regulation does not require documentation of training, although employers may accept an EPA-approved WPS worker training card. Employers are encouraged, for their own protection, to document worker training. Guaranteeing comprehension of the information by workers is also not required within the regulation

Those qualified to train workers were specified in the regulation. This considered both the need for a large base of trainers and a desire to have those most knowledgeable perform the task. Anyone who was a certified applicator could train, as well as other individuals qualified by the state as certified trainers of either workers or handlers. Also allowed to train workers was anyone completing handler training.

The “EPA-approved WPS worker training card” was part of a training verification system established to meet some of the difficulty of teaching a seasonal mobile labor force. This allowed workers to be educated, using EPA-approved tools and materials, and then given a card as proof of training. This card could be presented wherever the worker was hired relieving the employer of training responsibility. The system, which was strictly voluntary, had the following goals:

- *To substantiate completion of WPS pesticide safety training.*
- *To minimize the need for retraining.*
- *To offer an uncomplicated system for training verification.*
- *To provide a means for training quality control.*
- *To allow states flexibility to administer training verification. (U.S. EPA, “Worker Protection Standard Training Verification Program, Final Guidance,” 1994.)*

Each state could choose from a variety of options including directly providing worker training, serving as an administrative clearinghouse for other trainers, certifying WPS trainers, or not participating. The Guidelines required participating states to sign agreements with EPA and maintain signed agreements with any state certified trainers. These must assure:

- The use of only EPA developed or approved training materials.
- Provision of quality, interactive training.
- Recordkeeping of training provided.
- Distribution of verification cards to those trained under this system. (U.S. EPA, "Worker Protection Standard Training Verification Program, Final Guidance," 1994.)

EPA also tried to help in worker training by developing a number of tools and materials which could be used to meet training requirements, including: the handbook *Protect Yourself from Pesticides – Guide for Agricultural Workers*, a similar presentation in flipchart format which could be used as a complete package of oral instruction, and the basic information booklet *Steps to Protect Yourself from Pesticides*. These were available in English, Spanish and several of the other languages needed to instruct the variety of workers in covered activities. The agency also prepared a *How To Comply* manual and a *Training Notebook* as a step by step guide to comprehensive worker training. Finally, the agency sponsored the development of several videotapes which could be used to meet training requirements.

To help states qualify a cadre of trainers who could be certified to participate in their local training verification system, EPA presented a Train-the-Trainer broadcast via satellite downlink to local extension offices and other sites around the country. This presentation was also put on a video to be used as a tool to educate future worker trainers.

EPA regulations in almost every state are enforced by a state agency, primarily state departments of agriculture, and it fell to these departments to establish and enforce the WPS locally. EPA provides funding for all Agency mandated activities through state developed and implemented State Plans. EPA also issues guidance on how such tasks should be carried out and monitors state activities.

Because WPS was part of this established local implementation system, it meant actual determination of the type of assistance offered to potential trainers and employers, the extent of enforcement activities and any establishment of a training verification system were left up to each state. Many states complained EPA did not provide enough money to do all that was called for under the WPS.

In 1993, EPA established a WPS Focus Group, to help review and advise on worker training materials and tools and a Subcommittee of this group to help develop a useable training verification system. Members were selected from across the country and included employer representatives, staff from farmworker

organizations, state agents and extension personnel. All of these parties were interested in assuring effective and efficient worker training.

At the last meeting of this Group, participants expressed a desire to evaluate the effectiveness of WPS worker training once the requirement had been in place for a few years. That request helped spur the study presented in this report. This document marks the first effort to examine implementation of WPS worker training throughout the country, looking at issues from a policy perspective.

## **II. METHODOLOGY**

### **A. GENERAL RESEARCH DESCRIPTION**

The study *Assessment of Worker Training Under the WPS* is national in scope and was designed to gather qualitative information concerning knowledge, practices and opinions regarding worker training under the WPS.

WPS training covers a very large group of agricultural workers estimated to be as high as seven million, including up to six million temporary and one million full-time workers. These estimates do not include other groups of workers employed in forestry, who would also be covered under the WPS.

Full-time employees often tend to fall within other job classifications within the WPS, notably pesticide applicators or handlers. It is educating the large temporary work force that became the focus of this research.

In addition to being a huge number, individuals are employed on approximately 688,000 farms, nurseries and greenhouses scattered throughout the United States. They perform various tasks in field crops, fruits and nuts, vegetables, nursery and greenhouse operations and many other agricultural commodities. Within forestry, they are engaged in reforestation and land preparation.

An exploratory study was determined to be the best approach through which to examine this broad topic, cover as wide a range of commodities and locations as possible and give a national rather than limited regional or state perspective. Three groups were identified as most affected by WPS training requirements: workers, agricultural employers and government agents. Given the broad, very diverse, base to be covered on a national level as well as time and study resource limitations, methodologies were undertaken to gather as much substantive information as possible about these three groups, emphasizing a qualitative perspective.

Two broad techniques were utilized: (1) a secondary source review, which included examination of related data sets, and (2) structured dialogue with a number of those affected. A more formal approach, distribution of a structured questionnaire, was attempted but found to provide only limited information.

A Training Research Evaluation Advisory Group was established to help guide research plans and review the draft report. Three representatives were included who offered insight from the perspective of employers, workers and government interests. Members are: Sharon Hughes, National Council of Agricultural Employers; Carol Parker, EPA Office of Pesticide Programs; and the Director of

the National Farmworker Environmental Education Program of the Association of Farmworker Opportunity Programs (including Lori Rottenberg, Scott Hirsch and Alicia Deeny). Additionally, Michael Heumann, Epidemiologist, Environmental Occupational and Injury Epidemiology Section at the Center for Disease Prevention and Epidemiology of the Oregon State Health Division joined the Advisory Group assisting in review and revision of the final report. All of these individuals are very well acquainted with WPS worker training and are aware of related issues from a national perspective.

## **B. SECONDARY SOURCE REVIEW**

### **1. Research Studies and Reports**

A wide search attempted to locate any secondary source material examining WPS worker training. Little was found specific to the issues of knowledge, practices and opinions; however, ten documents contained at least some relevant information. These included special studies, program reports, WPS investigation summaries from two states and testimony during the *National Dialogue on the Worker Protection Standard* (EPA conducted public hearings on WPS). Two of these sources examined worker pesticide safety knowledge prior to implementation of the WPS.

The states addressed through these reviews included: California, Florida, Indiana, Iowa, Michigan North Carolina, North Dakota and Texas. One study looked at issues on a national level. A description of each document is offered in the "Findings" section and a complete reference provided in the "Bibliography." Analysis included examination of any written material and, for eight sources, direct conversation with the authors.

### **2. Existing Data Bases.**

Two sources of quantitative data containing some information on WPS worker training were also examined. The first involved tabulated results of a survey of individuals belonging to member organizations of the National Council of Agricultural Employers (NCAE). Response was obtained from 410 employers on familiarity, compliance and concern with WPS. Several questions specific to worker training were asked.

The second source actually consisted of four separate 1995 and 1996 data sets from the Association of Farmworker Opportunity Programs' (AFOP) National Farmworker Environmental Education Program. This effort supports AmeriCorps Volunteers, described as Members, who have been engaged in WPS worker training in 26 states.

The first AFOP data set includes Pre/Post Training Tests administered to 25% of workers provided WPS training by Program Members. The other data set involves Community Needs Assessments in which workers, employers, service providers and others are interviewed both before the start of the local training Program and at the conclusion of the Program year. Information was available from 5,789 Pre-Post Training Test participants and 2,040 Community Assessment respondents.

### **C.STRUCTURED DIALOG**

Direct contact was found to provide the best means for gathering qualitative information about each of the three study target groups given the exploratory nature of this study. Techniques used reached knowledgeable respondents who were both accessible and could speak for a broad base of those affected by the WPS training requirement.

An effort was undertaken to inform those associated with the agricultural community of the study and encourage response to questions on WPS worker training. An informational piece was developed and widely distributed through a variety of sources. (See examples and publicity articles in the Appendix.) The following print mediums helped with this publicity:

- Gempler's *Ag/Hort Alert*.
- Columbia Publishing: *Fresh Cut, Packer Shipper*.
- *Citrus Industry*.
- Meister Publishing Company: *American Vegetable Grower, American Fruit Grower*.
- *Good Fruit Grower*.
- *Food Chemical News*

Additionally, an interview with the Principal Investigator was conducted by the Southeast AGNET radio network. This broadcast covered 44 stations in 8 southeastern states. Despite the publicity, very few responses were received from any of these sources.

Along these same lines, the WPS Forum site on the internet, maintained by the University of California at Berkeley, was used as a means to reach a wide, although select, audience for additional study input. A description of the study and copies of the three targeted questionnaires were put on the system asking for response. Only eight replies were received, primarily from SLAs and extension personnel.

The most fruitful information source was found to be participants at select national and local conferences. Eight such events were attended to obtain study input. At most of these, a display about the study was used, questionnaires were distributed, group sessions were held and individual interviews conducted.

Dialogs were undertaken with both groups and individuals. All participants were guaranteed anonymity and assured their individual responses would be grouped for analysis and discussion purposes. Because in many cases presentation of state specific dialog would serve to identify the individual from whom information was obtained, no states are identified with individual comments or findings.

Eighteen group discussions took place, varying in size from 2 – 27 people (six groups contained only two people each). Group discussions involved a total of 219 participants.

Individual dialog occurred with 113 individuals. These included 95 in-person interviews and 18 telephone interviews. Altogether, 332 individuals were engaged in either group or individual research-related dialog.

Table 1 summarizes the number of individuals contacted for each respondent type and lists the 39 states from which responses were obtained. Worker-related respondents make up 47% of those contacted. Employer-related respondents were 36% and government-related 17%. The type of individuals involved included: academicians, agricultural employers, AFOP AmeriCorps Members providing WPS worker training, attorneys representing agricultural interests, clinicians, extension agents, federal and state government officials, agricultural and crop association representatives, health center staff, labor contractors, outreach workers, promotores (lay health promoters), representatives of Native American tribes, staff from service providers assisting migrant and seasonal farmworkers, and other trainers.

Dialogues were structured around a specific set of topics but allowed the respondent to address any issues or concerns he felt relevant. The issues covered included: need for worker pesticide education, extent of training undertaken, methods and tools used for training, workers gaining knowledge and changing behavior, barriers to training/training difficulties, and ideas for improvement. (See topic list in the Appendix.) Not every dialog covered all topics. Discussion time varied from ten minutes to two hours.

Although each of the three groups; agricultural employer-related, worker-related, and government-related respondents; were expected to address issues from their personal perspective and that of their peers; they were also asked their opinion of effects on other groups. Respondents with a national perspective often referred the researcher to other knowledgeable individuals.

## **1. Agricultural Employer-Related Respondents**

Representatives of the major agricultural employer associations were targeted for inclusion in the study and were personally interviewed. They provided the viewpoint of their organization concerning the WPS and any direct advice offered by the association to its members. They offered a useful broad perspective but had less knowledge of their members' actual practices and opinions.

The agricultural employer-related study group was particularly found to provide less study information through completion of formal questionnaires and more input through direct dialog. Therefore, interacting with agricultural employers at major conferences allowed for direct contact and provided access to individuals representing a variety of commodities and geographic areas.

Two national conferences provided forums for direct dialog with a wide range of agricultural employers covered by the WPS:

- *93<sup>rd</sup> Annual Convention and Industry Showcase* of the United Fresh Fruit and Vegetable Association in Orlando, Florida.

- Annual Conference of the National Council of Agricultural Employers in Washington, D.C.

The United Fresh Fruit Conference allowed access to 3,000 participants. The event organizers contributed space in their exhibit hall allowing researchers to participate with 250 other vendors. The Florida Department of Agriculture and Consumer Services provided two pesticide investigators to help staff this display and conduct interviews with agricultural employer participants. Questionnaire instruments were often used as a means to begin discussion with employers.

A third conference attended, the California Farm Bureau Federation *Horticulture Conference* in Sacramento, California, provided an opportunity to meet separately with five commodity groups who allowed up to one-half hour for discussion of WPS worker training issues. California was particularly targeted as this one state employs approximately one-third of all seasonal agricultural workers in the country (U.S. Department of Health and Human Services, Migrant Health Program, 1990).

It was expected participants at all of these events were the ones most likely to be familiar with WPS requirements, but also a realization this target group might be biased toward larger producers. Because these individuals were considered directly accessible sentinels for all agricultural employers, dialog explored not only their beliefs and practices regarding WPS worker training but their perception of their colleagues.

### **1. Worker-Related Respondents**

Given resource limitations and the huge estimated number of temporary hired agricultural employees, it was not possible to select a random sample of workers to interview for this study. Consideration was given to the best method to access a wide range of individuals knowledgeable of workers and WPS training.

The best resource individuals were determined to be those actively engaged in providing WPS worker training. These individuals are in a position to know how both workers and growers have responded to WPS training requirements. Similar to employer-related respondents, national conferences were identified as an opportunity to access a variety of individuals from across the country who might offer differing viewpoints and experiences.

Three national conferences were targeted all related to provision of health care services to migrant and seasonal farmworkers. This area of interaction with workers was chosen as health staff are often engaged in educational activities that offer pesticide-related information to farmworkers. In addition, worker trainers from other disciplines are also likely to attend these events. Each conference targeted a different part of the country:

- Eastern Stream Migrant Health Forum, conference in Tampa, Florida.
- Midwest Stream Migrant Health Forum, in El Paso, Texas.
- Western Stream Migrant Health Forum, in Fresno, California.

Conference participants included outreach workers, lay health advisors, clinicians, medical center executive directors, personnel associated with religious organizations and other agencies providing assistance services to migrant and seasonal farmworkers. Organizers of these events allowed exhibit display, opportunity for individual interviews and group discussion in designated workshops.

The last targeted event was an annual Graduation Conference of AmeriCorps Members -- participants in the AFOP sponsored National Farmworker Environmental Education Program. These individuals represent the largest program devoted exclusively to providing WPS worker training. Their work had been conducted in a number of states, and attendance at the conference indicated they had completed at least a year educating workers. Supervisory staff from their individual state programs also attended.

Group and individual interviews were conducted with these AFOP AmeriCorps Members who represented 13 states. Because they were engaged in WPS worker education on a full-time basis, their experiences and knowledge were found to be extremely useful.

### **3. Government-Related Respondents**

Direct dialog was undertaken with a variety of individuals working for the EPA both nationally and within each EPA Regional Office. Those most knowledgeable of WPS worker training were targeted. In addition, personnel from the USDA were interviewed.

The Principal Investigator attended the Western States Pesticide Conference annual meeting of State Lead Agencies (SLAs) and Extension Service personnel involved in Certification and Training and was allowed time on the agenda to engage participants in a group discussion of study issues. This Conference also provided an opportunity for individual interviews with several government agents.

Unlike the employer and worker-related target groups, the government agencies most involved with WPS at the state level are a defined group. They are identified by EPA as State Lead Agencies (SLAs) and are the government arm responsible for implementing EPA-related regulations at the state level. In most instances, this is the state department of agriculture where each SLA has identified one individual as their WPS contact.

Given this defined frame from which to select state government agents for interview, it was possible to draw a purposive sample considered representative of all states. Seven criteria were developed by which to choose 15 representative states. This included: geographic location, extent of migrant and seasonal farmworker population (representing a variety of crops), size of migrant population, extent of nursery/greenhouse involvement, reforestation activity, existence of AFOP AmeriCorps Members conducting WPS worker training and type of training verification system.

To assist in sample selection discussion was held with the WPS EPA Regional Contact in each of the ten EPA Regional Offices and general information obtained about each state's involvement with and activity around WPS worker training. The selection was targeted to choose a range of states within each criteria; e.g., extent of seasonal labor needs, variety of training verification systems. The sample also chose some states with extensive nursery /greenhouse activity and reforestation work. At least one state from each EPA Region was selected.

The states chosen for inclusion were: Arizona, California, Colorado, Florida, Idaho, Illinois, Maine, Michigan, Mississippi, Missouri, New Jersey, North Carolina, Texas, Virginia and Washington. Table 2 presents the selection criteria relative to each of these states.

An introductory telephone call to each WPS Contact in the target states served to explain the research purpose and set a time for telephone interview. A formal Interview Guide covering the study topics was prepared and sent prior to the interview (a copy is included in the Appendix). Each SLA interview took approximately one hour. Interviews with the WPS Contact in two target states were conducted in-person. Follow-up calls were made in several states where other agents were identified as key. This included individuals involved with enforcement, handler training or other aspects related to WPS worker training.

In two states, government agents outside of the SLA were also contacted for their knowledge of WPS-related activities.

## **A.QUESTIONNAIRE SUMMARY**

Formal questionnaire instruments were prepared and distributed through a variety of locations and sources including conferences and central resource individuals (copies are provided in the Appendix). Although 100 questionnaires were completed, this technique was felt to be unsatisfactory for eliciting information from the broad base of individuals associated with agricultural employers or workers.

The return of completed instruments was low, and the group responding was very self-selected. As opposed to the dialog method for gathering information, there was no opportunity to amplify responses given on questionnaire instruments. Particularly with employer-related questionnaires when compared to dialog input, there is a sense respondents may have been providing answers they thought the researchers wanted to hear rather than offering a description of actual practices or beliefs.

There was one exception where the group completing the instrument was well defined and directly encouraged to return questionnaires. This occurred with AFOP AmeriCorps Members at a Program-related conference where their supervisors promoted participation in this research effort. Approximately half of those involved in the Program, 19, completed and returned questionnaires

## **B. DATA ANALYSIS**

Each secondary source was reviewed for information concerning WPS worker training. Findings were summarized

NCAE questionnaire response was examined for reference to research topics. Change in score on AFOP Pre-Post Training Test information was tabulated. The limited identifier information was examined in relation to resulting scores. AFOP Community Assessment questionnaires were analyzed and crosstabulated by respondent type. Findings were compared on points related to study research issues.

Each group and individual dialog interview was transcribed and every paragraph coded by respondent type and research topic. Comments were then sorted by topic and reviewed to identify pattern response. Examination looked for similarities and differences within states, by respondent type and by other characteristics. When perception of self and about others showed a consistent pattern, conclusions were felt to be valid.

SLA interview notes were likewise coded and assessed. In addition, a spreadsheet was prepared comparing each of the 15 states regarding practices, philosophy and WPS training-related activity.

Although they were found to be less useful, questionnaire response from employer-related and worker-related questionnaires was analyzed. A more careful analysis of question response and comments made on AFOP Member questionnaires was undertaken. Results to like questions across respondent types were examined. Contrasting viewpoints were noted.

Findings from each methodological technique were then integrated by study topic and examined for patterns. Such findings led to discussion topics.

A variety of knowledgeable sources were contacted for suggestions to counteract the findings on barriers identified to full implementation of WPS worker training. Additional research with knowledgeable individuals yielded a list of recommendations, many of which were further explored for presentation in this final report.

The Study Advisory Committee members were asked to review and comment on the draft report. Their recommendations assisted in development of this Final Report.

### **C.TERMS USED IN THIS REPORT**

Within this report, it is useful to refer to comments as derived from a specific type of respondent. These are defined as follows:

- Agricultural Employer-Related Individuals: Those employing or supervising individuals required to receive WPS worker training. This includes agricultural employers, farm managers, labor contractors, those allied with agricultural employer or commodity groups and other similar individuals.
- Worker-Related Individuals: Individuals associated directly with workers in a training, assistance provision or advocacy capacity. This includes AFOP AmeriCorps Members performing WPS worker training, farmworker advocates, staff of non-profit organizations assisting farmworkers, and others working directly with but not employing farmworkers for agricultural tasks.
- Government Agency-Related Individuals: Those associated with federal or state government agencies knowledgeable of WPS worker training. This includes personnel at EPA, SLAs, enforcement agencies and other government entities. Extension service personnel and academicians associated with agricultural land grant institutions are also classified in this category.

### **A.RESEARCH LIMITATIONS**

The findings presented in this report are representative of an exploratory study offering descriptive information on a variety of subjects and from a wide range of sources. Very little quantitative information was found relevant to WPS worker training.

Only small scale studies and reports were located which present any definitive data on the number of workers trained. This made it impossible to project percent of agricultural employers in compliance with WPS worker training requirements or number of workers receiving training.

Study resource limitations prohibited initiation of any random survey of agricultural employer-related or worker-related respondents. An effort was made through media, internet sources and distribution of formal questionnaires to generate response from a broader audience. Particularly knowledgeable individuals were also targeted for direct interview. SLAs in fifteen representative states, given specific selection criteria, helped to balance bias from the self-selection process.

Some response bias might be attributable to the choice of conferences as a major source for dialog interaction. This method of study participant selection screened out those not attending such events. The similar response patterns found within type of respondent and in the description one respondent type presented of another provides evidence of the accuracy of study findings.

Workers, although the recipients of required training, were not directly interviewed for this study. Because of the variability among states in how training was accomplished and whether training occurred, asking a limited number of workers such questions would only serve to reflect what was happening in their immediate locale as well as their personal understanding of the concept of "training." A large scale randomized survey of workers to determine the extent of training was well beyond the resources available.

The worker perspective was instead obtained through worker-related sources, as noted above. These are individuals who interact directly with workers and many of whom are former farmworkers. Their experiences with a large number of workers and in conducting WPS worker training sessions helped to present the worker-related viewpoint in regard to study issues.

Although many individuals were interviewed and sources examined, not every viewpoint may have been heard or possible reference uncovered. It is believed information on the salient points of the issues surrounding implementation of WPS worker training has been found and patterns appropriately identified. A general description of the picture regarding WPS worker training is presented; however, not every individual and activity fit the profile described.

### **III. FINDINGS**

#### **A. SECONDARY SOURCES**

##### **1. Review of Relevant Reports and Documents**

Only ten reports and other documents were found with any information relevant to the research topics. These included special studies, descriptive program reports and two state WPS investigation reports. The latter were the only state documents found to provide a detailed summary of WPS worker training violations (by type of establishment) in relation to all WPS violations. Three of the other studies were underway during research conducted for this report. Direct discussion with the primary study researcher or document author was held with eight of these sources to clarify information.

**Tom Arcury, “Partners Against Hazards and Agricultural Risks to Migrant and Seasonal Workers Project,” a program of the Agricultural Worker Safety and Health Committee, Chapel Hill, North Carolina, 1993-95.**

This three-year project was initiated prior to implementation of the WPS. It trained 54 “Safety Advisors” to educate 101 farmworkers about pesticide health and safety to determine if such training made a difference in knowledge level. The survey asked Safety Advisors and the farmworkers they trained questions concerning their knowledge and experience with pesticide safety issues.

Two-thirds of the farmworkers and one-fifth of the Safety Advisors said they had been sprayed with pesticides while working in the fields. Safety Advisors had little knowledge of pesticide safety procedures prior to their training. Only two of these individuals had previous pesticide training, although one-third (18) said they had applied or mixed pesticides.

**Mari Dugarte-Stavanja, Florida Department of Agriculture and Consumer Services, “WPS Investigation Report for 1995-96,” Tallahassee, FL, 1997.**

Of 1,431 inspections undertaken at farms nurseries and nursery/greenhouse combination facilities during 1995 and 1996, 191 (13.3%) were found to be out of compliance with WPS worker training requirements. This was greatest for nursery operations (22.6% of the 464 establishments inspected) and least at farms (8.1% of the 814 inspected). WPS training violations represented 25.5% of all WPS violations. These included no training, unqualified trainer and no verification records.

**Rod Gilmore, North Dakota Department of Health, “preliminary results of migrant farmworker survey,” Bismarck, ND, study underway (1997 information provided).**

The North Dakota Department of Health, through funding from the National Institute of Occupational Safety and Health, is undertaking a three-year survey of approximately 2000 migrant farmworkers registering at Migrant Health Centers in North Dakota and Minnesota. Questions asked include whether respondents have received WPS training, the method of training and if they have training verification cards. The survey will also test pesticide health and safety knowledge.

As of September, 1997, researchers had completed 350 surveys. Preliminary results found only 10% of those interviewed indicated they had received WPS training and only a few had verification cards. Results on method of training and pesticide safety knowledge level were not yet available.

**Joyce Hornstein, Iowa State University, “unpublished results of questionnaire response from private applicators,” prepared by the Iowa Department of Agriculture and Land Stewardship, Des Moines, IA, 1996.**

Jim Ellerhoff, Program Coordinator at the Iowa Department of Agriculture and Land Stewardship shared the results of this self-administered questionnaire given to all applicators taking recertification classes. Approximately one-fourth (10,074) of all private applicators participated. Only 20% of respondents said they employ non-family members in their agricultural operations.

Respondents indicated they were generally aware of WPS requirements but were “*tired of hearing about it.*” They obtained most of their information from extension agents or pesticide dealers. Over half of the respondents rated their understanding of regulation requirements at 6 on a 10 point scale. They estimated the average annual cost of compliance was \$235, of which 3% (approximately \$7.05) was said to be for education/training.

On a 4 point scale asking knowledge of providing pesticide safety training, the mean was 2.9, between understand “*a little*” and understand “*somewhat.*” Only 15% percent of respondents indicated they wanted more information about WPS.

**Michigan Department of Agriculture, *Worker Protection Report*, “Planned Use Inspections” on WPS compliance 1994-1996, Lansing, MI, 1997.**

A total of 72 farms, nurseries and greenhouses were inspected for the three year period 1994-1996. Sixty percent (44) of these were found to be out of training

compliance. The highest rate was on farms (28 establishments, 76%), and the lowest rate at nurseries (8 establishments, 42%).

**Sandy Perry, Michigan State University, Extension Service, “study of farmworker pesticide knowledge and perceptions,” for the Michigan Department of Agriculture, Ann Arbor, MI, study underway (1997 information provided).**

Study results were not yet available from this three year study assessing pesticide safety knowledge and perception of exposure by farmworkers in Michigan. The primary researcher discussed the extreme difficulty of correctly phrasing the question “*have you received pesticide training*” to be accurately interpreted by farmworker study subjects. She indicated this question had been rewritten 15 times after field testing determined a lack of understanding.

**Celia Prado and Don Villarejo, California Institute for Rural Studies, “unpublished study of farmworker WPS training,” Davis, CA, 1996.**

A survey of farmworkers was conducted as part of a larger study for the California Agricultural Health and Safety Center to determine if farmworkers are aware of WPS regulations, if they have received required training and if they believe they are at risk of pesticide-related illness associated with their work.

A total of 488 workers were interviewed within a two-county area. The sample targeted subjects in public camps and private sites/apartments. The methodology involved in-depth discussion with respondents and then completion of a structured questionnaire by interviewers based on this dialog. The topics covered included if the respondent had heard of the EPA or the WPS, whether anyone had provided them with pesticide education and type of training.

The study found 85% of the respondents had never heard of WPS, and 84% had never had pesticide training. It was also noted that the vast majority of those who said they had heard of the WPS were unable to describe this regulation. As expected it was found that workers in public housing sites were more likely to have received pesticide training than those in private residence sites.

**Fritz Roka, University of Florida Institute for Food and Agricultural Sciences, Southwest Florida Research and Education Center, “study of the cost of WPS compliance,” Immokalee, FL, study underway (1997 information provided).**

This study is attempting to determine the time and cost of complying with WPS regulations. An in-depth analysis was made of five large agricultural

establishments in Florida. Three of these also maintain operations in other states. The primary researcher found assignment of costs to be a very difficult task as many things could not be exclusively attributed to need for WPS compliance (for example the cost of protective gear).

The researcher had a sense those interviewed had integrated WPS into their overall safety programs. Four of the five subjects had “compliance officers” who were responsible for training (the farm manager of the fifth subject provided training). None of the respondents noticed any benefit from WPS. They said giving workers such knowledge had negative consequences with workers suddenly developing pesticide exposure-related symptoms. Some felt there were more Worker’s Compensation claims attributed to more training.

Training systems for four agricultural establishments were described. The first kept a team of core workers who are moved from location to location across state lines. Workers are trained using a videotape but are not issued cards as proof of training. This procedure takes 30-45 minutes, and is undertaken on a daily basis to catch new workers as they arrive. Workers are paid for their training time.

The second respondent trains once every season at each work location. He issues training verification cards and does not retrain those who have cards. He also uses a videotape and estimates training time at 30 minutes.

Two other respondents indicated they train workers on a daily basis.

**Emilie Sebesta, Texas Rural Legal Aid, ”testimony” as presented in the *National Dialogue on the Worker Protection Standard, Part 1: Transcripts of the Public Meetings*, EPA, Washington, D.C., 1996.**

This testimony described an “informal survey” of clients seen in the Texas Rural Legal Aid offices asking farmworkers if they had received WPS pesticide safety training. The conclusion was only 27% said they had received such training.

**Mary Ann Spitzer, Fred Whitford and Martin Frick, *An Assessment of Migrant Farmworker Training Needs in Response to the Pesticide Worker Protection Standards: An Indiana Perspective*, prepared for the Office of the Indiana State Chemist and EPA Region V, Purdue University, 1993.**

This study was conducted before WPS training requirements went into effect. It interviewed 20 migrant farmworkers, 6 crew leaders and 4 farmers on their knowledge of the 11 WPS training topics. The study also asked questions concerning the need for pesticide training and how best to teach the information.

Results found migrants knew very little about pesticide safety; three-fourths said they would like more information. The researchers observed that these subjects

wanted more information as the interview progressed. Almost half of the workers said either they or others they knew had been exposed to pesticides.

Crew leaders were more knowledgeable about pesticides. Half of those interviewed did not feel workers needed pesticide training, and two-thirds felt workers were not at risk for pesticide exposure.

Growers agreed with the crew leaders' assessment that no pesticide-related risk was involved. They indicated they would rely on their crew leaders to train workers if pesticide safety education were required for workers.

## **2. Review of Related Data Bases**

The two additional related data bases located which could provide information on study issues are described below. Information from the NCAE Agricultural Employer's WPS Survey, was pulled from previously analyzed survey results. Examination of AFOP Farmworker Environmental Education Program information required direct analysis of raw data.

### **a. NCAE Federal Worker Protection Standard Survey**

The NCAE sent packets of questionnaires to their constituent organizations across the country requesting these be distributed to individual members of each organization. A total of 410 replies were received. Seventy percent of these were from farm operators, owners or managers. An additional 10% were returned by nursery or greenhouse operators, owners or managers. Almost all respondents (87%) worked around pesticides, and 79% employed workers in crops in which pesticides had been used. Three-fourths of respondents applied pesticides themselves, and 60% employed workers who did similar tasks.

The two primary sources identified as key to providing information about WPS requirements were written information kept on file by the respondent and agricultural extension personnel. When asked to identify "*occasional sources*," respondents added "*my general knowledge*," pesticide vendors and state government personnel to the list of top places to get information.

Respondents were asked about possible overlap between state and federal WPS standards. Forty percent felt they were very similar, while another 30% did not know if there was a state standard.

Almost all of those responding said someone inside their work site does WPS training, with 64% indicating this was the farm operator, manager or supervisor. Twelve percent used a “trained specialist,” and only nine percent had an outside consultant doing worker training. One-third of respondents said they were directly involved with pesticide-related education of farmers, handlers or farmworkers.

Respondents were asked to rate their level of knowledge and understanding of required WPS worker training. Over three-fourths (77%) felt it was “good.” Only 3% felt their knowledge level was “poor.”

When asked to describe their impression of the knowledge level of other agricultural employers for all WPS requirements, 60% indicated their peers have a working knowledge but may not be totally aware of regulatory details. At the same time more than half of the respondents indicated they were personally unaware of or did not understand Amendments made to the WPS in 1995.

Respondents felt almost one-fourth of their peers did not rate WPS as a high concern area, while another third felt employers would welcome continuing training on the WPS. When asked what they thought was the “greatest impediment” to their peers knowing more about the WPS, over fifty percent replied there were “just too many demands on employer’s time and attention.”

Almost half of the respondents felt “most employers are in compliance with most of the requirements” for the WPS, although another fourth said “most” employers are in compliance with “some of the requirements.” Only 27% equated lack of compliance to lack of knowledge or understanding of the WPS, while almost half (48%) again pointed to having “too many demands on employers’ time and attention.”

Only 31% of those surveyed said their business had been inspected or investigated for compliance with the WPS. Eighteen respondents said “lack of enforcement and therefore no incentive to comply” was the greatest impediment to improving WPS compliance.

Only 11% of respondents said they thought operators of agricultural establishments needed more training on required WPS worker pesticide safety training, while 15% felt a need for more training on “liability for failure to comply with WPS requirements.”

Along these lines over half (56%) of respondents were worried about “potential legal liability from training.” Another 27% had no opinion. One-third felt there would be an increase in reported claims for illness and injury after WPS training (44% had no opinion). Over a third (38%) thought there was a potential for employees to refuse to work as a result of WPS training (32% had no opinion).

## **b. AFOP Farmworker Environmental Education Program Data**

**b**

### **(1) Pre-Post Training Test**

A total of 6,660 Pre-Post Training Tests were administered by AFOP AmeriCorps Members in 1995 and 1996. Approximately 25% of all of those trained by Members participated in the testing, but no randomized system was required for choosing who was to be tested. It is reasonable to assume Members utilized the test in situations where they were most comfortable, possibly leading to a bias in recorded scores; i.e., scores might be expected to be higher than if randomization had occurred.

Eleven knowledge questions were asked prior to and post WPS training conducted by the Members. The test, testing method and characteristics information asked of those participating were altered from 1995 to 1996.

A definite improvement in scores was seen in both years. Average pre-test scores were high (8.45 in 1995, 9.06 in 1996 out of 11). An improvement in post-test scores was noted of 1.44 in 1995 and 1.07 in 1996. Only slight improvement could be expected given the high average pre-test scores.

Characteristics information was only asked of test subjects for 1996. Seventy-six percent of those involved were farmworkers, with the remainder students, service providers and even some agricultural employers. Tests (and training) were conducted in the language most comfortable for the respondent which was Spanish for 63% and English for the remainder. Sixty-eight percent taking the tests were males, and 59% of all participants were under age 30. Almost three-fourths (70%) had less than a high school diploma.

Overall, 73% of all of those tested in 1996 said they had not previously received training in pesticide safety. This was true for 71% of the farmworkers who took the tests.

### **(2) Community Needs Assessments**

Each AFOP AmeriCorps Member is required to complete Community Needs Assessments as they begin and as they complete their year of service in their local area. These "pre" and "post" Program assessments serve to both introduce the individual to the community in which he will be working and help him assess his accomplishments. Those interviewed included: health care staff, service providers assisting farmworkers, growers and farmworkers. The Member is must interview a set number in each category but can choose any individual.

Data for the 1995 and 1996 program years were analyzed for the information contained in the survey instruments. The results should not be considered

response from a random sample but rather snapshots from individuals fitting the categories described above. Questions asked for the two program years also differed slightly.

A total of 2,046 individuals were interviewed in Community Needs Assessments over the two-year period. Slightly greater than 40% were service providers assisting MSFWs (11% were associated with health care facilities), 21% were growers and 28% were farmworkers.

Table 3 summarizes response for key questions asked in the 1995 and 1996 Assessments. The 1996 instrument was the only year to ask if those interviewed had an EPA pesticide safety training verification card. This was found to be true for 30% of respondents. As might be expected, given the source for this survey, over one-third of those with cards said they received training from AFOP AmeriCorps Members. Another 17% said extension agents were their trainers.

Looking at responses from both survey years, the overwhelming consensus from all of those interviewed (92%) is that *“pesticides are dangerous substances that can cause injury or death.”* Respondents were much more divided on the question of whether pesticide exposure is a problem in their community. Overall, half felt it is a problem, while 32% disagreed. The remaining 18% were not sure.

Respondents were almost evenly divided on whether workers *“know when they are exposed to pesticides”*: 42% said no, while 41% said yes. Almost half felt workers did not *“seek medical treatment when they are exposed to pesticides”* (15% of the remaining respondents were not sure). Most (42%) felt workers did not seek such needed medical treatment because they lacked knowledge about pesticide safety. Another 27% of respondents felt workers were hesitant because they were *“afraid of being fired.”*

Looking only at responses from growers compared to those from farmworkers for both 1995 and 1996, some differences are seen, as displayed in Table 4. More than half (58%) of growers felt there were no community pesticide-related problems, while this was true for only 28% of farmworkers. A similar 60% of growers felt workers know when they have experienced pesticide exposure, while only 46% of farmworkers agreed with this statement.

Again, 59% of growers felt workers seek medical attention when it is needed for pesticide-related problems. Farmworkers were not as clear about this point, with 43% of them feeling workers did seek assistance and another 44% feeling the opposite. Half of the growers said workers who did not seek necessary medical attention did so from lack of pesticide safety knowledge. Only 33% of farmworkers felt this was the reason. Another 35% of the workers felt their peers did not seek medical help for pesticide-related problems because they were afraid of being fired (a reason given by only 14% of the growers).

## **B. DIALOG**

Findings from individual and group dialogs are hard to quantify as respondents were asked to discuss broad topics. A review of their comments is best presented by topic. Response from the separate groups involved (agricultural employer-related, worker-related and government-related) is blended except where response patterns differ significantly among the three groups.

### **1. The Extent of Worker Training**

Many of both the employer-related and the worker-related respondents who were interviewed for this study said workers are being given WPS training. Worker-related respondents quoted numbers of individuals they had personally trained. Nine of the SLA personnel representing the fifteen different states randomly targeted for interview felt employers were training workers. When asked to quantify their response, they said from 58%-90% of employers were training. Only one SLA felt few employers were training workers, while three said they did not know.

At the same time common opinion expressed by worker-related respondents interviewed for the study was many workers are not being trained. They said they found this to be the case when asking workers about training, and it was particularly true of those who were new to farm work and may be unaware of the WPS requirement. It was also the sense of study researchers that, despite repeated interview reference to temporary workers and non-handlers, employer respondents often seemed to be talking about training their permanent workers rather than their seasonal employees. These respondents, and others, also implied that there were particular types of employers; such as those with smaller establishments, who were less likely to be training workers.

Evidence of lack of training also came from some government enforcement agent comments, such as a respondent who described performing a spot inspection at three farms and finding no workers had been trained despite the fact one employer had a training video he had not used, and a second offered workers Hazard Communication training but did not know about WPS requirements. Another agent described an employer, who had worked unsuccessfully to change REI requirements on a specific crop and then made it clear he knowingly violated the REI anyway.

### **2. Workers Not Being Trained**

Study respondents were asked to describe agricultural employers least likely to train their employees. General agreement provided the following profile: smaller

establishments unable to afford a designated trainer on staff, older individuals who have been in farming a long time, and those bothered by increasing government regulation.

Respondents said smaller operations are more likely to be unaware of WPS requirements. The farm owner may feel inadequate to perform training himself and feel unable to afford to hire a trainer. Respondents told of other employers who only hire a few workers and do not feel it is cost effective to spend time training. Some may believe they are too small to be bothered by state enforcement officials.

Individuals in farming a long time may see WPS training as just one more government regulation, respondents noted. They are more likely to believe they personally have been using chemicals a long time with no problems and, therefore, their workers are not in danger. Other farmers might feel it is a waste of time to train workers who have been in their employment a long time and who are very knowledgeable about agricultural production.

One additional group least likely to comply with WPS training requirements mentioned by respondents was non-Caucasian agricultural employers whose predominant language may not be English.

Employer respondents freely discussed training their permanent workers and said this group was also the target for any training by insurance companies. The difficulty, most agreed, was in training their seasonal employee who may be hired for only a short time.

A major problem in training temporary workers was finding time during the very busy peak harvest season. Employer-related respondents said they see a lot of worker turnover and find it very hard to make sure everyone is trained. Two of those interviewed said it was very difficult to gain access to members of work crews employed by hired labor contractors so they felt it was not possible to assure WPS training has been done.

Some of those indicating they train seasonal labors may not, in fact, be presenting the required WPS 11 points. For example, one respondent described “tail gate” instruction he provides his workers (in reference to instruction provided from the “tail gate” of a pick-up truck). One said he hands out safety packets and requires workers to sign a sheet saying they had the “training.” A third described his method of safety training as discussing issues as the need arises and correcting poor worker safety practices.

In areas that border Mexico and other places which use day haul workers (workers met at a designated pick-up location early each morning, taken to the fields and then returned to the pick-up point after work), the individuals involved in field work may change every day. Even though a single individual may be

employed at the same location longer than five days, therefore meeting WPS requirements, he may not receive any training. This issue was a particular concern of SLAs.

At least four respondents commented on the need to first train employers on pesticide health and safety before training workers. They stressed it was important that supervisors recognize the symptoms of pesticide-related illness and know how to respond properly. They said some employers unknowingly put themselves into unsafe situations around pesticides and would, therefore, not think they are putting their workers in danger.

### **3. Cards Used for Proof of Training**

Most AFOP AmeriCorps Members begin their year of service by becoming state certified to distribute worker training cards and then use these cards at every training session. Other trainers, particularly the few state agency personnel engaged in worker training, also hand out worker cards. Nevertheless, the most common response from those interviewed, particularly from employer-related respondents, is training verification cards are often not used. There is a definite sense that within a group of workers if only a few do not have cards it is easier to retrain the whole group than to screen out those with cards.

Although the original card system was designed to guarantee quality in training, respondents said they or others have no confidence this is the case. Several described situations where sufficient training was not administered before a card was issued. At least five respondents said they knew of situations where cards had been issued but no training had taken place. Others, both employers and trainers, were afraid to trust the quality of the training represented by any card they did not personally issue. This is another reason some agricultural employers said they make it a policy to retrain every individual who works for them.

Thirty respondents expressed concern over “liability” attached to the training card. This covered in the following:

- An employer might train a worker who would then be involved in an accident at his next work location. The first employer’s name would be on the training card, and he would then be sued over the quality of the training and lack of comprehension on the part of the worker.
- Because training is not standardized nationally, a card does not reflect a certain level of training quality or indicate the worker’s understanding of the subject. Trusting that card as an indicator of training quality can result in law suits in case of accidents.

Two SLAs said they have tried to help employers overcome this fear of liability through outreach efforts to let them know their peers are not being sued because of accepting cards. These SLAs said they have been successful, and employers have found over time nothing bad happens if they use cards. One SLA indicated he tries to explain to employers that training is not “certification” and cards are not “certificates.”

A few respondents said they did not use cards because there is too much paperwork involved in tracking every trained employee. One respondent felt he did not want to be a trainer for other employers who would only hire workers who already had a card. At least one major agricultural association and some attorneys are advising agricultural employers not to use cards.

Employer-related and worker-related study respondents seemed to differ on whether they thought workers found cards to be valuable. Employers generally felt workers did not want or value cards. A few indicated workers throw away any verification card they are given. Worker-related respondents seemed to feel the opposite: that workers look at cards as proof of training and might even feel a sense of accomplishment from receiving one.

Although employers do not seem interested in distributing cards, many respondents say employers do keep training records on their own employees. They feel this recordkeeping relieves them of liability concerns over workers leaving their establishment with training cards yet proves the employer provided training at his business.

This written documentation can be in the form of a list signed by each worker who is trained or a two-part certificate with the employer keeping half and the worker the other. Personnel from a few large agricultural establishments said they keep a computerized list of every worker and when they have received WPS training. Part of beginning employment is a check of the individual's files. A new hire is trained before beginning work, while those with previous training can start immediately.

In the two states where a pesticide safety training card is mandatory (in accordance with state requirements), three incidents were reported by study respondents of employers demanding workers show a training card before they were hired. This situation made having a card a condition of employment. Related to this shift of burden from employer to employee, four incidents were cited where workers were charged for cards at a cost ranging from \$10 to \$50.

#### **4. Agents Doing WPS Training**

##### **a. Employers and Labor Contractors**

Interviews, particularly with employer-related and SLA respondents, implied employers are the major provider of training for workers. They either offered the training themselves or directed someone else in their employment to do so.

Farm labor contractors are also a major source for worker training in areas where contractors are widely used. At least two SLAs indicated several hundred contractors had completed a Train-the-Trainer course and were eligible to distribute cards, although no SLA was exactly sure how many contractors were actually training their crew members.

At least three employer-related respondents said they purposely contract out seasonal labor jobs to relieve themselves of responsibility for worker training and other regulations. Two said they use this method to alleviate language problems. On the other side, a few who use contractors expressed concern over liability issues, fearing the ultimate burden of proving workers had been educated fell to them. Several SLAs said they advise employers to specify in their written agreement with the contractor who is responsible for worker training. One SLA tries to help by maintaining a list of contractors who have completed a Train-the-Trainer session and are eligible to distribute cards. Employers can call the SLA to determine if the contractor they want to hire is on the list.

#### **b. AFOP AmeriCorps Members**

Another major source for training workers are AmeriCorps Volunteers (described as Members) serving as part of the AFOP Farmworker Environmental Education Program. In the first three years of this Program (begun in 1995), 140,000 farmworkers have been trained. AFOP AmeriCorps Members locate the workers they train through a number of sources, with approximately half contacted at the work site. Many Members report excellent relations with local employers that improve every year as employers learn to trust and rely on personnel from this Program to train their workers.

Members interviewed for this study felt the best selling points to encourage agricultural employers to utilize their services include offering: training at no cost, using the most appropriate language for learning, and offering assistance in any location and at any time convenient to employers and workers. They said they also inform employers that training helps assure workers are safe, and they emphasize worker training is required under the WPS.

Additional places besides the work site at which workers are educated by AFOP AmeriCorps Members are: employer-owned labor camps, private residences, health and social service programs, schools, day care centers, churches, health fairs and other unusual locations such as flea markets, Mexican restaurants and parks.

In some states, AFOP AmeriCorps Members are considered so valuable that both SLAs and agricultural employer organizations have assisted with the matching amount required of the local host agency before an AFOP AmeriCorps Member can be placed. At least one SLA respondent noted AFOP AmeriCorps Members knew the worker community better and were trusted more than the agency. Another felt these Members were doing a job the SLA did not have the time to do.

In some locations, however, Members said employers are not helpful to them and in fact can block their access to workers. Some employers were said to only let Members train before or after work and not on the employer's property. They were said not to respond to repeated notices, direct calls or presentations at association meetings. One Member talked of the frustration of setting up a training session with an employer only to find the employer did not bring his workers to the site. Respondents described situations where they felt employers were dismissive or rude when offered training assistance.

Members said the most common reasons they hear from employers for not letting them educate the workers is their employees are already trained or the employer uses a video which is easier. At least five Member respondents said they then found workers were not trained or did not know the information.

### **c. Others Doing Training**

Other training agents mentioned by study respondents were: insurance companies, migrant health centers, job service centers, legal aid programs, chemical companies, unions, regional Agricultural Health and Safety Centers, church groups and non-profit organizations. In one state, county health department outreach staff were pesticide trainers. In another, the Young Farmers Association was doing worker training. One private individual felt so strongly about the need for pesticide education he sought sponsorship from an agricultural association and taught farmworkers in the evening after the conclusion of his regular job.

One group of pesticide safety trainers who were described come from the worker community and are called by a variety of terms: community educators, lay health advisors, health promoters/promotores, peer trainers or natural helpers. These are locally-based individuals, usually farmworkers themselves, who are taught how to train others in their community. The general philosophy as described by one study respondent is: "*mother to mother; farmworker to farmworker.*" Some examples of these programs are the Farmworker Health and Safety Institute in New Jersey, La Familia Sana in Oregon and Salud Para La Gente in California. The training they provide is most often conducted away from the work site.

Several training situations were mentioned where community agents work together; e.g., AFOP AmeriCorps Members and the local farm bureau; SLA and the legal services program, AFOP AmeriCorps Members and physicians. One SLA insisted WPS worker training never would have happened without the migrant programs as they reach an audience the SLA cannot reach.

#### **d. Agents Not Doing Worker Training**

Although there are a few agricultural extension agents who do extensive worker training, most report they are only involved in Train-the-Trainer sessions, to prepare someone else to do training, either as part of certification and training for applicators or through stand-alone courses. In some states, WPS train-the-trainer instruction is a mandatory part of applicator recertification. Extension Service personnel distribute material for worker training but were much more likely to do direct handler than worker training.

In one state, private individuals were mentioned as providing some worker training for hire. In a few others, initial Train-the-Trainer courses were said to include individuals who thought they might make money by selling training services to employers, but they were not successful.

#### **e. Funding For Non-Employer Offered Training Efforts**

AFOP relies on grants directly from the Center for National Service which supports AmeriCorps Volunteers and EPA to fund its Members. In addition, in every state where Members are placed, a local match of \$1500 per Volunteer must be raised by the sponsoring organization.

Other community agents receive funding from a variety of sources including: special grants from government agencies and private foundations. Some organizations, such as migrant health centers, may see worker education as part of their role within the community and budget such assistance into their regular work plan.

### **5. Techniques for Presenting Training**

SLAs said their Train-the-Trainer sessions, particularly those not associated with distribution of a card, do not necessarily promote one training method over another. There are a few exceptions in states desiring to keep more control over worker training. Sessions generally inform participants of the tools that are available and let them make their own decisions on what to use. In practice, different types of trainers report they use various tools to get the information across.

### **a. Employer Training Methods**

The primary response given by employer-related respondents, and others about this group, concerning the method employers use to train their workers was to show a video. Employers indicated this technique is: easy, takes less time than other training methods, is useful when the employer and worker speak different languages, and alleviates liability concerns as approved videotapes present EPA specified information. Two study respondents felt another major reason employers use videos is because they do not know how to teach.

From respondent descriptions, the general training pattern for using a video is for workers to assemble in a central location where the video is shown. The employer or a supervisor then asks if workers have any questions. Cards may be distributed or more often workers sign a list indicating they have been trained.

A few employer-related respondents described more extensive training techniques. At least one mentioned using the EPA flip chart, while two said they read through the EPA handbook *Protect Yourself from Pesticides – Guide for Agricultural Workers* while workers follow along. One employer said he makes his workers pass a test after giving them training.

On the more impersonal side, at least one agricultural association and one insurance company have produced audiotapes that are promoted as a training tool for workers. These cover all worker training requirements not just WPS.

### **b. Teaching Methods Used By Other Agents**

#### **(1) AFOP AmeriCorps Members**

AFOP AmeriCorps Members are taught to use the EPA flipchart as their primary teaching tool. At a minimum, they are required to conduct an interactive session using the flipchart, other visual aides and audience participation. They answer questions throughout the training.

Most Members, once they become more comfortable teaching, supplement this method by talking to workers about their own background, asking them questions, using examples, showing props, encouraging discussion and answering questions. Some said they give small prizes, such as a piece of candy, to participants for answering questions correctly. Many also distribute the EPA Handbook. They use examples of signs and posters which should be displayed and leave copies with employers if these signs and posters are not present. Some Members said they have used a video in special situations, for example when they have little time for a training session, but indicated they always allow time for discussion and questions.

## **(2) Community Educators**

Trained community educators (promotores) offer both formal training sessions and informal continuous instruction. They are part of the worker community and can, therefore, informally always offer instruction on pesticide health and safety to their peers.

Formal sessions can use a very interactive teaching technique where the trainer lets participants essentially teach themselves by discussing their issues and then giving them supplemental information. Games to reinforce learning, demonstrations presented by participants, props displayed and lots of examples given by the instructor and the audience. Theater may also be used where participants play roles as an example or to illustrate a point. Such sessions may be conducted on a one time basis or in a series. Reinforcement can come through continual presence of the educators among those they trained helping to encourage safe practice.

## **(3) Other Trainers**

Others who train use a variety of methods including videos, the flipchart and the EPA Handbook. Some alternative methods which were mentioned include:

- Using a “Wheel of Fortune” type game where people pull an envelope and have to answer a question.
- Having training participants perform a written script or make-up a play of their own around safety issues.
- Using flipchart illustrations to ask participants to identify what is wrong with the picture.
- Showing the video “Following the Sun” (developed by the National Center for Farmworker Health) and asking the questions at the end of the tape.
- Using the game “Pesticide Bingo” (developed by the University of California at Davis).

### **c. Elements of Effective Training**

#### **(1) “Good” and “Bad” Training Sessions**

Study respondents, particularly those who were worker-related, were asked to describe a good WPS worker education session. They expressed many ideas.

A consistent reframe pointed to the location and time of day information is presented as making a difference. Respondents felt the setting should involve a comfortable atmosphere and should have chairs and tables if materials are distributed for use by workers in the educational process. Sessions should not take place at lunch when workers are distracted and trying to rest. Presentations should be simple and explain things “in plain English” not in technical language. If a video is used, verbal instruction should also help reinforce learning.

As part of setting the right atmosphere, respondents said the session should begin by explaining why the information is important to the participants, then ask them questions about themselves or have the instructor relate a related story about himself. The idea, respondents said, is to make the participants comfortable.

Being creative in the presentations, using examples and asking questions of participants were described as the best ways to get information across. Many respondents liked the very interactive presentation approach of trained community health educators (promotores) where participants essentially teach themselves the information.

Reasons given by respondents for a poor training session include: outside distractions/sounds, an audience whose members have different educational levels, the presenter not properly prepared and poor location for training. Three respondents said workers seemed intimidated when their supervisor was in the room and were then hesitant to ask questions.

## **(2) The Person Presenting**

Several worker-related respondents felt the major element that makes training successful is the presenter. They said a trainer who can make audience members comfortable, encourage discussion and shows that he cares participants learn makes the best teacher. In addition, a good presenter was described as someone workers trust.

Other respondents, including some employer-related, commented that what can make a real difference is the attitude of the “boss.” If the employer is not interested in the information, does not think it is important and does not make sure his workers practice safety; the workers will not take what they hear seriously. As summarized by one respondent, “*management needs to set an example.*”

## **(3) Comparison Of Training Methods**

Almost all AFOP AmeriCorps Members interviewed for this study and 22 other respondents said the way information is presented makes a difference in whether the information is learned. Twenty respondents, all but one was in the worker-related group, commented they did not like the idea of using a video as the only method for teaching workers pesticide safety information. These respondents felt simply placing workers in front of a video does not guarantee they will pay attention, remember any of the information or learn anything. One criticized this technique as evidence the employer does not show any interest in his workers acquiring knowledge. They felt a video presentation allows little room for asking questions or clarifying information as it is heard. They do not expect this method to reinforce the need for workers to change unsafe behavior. Worker-related respondents who offer WPS training say when they ask substantive questions about pesticide health and safety of workers who say they saw a video, the workers will not know the answers and will admit they learned nothing. At least two worker-related respondents said worse than showing a video is playing an audio tape as a way to meet WPS training requirements. They indicated they had seen this training method or had workers describe a situation of a tape being played in a car or truck where most workers are not listening or can't even hear the presentation.

On the other hand, worker-related respondents in particular stressed that teaching workers in an interactive manner has the opposite effect. They felt having someone present the information verbally encourages questions and discussion and is the best way to guarantee worker training is worthwhile. These respondents said most workers, when shown a video and then asked if they have any questions will not speak up. However, when someone presents the information verbally encouraging discussion, workers are interested and will ask questions until they understand what is presented. Respondents said this method gives the presenter feedback on what the audience is learning.

A few respondents also said learning cannot occur in a short training session, for example watching a 15 minute video. They felt repeating the information several times would be better or teaching it in two or three sessions instead of in one.

#### **(4) Others In The Community Should Be Trained**

In looking at the desire to promote pesticide health and safety, a comment often heard from worker-related respondents was there is a need to train other community members in addition to workers. This could include children, mothers and whole families. Some respondents were already trying to reach such groups, for example, by teaching at Head Start Programs. At least two respondents mentioned they felt employers as well as workers needed to be taught basic pesticide safety information.

#### **d. Other Training Issues**

##### **(1) Language**

One topic discussed by or about employers providing training (and mentioned by half of the SLAs interviewed) is offering information in languages other than English. This was said to be another reason employers use videos for training: to meet the needs of Spanish-speaking individuals as well as other workers who speak a variety of languages. One employer said those in his temporary work force speak ten different languages making training a major problem.

A trainer employed by a large agricultural employer said educating Haitians in particular is a problem as their language has no “future tense.” This makes it difficult to understand a concept like a REI. Another individual said the words for “pesticides” and “poison” do not translate easily into Creole so a 15 minute videotape takes 45 minutes to explain. An employer said he is having difficulty locating a trainer for his new Vietnamese and Cambodian workers. A few employer respondents using Spanish language videos, said they do not know what information is being presented and have to rely on one of their workers to act as a translator if anyone has questions.

Although many employer-related respondents felt language problems can be a barrier in teaching, worker-related respondents who were trainers said by speaking the native language of the audience, they make workers feel more comfortable and more open to asking questions.

##### **(2) Worker Responsibility**

Several respondents of each type talked about the responsibility workers have to practice what they have been taught. This is also described as workers taking responsibility for their own health. At least one employer complained that the government unfairly places all blame for unsafe practices on the employer, relieving workers of any responsibility.

##### **(3) When Workers Are Trained**

Although the WPS requires that workers be given a basic overview before beginning work and that they must receive full training by the sixth day of employment, many employer-related respondents said training occurs before work begins. They felt explaining the basic information takes almost as long as the complete training so it saves time to only educate once. In addition, they pointed to other information required to be given to workers when they begin employment and said it is easiest to give all training at the same time.

#### **(4) Workers Paid For Time Spent Training**

From response of those engaged in dialog for this study, it seems permanent workers are generally paid for their WPS training time, but they are most often trained as pesticide handlers or applicators. Many worker-related respondents who are trainers and many respondent SLAs were not sure if temporary and seasonal workers were paid while being trained.

Ten worker-related and one employer-related respondent said workers are not paid while trained. Five employer-related respondents, three worker-related respondents and one SLA said workers are paid. To add to the confusion, four other respondents said some workers are paid. This mix of response was illustrated in a single group discussion with individuals representing six states. Two participants (all were AFOP AmeriCorps Members) said 95% or more of the workers they educated *were paid* while in training, three said at least 95% *were not paid*, and one said 90% of the workers *in one part of the state are paid* while 90% of the workers *in another part are not*.

In other discussions Members said they trained workers for employers at times, such as before or after work, during lunch or at camps, when they knew workers were not paid. Many said this may be a reason some temporary employees would rather be working than receiving pesticide health and safety information.

Considering all of the varied response around this topic, the conclusion might be, as directly described by at least four respondents, hourly workers are generally paid while being trained but those working piece rate generally are not.

#### **(5) Training Every Five Years**

Seven SLAs, five employer-related respondents and only one worker-related respondent felt WPS training every five years as specified in the WPS is sufficient. An additional four employer-related respondents said they already retrain annually. Worker-related respondents who gave this answer usually cautioned every five years would be sufficient if the worker was trained well.

A couple of respondents pointed to problems such as the difficulty in added paper work that would be caused by retraining more often. A few felt constant repetition of the same things would make recipients tune out, as the information pattern would become too routine.

Nineteen worker-related, eleven SLAs and two employer-related respondents felt WPS training should occur more frequently than every five years. They and other respondents think workers will forget the information or there will be changes in the regulations before the end of five years.

One compared pesticide safety information to learning CPR which requires annual updates. Most of those who commented (11) felt retraining annually would be best. Six respondents liked retraining every two years, while two felt every three years would be the right level. A few recommended a shorter “refresher” presentation to keep awareness of safety information or suggested going more in-depth on a particular issue in supplemental training sessions. Several thought it should be necessary to retrain whenever there was a change in the regulations.

## **(6) Critique of Materials/Tools Used For Training**

A variety of materials and tools are used for training and for each there was praise and criticism from dialog respondents. When asked their opinion of the teaching aid they use, respondents singled out no one tool or material.

**Videos:** In regard to videos, several respondents praised *Chasing the Sun* as a presentation which is more likely to hold worker interest. It was described as: more like “a movie” than a lecture, involving workers in the visual presentation and containing questions which can be asked of workers. One employer criticized this video as relating all present and future ailments to pesticides.

Several used the University of Idaho video showing both the worker and handler sections or presenting the worker information in both Spanish and English. Some respondents felt they liked this material less because it uses a lecture style and, therefore, they felt it has less potential to hold workers’ interest. There was some concern expressed that the presentation creates fear; for example, showing someone who died from pesticide poisoning. A few criticized “mistakes” in the presentation, although the video was revamped by the University of Idaho in 1997 to make corrections and a new version distributed.

Others indicated they use a video from the University of Michigan but it was not clear whether the tool they described, which is aimed at training handlers, was also being shown to workers. One employer said he liked a video prepared by a local agricultural association because it presents “just the facts” and does not “go beyond the scope of the law” to present more than is necessary.

**EPA Flipchart:** AFOP AmeriCorps Members who use the EPA flipchart to present information probably have more experience with this tool than anyone else in the country. Their review is discussed in the “Questionnaire” section of these “Findings.”

**EPA Handbook:** Another major tool used by those presenting information is the EPA handbook *Protect Yourself from Pesticides – Guide for Agricultural Workers* which has similar pictures and text to the flipchart. Respondents said trainers distribute the books and often have workers follow along as they use this tool or

the flipchart for teaching. Another benefit discussed is this gives workers something to take with them and review later. A few study respondents made reference to the EPA *Steps to Protect Yourself from Pesticides* which is smaller and was designed to be distributed to workers as they start employment prior to their full WPS training.

**Special Training Tools:** The predominant non-English language for worker training material is Spanish. Employers and trainers needing other languages seemed to find something to use although there were some difficulties. Those mentioned included: Cambodian, Vietnamese, Russian, Creole, Czech, Chinese, French, German, Dutch, Indian and Korean. One respondent said he knew of Polish and Hawaiian versions of the material.

Some SLAs said their states have developed their own special information to supplement that produced by EPA. This includes crop sheets, distributed in at least four states, and handouts on state regulations. Similarly, the nursery and greenhouse industries have specialty videos that are regularly used. Some of these were produced with EPA funding while others were noted as being produced by associations.

There were only a few comments regarding a desire for more information. Two individuals wanted additional material aimed at the nursery and greenhouse industries.

One specialty area mentioned as lacking information was mushroom production. One trainer who talked to mushroom growers about training indicated they said the educational material available had nothing specific to mushrooms, and the flipchart did not apply to or represent them. No comments were received regarding need for training material for forestry, however, not many study respondents had a tie to this industry.

A few respondents commented their workers could not relate to the information in the flipchart or handbooks because it did not represent what they did. The example used most often was the depiction of aerial spraying being taught in locations using only ground application.

## **(7) Outreach Activities**

Related to the use of tools and materials were major outreach activities performed by SLAs and other agents telling employers how they would be affected and their obligations under the WPS. This was particularly true when the regulation was new. As described by respondents, these efforts usually covered all WPS issues, including worker training, with activities encompassing mass mailing of informational notices to groups (such as certified applicators),

production and large-scale distribution of newsletters, and public presentations at established and special meetings.

Often outreach included distribution of WPS material, mostly the *How To Comply* manual, posters and the EPA worker and pesticide handler handbooks. In addition, SLAs worked with state extension services to place WPS training videos in county extension offices and distribute other material through this local network.

SLAs mentioned using employer associations as a conduit for spreading information about the WPS, particularly any changes in the regulations. They said they make a point of keeping these associations up-to-date on WPS information and changes, use them to help distribute material and team-up with them to make presentations.

Many employer associations, without any prompting from SLAs, conducted outreach activities similar to what was done by the state agencies as well as developed special tools and materials to help with required training. Several of the national associations and larger state organizations produced “interpretations” of WPS regulations for their members. One idea expressed by SLAs was that getting information about WPS to employers is greatly enhanced or hampered by the extent to which employers belong to national or state organizations. They felt non-members are least likely to learn of changes or new regulations.

Another national source for outreach information is Gempler’s. This private business took on the role of selling EPA material, including posters and worker handbooks, at a cost below what EPA would need to charge the public. In addition, Gempler’s developed a monthly subscription publication, *Ag/Hort Alert*, covering a variety of labor and safety-related information including WPS. At least one national association paid for subscriptions for all of its members as a way to keep them well informed.

Respondents said one way to get WPS information has been through the internet. The University of California established a “WPS Forum” free to interested users as a way to exchange information, seek answers to questions and discuss issues. Other SLAs and extension agencies also established information sites on the internet which provide WPS information. Only some of the discussion at such internet sites covers training.

AFOP AmeriCorps Members are another major outreach source for both employers and workers. In an attempt to encourage employers to take advantage of their training services, Members say they send letters, make presentations and often visit individual work establishments. To inform workers, many Members put up flyers, develop radio programs, speak at a variety of

gatherings, staff information tables at public events, go door-to-door and undertake numerous other activities.

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## **6. Training Making a Difference**

### **a. Workers Learning the Information**

Many varied opinions were heard on the issue of whether workers are learning the WPS information they are given. There seemed to be a split between the groups of respondents in their viewpoints.

Twelve worker-related respondents and two SLAs felt workers are interested in the information, while thirteen respondents (9 of these employer-related and three SLAs) expressed the opposite opinion. This same pattern is true on the issue of workers learning the information they are taught. Sixteen respondents (seven worker-related and six SLAs) expressed the opinion workers do learn, while eight employer-related respondents and two SLAs disagreed.

Worker-related respondents said they ask comprehension questions as part of the training and find workers remember the information. Others described instances where workers have directly told trainers they learned “*some very important information about pesticides.*” At least three SLAs also said when they checked workers’ knowledge level during compliance checks, they found an awareness of pesticide safety.

On the other side, employer-related respondents described situations where they force reluctant workers to pay attention to the information, instances where workers laugh at the presentation or fall asleep while watching the video. They also described watching workers throw away the informational pamphlets they are given. They said workers are only “*in it for the money*” and are not worried about working around pesticides. A few worker-related respondents and SLAs attributed this lack of interest to the method of presenting the information, through a video, or the briefness of the training session.

Seventeen respondents expressed the opinion that either workers who do not receive adequate instruction do not realize they have been “trained” or pointed to situations where employers said they had trained their workers but the workers insisted they had not been trained. At least three respondents described instances where workers indicated they had not previously been trained because they had forgotten they saw a training video.

Both employer-related and worker-related respondents commented, workers paid piece rate are less interested in the information during times of peak agricultural activity. They said workers felt it was a waste of their time to be trained when it was more important to be making money by working. Some employers who use

labor contractors indicated making the contractors take the time to train their crew members was very difficult for this reason.

Other respondents with less direct worker contact said they felt “some” workers learned the information or “should” be learning what is taught. More than half the SLAs interviewed felt training at least allowed workers to raise their awareness level concerning pesticide safety. One employer-related respondent said the language barrier he had with his workers made him unsure if they learned the information.

### **b. Concern WPS Information Creates Fear**

Tied to the question of whether workers get anything from the information is a concern expressed by 31 employer-related respondents, and 6 others who were discussing employers’ apprehensions, that what workers learn is to fear pesticides to the point where it hampers their work. Even worse, these respondents said, employers feel workers use the information they learn against their employer.

Several of these respondents said presenting this information makes workers express concerns over their work situation which they had not previously considered. This was particularly true for the idea they “*could die*” from pesticide exposure. One employer described an incident where “*a worker saw dust coming from the back of a plane and assumed it was pesticides.*” These employers often commented that workers, after they are trained, think everything is pesticide-related.

At least three employer-related respondents said these false alarms have cost them money paying for unnecessary medical tests or responding to complaints made to state agencies. Two said they had workers quit after they were trained on the dangers of pesticides. One thought this concern about causing fear among workers is a major reason other employers may not do WPS training.

Although many comments were heard on this issue, a few respondents felt concern over workers learning fear from pesticide safety training is not borne out in fact. One agricultural association representative said he has not heard his members talk about an increase in reported pesticide-related illness which is what he would expect if raising worker fears was a real issue.

At least three employer respondents agreed saying they do not think this is “*a real problem,*” and it is more important to provide basic safety information to workers. Another employer said his continuous “*tailgate meetings*” make his workers familiar with the idea of being trained. He felt this built trust with those he employs.

### **c. Workers Changing Behavior**

An even greater division among type of respondents was seen on the issue of whether workers are changing unsafe behavior once they are trained. Twenty-five worker-related respondents (and one SLA) said “yes.”

They indicated they know this is true because workers tell them after training they are now doing things like washing their hands before eating or buying long sleeve shirts for work. Many of these respondents say they come into contact with those they have trained and can see changes in behavior such as how workers wash their clothes. One AFOP AmeriCorps Member said an employer told her he noticed a change in behavior after she conducted training.

Three things were mentioned that seem to help workers make changes. First, some type of monetary incentive, whether as a reward or a punishment seemed to make a difference. Such a system would either give workers a bonus for practicing safety or dock pay for safety infractions. One employer felt it was growers who needed an inducement to encourage safety and suggested a scheme where employers would receive a monetary reimbursement from reduction in worker’s compensation claims.

A second factor suggested as playing a role in encouraging workers to change their behavior is their employer reinforcing the need to practice safety on the job. At least one respondent felt this showed the employer was concerned about his workers. Another respondent said watching their supervisor practice safety can also make a difference in worker attitude and behavior.

Several study respondents felt the third and largest incentive to changing behavior is for an individual to experience a pesticide-related incident or know someone else with this experience. Two respondents told of situations where local pesticide-related accidents had a direct effect on changing worker safety behavior; for example, an incident where a worker contaminated his child by hugging her before he had removed his work clothes. Others said just describing such incidents, particularly if they related to family safety, can make a difference. AFOP AmeriCorps Members talked about times where a local pesticide-related accident had caused non-responsive employers to become very interested in having their workers trained.

On the other side of the question of workers changing behavior, 16 employer-related respondents (plus 6 worker-related respondents and 2 SLAs) said training makes no difference. Comments related to workers understanding the information because they can answer knowledge questions but refusing to follow safe practices. Examples included still seeing workers washing their hands in the irrigation ditch after they have been trained, or workers refusing to wear gloves because they are too hot.

Some employer-related respondents complained workers just do not think anything associated with agriculture can hurt them. Employers felt this was a frustrating situation because they could train their workers but still “*get in trouble*” because workers refuse to use the information. In one area where there are plenty of agricultural jobs, an employer felt if he insisted his workers follow safe practices they would quit and find employment somewhere else where they would not be bothered.

Four of the six worker-related respondents who said workers do not change their behavior said this was true due to circumstances beyond their control. For example, where there is only one bathroom available for a large number of workers, not all will be able to make use of it and the hand washing facility on a 15 minute break. Workers may only go to a Laundromat once a week and cannot wash their work clothes every day.

At least three AFOP AmeriCorps Members said they were very frustrated in offering training as they felt they were telling workers to take actions that were not possible; for example, telling them to wash their hands when there was no water available. Two worker-related respondents indicated those they trained did not believe the law would protect their jobs if they complained about issues related to the WPS.

At least five respondents noted workers were afraid to complain over fear of losing their jobs. One said this included workers being told to sign a sheet indicating they had been trained when no training had taken place. Another respondent told of an instance where workers said they had been sprayed but were afraid to say anything. An additional situation was described of workers with no training applying pesticides but who were afraid to have the training instructor say anything to their supervisor.

#### **d. Need for Worker Training**

##### **(1) Worker Training is Not Needed**

The largest difference between respondent types was seen on the issue of need for WPS worker training. Fifty-one employer-related respondents felt it was not needed. An additional nine SLAs and three worker-related respondents also commented on hearing employers express such an opinion. Many of these respondents see a real need and benefit in providing safety training to their more permanent workers and their pesticide handlers but not to their seasonal workers. They expressed the opinion workers only need to follow directions such as which fields to stay out of before the REI is concluded. One employer said he did not feel it was even necessary for workers to “*wash clothes special.*”

Thirteen respondents felt employers are providing WPS training to their workers only to keep the regulators “off their backs.” As summarized by a respondent: “We want them to be safe but it doesn’t make one person safer in the fields or less exposed by workers getting training.”

The primary reason given by employer-related respondents for workers not needing this safety information is they believe, unlike handlers, workers have little exposure to pesticides. These employers say if the REI is followed it is perfectly safe for workers to be in the fields. They feel it is the supervisor’s responsibility to look after the workers’ safety; there is nothing else the worker has to know. Again, several expressed the idea that giving this training to workers is “like waving a red flag in front of employees” making them worry about their potential exposure when this is not a problem. One respondent indicated even taking such precautions as washing hands is not necessary for workers because “there is no residue left.”

One greenhouse grower gave an example. He uses the chemical “Safer” which he described as “ivory soap,” but for which he still has to follow a 12 hour REI. He said he could use bleach on the sidewalk but “if I use it as a fungicide, it has an REI.” When he trains his long time workers to be cautious around these “chemicals,” he said they know they have been working around these products for years, and they are not dangerous. The result, he said, is his employees do not take any of the pesticide safety information seriously.

Other employer-related respondents say they have been working with pesticides a long time doing the same work as their employees and experience no problems. If it was dangerous, they insist, they would never risk the safety of their own family members who are also out in the fields. Further, they say, workers see their employers doing the same things they are asked to do so the workers are assured it must be safe.

Employer-related respondents also expressed the opinion training was not needed because there is little documentation of illness caused by pesticide exposure. Even if pesticide-related illness expressed itself in flu-like symptoms, they are sure if a worker were made ill he would go to the doctor. Because there are few reported incidents, these employers feel worker education is “out of proportion” to the need making it a “waste of time and money.”

Another reason given for not needing worker training is that the information is just “common sense.” This makes it pointless to train workers to do something like wash their hands. At least four employer-related respondents felt they did not have the time to try to make employees practice common sense. Last, many employers say the training is not worthwhile because workers do not want it.

## **(2) Worker Training Is Needed**

Another large group of respondents (43) feel training is worthwhile. This includes 28 worker-related respondents, 5 SLAs and 10 employer-related respondents. They believe workers have a potential for pesticide exposure, do need the information and have little knowledge of pesticide safety.

Worker-related respondents told of instances they, or the people they were educating, saw as proof of the need. For example, one trainer said he saw empty pesticide containers in a worker's house. Another indicated she sees workers bringing their children into the fields. A crew leader being trained told of a worker drinking irrigation water. Other respondents said those they trained talked about being sprayed with pesticides.

Many of the worker-related respondents who are trainers said when they present the information, workers are very attentive and ask questions. They gain the trust of participants who will then ask more questions after the session has been concluded. Respondents say some of those who are trained comment they should have been given this information a long time ago.

Worker-related respondents told of instances where workers already had an EPA verification card but chose to sit through the training again. Others will say they have been trained but find when forced to attend another session they admit they knew very little of the information presented. Two respondents said knowledge of pesticide health and safety protects workers in case they come across an employer who is not following safe practices. One gave an example of an employer who burned pesticides and stored them poorly. At least two respondents said they had workers in their sessions who had applied pesticides but said they had no training.

Of the employer-related respondents in agreement with this view, one felt if there was any possibility of workers being injured, they should be given information to protect themselves. Another said when he first began training workers he formed a safety committee and let them help decide how to best present the information. He felt the training he offers makes a difference because he tells his workers how important it is to management. A third commented teaching workers allows them to ask questions and gives him a chance to correct any misconceptions workers might have about pesticides. Yet another employer thought what might be common sense to some people might not be the same to others from a different culture, making it even more important to teach basic safety issues.

Following the same general pattern of disagreement by type of respondent, it was mostly worker-related respondents who disagreed with employers about evidence of pesticide-related illness. In discussing their points of view, these respondents related examples, described incidents or attributed ailments to pesticide exposure. Although there is no way to assure pesticides are actually the cause of what is described, it is worth noting respondents feel it is true.

Incidents described included:

- A trainer's 17 year old son who became ill and was finally diagnosed with pesticide-related illness.
- Pesticide handlers who sat on a log which had been sprayed and got burned.
- A 20 year old man who worked as an applicator but had no training and was going blind from getting chemical spray in his eye.

## **7. Other Problems Employers Have with Providing Worker Training**

There seems to be a sense among most employer-related and SLA respondents that actually presenting WPS worker training is generally not a problem. Almost half of the SLAs in the targeted states said this was the case for themselves, and one-third said the training was not an issue for employers as they can always get the material needed to do training. At least five employers interviewed for this study said adding WPS to the training they were already doing was easy. Two of these indicated all that was necessary was to show a video.

Other employers, however, did indicate problems, although not all were specific to WPS training.

One large agricultural employer talked about the difficulty his multi-state operation has in following the WPS training requirements in several states. In one state, he said, agents are very strict, while in another, the trainer has to pass a test to be certified. In two states he has to report who is trained, but this is not true in the other states. Another nursery employer complained the WPS forced him to drop a system familiar to his long-time workers of flagging sprayed areas instead of posting signs.

At least six employer-related respondents when asked if WPS pesticide training was a problem talked about being overburdened by regulations in general, with this being just one more thing. One said he had stopped hiring workers for this reason.

Another common complaint was WPS makes good employers spend a lot of time and energy meeting requirements designed to weed out the "*bad apples.*" These respondents felt the regulations were designed to get at the very few employers who maintain bad practices but are forcing the majority who do not need watching to waste a lot of time.

Some employer-related respondents objected to having to train their employees who had been with them a long time and knew how to keep themselves safe. One SLA concurred with this view.

## **8. WPS Enforcement and Overlap with Other Regulations**

### **a. Enforcement**

Few employers interviewed for this study mentioned receiving compliance assistance from SLAs. One who had complained the assistance has a negative tone saying things like *“you need to do this.”*

During this study, a transition in enforcement direction was occurring, based on guidance from EPA to the states. The federal agency was urging SLAs to move from employer assistance to active enforcement. Given this transition, it is not surprising many comments were received from trainers, employers and SLAs that WPS enforcement was not happening. At least six said they and the workers they talk to have never seen a WPS inspector.

SLAs indicated they receive few WPS complaints. Some respondents felt the reason may be workers are afraid to complain for fear of retaliation. Workers say they believe they will be fired, identified as a troublemaker and not be employed by anyone else in the area.

A couple of respondents described situations which had occurred they felt might have discouraged workers from complaining.

- Someone advocating for the workers complained there had been no training, but the employer produced a list signed by the workers.
- Workers were upset because the investigator asked the employer what happened but not the workers.

On the employer side, two incidents were cited, one unrelated to training, where it was felt the complaint was not justified.

- An investigation from a complaint about pesticide cans lying around found no problems.
- An employer was found out of compliance for not having a certified trainer or applicator doing the training.

Some employer-related respondents complained inspections targeted larger employers leaving smaller ones to remain out of compliance. A few said some smaller employers make no effort to comply because they feel no one will ever

check. One group of employer respondents insisted they had “*begged*” state investigators to “*get some very bad actors,*” but nothing had happened.

At least eight respondents said the lack of enforcement has served to discourage training. This included stories about:

- Extension service telling employers not to worry about training because it is not enforced.
- Employers not wanting EPA material because they say the requirement is not enforced.
- Employers relying on contractors to train but contractors not following through because they believe no one will check.

One employer-related respondent said he and others are now doing training but he felt “*in a few years, no one will do it because they are not enforcing.*” Two worker-related respondents echoed this sentiment feeling the state does not really want to enforce this regulation, and the employers sense “*WPS. . . is not to be taken seriously.*” On the other hand, some SLAs and other respondents thought changing the emphasis from compliance assistance to enforcement might make a difference.

Seven respondents felt more enforcement would mean more training. They said active enforcement would have “*a ripple effect*” in the agricultural community causing employers to train workers out of fear of also being cited. One felt this would be a good way to get smaller employers to comply. Another employer said he finds himself “*getting lax*” because he has not been inspected.

## **b. Overlap Of Regulations**

Although overlap of Federal regulations may be an issue for government agents, a common refrain from employer-related respondents was they were not concerned about which regulation was federal, which was state or under what agency it was issued. For them, it all blended into “*just one more regulation.*” One employer respondent incorrectly explained the difference in the two regulations by saying, “*If you have been doing OSHA education, you really don’t have to do anything under WPS because you were already doing it.*”

## **9. Activities in WPS Industries Outside of Field Agriculture**

Most of the information in this report is concerned with field agriculture, although the regulation covers the greenhouse and nursery industries as well as forestry. Individuals associated with all of these areas were interviewed, and their

responses have been integrated into the other subject areas of this report. However, some issues were specific to these particular industries.

#### **a. Nurseries And Greenhouses**

Nurseries and greenhouses have been heavily involved in seeking exemptions to parts of the WPS they feel hamper production efforts; e.g., early re-entry to cut roses and resizing of posted signs. Much of the interview discussion with individuals involved in these industries, particularly those at the national level, concerned such issues and a general sense WPS does not fit well with their industries.

Nurseries and greenhouses were described as having more stable year-around employment, although seasonal workers (including migrants) are still used for some peak activity such as planting or moving items. In addition, a few respondents referred to workers in nurseries and greenhouses as *“generally better educated people.”* One worker-related respondent found it different to educate this group as the instruction is so basic she thought nursery workers *“felt training was beneath them.”*

Specific to WPS worker training, the most common complaint heard was the EPA tools and materials were not useful for nursery and greenhouse employees. As a result, several videos and other material were produced aimed specifically at these workers, including those by Roses, Inc and the University of California at Davis. The one segment still in need of worker-specific training aids appears to be mushroom production.

On the other hand, getting information to those in this industry was said to be easier. A common observation of SLAs, employers and association staff was a larger percent of those involved in nursery and greenhouse production are members of national and/or state associations and rely on these sources for information.

#### **b. Forestry**

The forestry industry was not mentioned by dialog respondents very often in regard to WPS worker training. Comments were heard which cast some doubt over whether the thirty day entry period for workers applied. SLAs seem to be involved very little with forestry operations. Most do not have a large contact base within the industry through which to send WPS information and do not appear to undertake much compliance assistance or enforcement activity.

One reason for little involvement, as explained by respondents, may be the structure of the forest industry itself. Land is owned and managed by federal

agencies, state agencies or private companies. All three use an extensive contractor system for land preparation and reforestation work, the primary areas in which WPS worker training is felt to apply. The work location can involve thousands of acres.

In a few states, SLAs indicated private timber companies watch their contractors closely to assure all regulations are followed. Often training requirements and responsibilities are clearly spelled out in contract agreements.

At the national level, EPA has had a Forest Advisory Group working to fit this industry into WPS compliance. A respondent at a large national association says his organization has spent a lot of time advising its members to make every effort to keep employees out of a sprayed area for the mandatory 30 days, thereby negating the need for WPS worker training. A couple of other respondents said federal agency authority is not clear regarding which agency is in charge of enforcement.

## **10. SLA Specific Findings**

SLA respondents discussed their specific state-level activity regarding WPS worker training. This included a description of the state system for distributing training verification cards, train-the-trainer programs, enforcement activities and other issues. These findings specific to SLAs are presented below and represent comments from SLAs in the 15 target states as well as three other states for which respondents completed questionnaires.

### **a. Training Verification (Card) Systems**

Of the 15 target states and 3 others for which SLAs completed questionnaires, 13 use EPA cards. One of these indicated AFOP AmeriCorps Members have been the only ones to request cards to distribute. In the other five states, two have state card systems, two do not use cards and one dropped out of the program feeling there was too much paperwork involved in validating training.

For trainers to become certified to distribute cards, they must attend a Train-the-Trainer course in four states and pass a written test in one state. In the other ten target states, the individual can either be a certified applicator or attend a Train-the-Trainer course.

Of the nine states who could report figures for 1997, a total of 691,182 worker cards had been given to trainers. Only five of the states require records of workers trained to be reported back to the SLA. These showed only 65,000 workers were known to have received cards. Most of the other states require

trainers to keep records of who they train, and the SLA is unclear how many of the cards have actually been distributed to workers.

Some states like the cards and have established very sophisticated systems to qualify trainers to distribute them and keep track of those trained. Two states encourage employers to use the state list of certified trainers.

Two states have, and another is considering, a recertification class for those who have been certified as trainers of workers. This course is not as extensive as the original training but serves as a reminder on pesticide safety as well as keeping trainers up-to-date on WPS changes and the latest training material.

Even though most states are involved in a card system, not all are pleased about the program. Some felt, after being in the program for awhile, the need was not found to be great. One SLA felt cards were mostly useful for mobile migrants, but their state had few migrants. Another state that uses a lot of migrant workers indicated cards were not useful when workers move a lot.

SLAs were asked if they felt employers valued cards. Those in only one-third of the 15 target states felt employers definitely saw value. Two more said some employers find them of benefit. One-third of SLAs felt workers valued the cards they received, while most of the others were unclear on this issue.

#### **b. Train-the-Trainer Courses**

WPS Train-the-Trainer courses are offered to help equip individuals to better train workers. Some states use these courses as part of their trainer certification to qualify individuals eligible to distribute cards. Train-the-Trainer courses are not mandatory under the WPS but are noted in the guidelines on developing a state verification system using EPA cards.

All but one target state and each of the three states for which SLAs completed questionnaires have Train-the-Trainer courses. Many of these are associated with applicator recertification. In two-thirds of the states, the SLA directly offered Train-the-Trainer courses or worked jointly with the extension service. Seven of the states indicated they qualified other agents to conduct Train-the-Trainer sessions for the purpose of certifying trainers to distribute worker cards. These agents included agricultural associations, farmworker organizations, insurance companies, a commercial business and other non-profit organizations.

A typical Train-the-Trainer course, as described by SLA respondents uses at least part of the EPA satellite broadcast from 1994 and/or one of the other EPA approved pesticide safety videos for workers. Discussion covers general pesticide safety, the WPS requirements and the eleven pesticide safety points to be taught to workers. Hints for effective training are also offered. The course

generally lasts from two to four hours. In several states, participants are given enough information to qualify as a trainer of handlers as well as workers.

In the target states, thirteen SLAs reported offering 668 Train-the-Trainer courses that were attended by at least 12,459 individuals. The majority of participants were agricultural employers, farm supervisors/foremen, crew bosses and certified applicators. Others attending included: farm labor contractors, extension agents, AFOP AmeriCorps Members, staff from farmworker organizations, migrant health personnel, state agency employees and private individuals. Many came just to learn how to train their own employees. This was true whether the participant later distributed WPS worker training cards or not. Some SLAs described holding special sessions for greenhouses and nurseries.

Several SLAs said their Train-the-Trainer sessions were not well attended, and they regretted the expense of hosting a session for only one or two individuals. At least two SLAs canceled sessions because of lack of interest.

In almost every state, the number of Train-the-Trainer courses currently offered has decreased considerably from when the regulation first took effect or has stopped altogether due to little demand. This is true even in states where Train-the-Trainer is required before individuals can be state certified to distribute worker cards. This may mean potential trainers have to wait until enough demand is reached to offer a class, although most states are willing to make special arrangements (such as a “self-training program”) for individuals to become certified on their own.

Although the system established by EPA was strictly voluntary for both the state and employer, in a few instances it has become mandatory. Two states require all workers to have a card. Each had such a system in place, driven by state regulations, before the federal WPS was implemented.

Some SLAs said it might be easier for them if cards were mandatory. This would help enforce the WPS training requirement, as compliance checks would simply ask workers for their cards.

Only a third of SLAs in the 15 target states felt employers valued cards. Two more said “some” employers find them of benefit. One-third of the SLAs felt workers valued the cards they received, while most of the others were unclear on this issue.

#### **c. WPS State Level Staffing and Funding**

Several respondents felt one of the major barriers to what they are able to do for the WPS is their lack of staffing. One expressed the opinion there needs to be at least one full-time person devoted to WPS in every state.

In most states, respondents said staffing levels were much greater when the regulation first went into effect than they are presently. At least seven of the SLAs interviewed worked full-time on WPS when it was first enacted. Another three were half-time. Today at least five of these individuals have reduced the time spent on WPS, with four SLA lead personnel spending 30% or less (two as little as 5%) on WPS activity. This can include outreach, training and enforcement.

At least four said their work load and the number of programs for which they are responsible is increasing making the time they can devote exclusively to WPS decrease. A good example is the individual who was formerly full-time on WPS and now finds WPS is part of five programs for which he is responsible. Two SLA respondents related less staff to a lack of money from EPA with which to implement the WPS.

Four SLAs tied state funding levels for WPS activities to the state philosophy on pesticide training issues prior to enactment of the federal law. A few of the target states were described as very proactive, while others place few resources in this direction.

#### **d. WPS Enforcement**

In one of the fifteen states examined for this study, WPS worker training enforcement is undertaken by the EPA regional office. In the others, the responsibility for enforcement varies including: a state where the lead individual is charged with every WPS activity, only one of which is enforcement; several states where WPS is integrated into all agency enforcement activities; and others with dedicated WPS investigators. The number of inspectors also seemed to vary with the structure of the SLA, the size of the state and the extent of affected agricultural activity.

One difficult issue in enforcement mentioned by SLA respondents is determining whether workers have been trained. They complained EPA does not require recordkeeping so there is no system for verification of training. This creates a problem in investigations, they said, where the employer might say his workers are trained but the workers say the opposite.

When WPS first went into effect, states varied in offering compliance assistance to employers. Some SLAs said they only responded when asked for help on training or any other aspect of WPS. Other SLAs sought compliance assistance opportunities. One example given was when an inspector is at a farm for any reason, the inspector will ask the employer how he is doing on WPS and offer assistance if it is needed. Many SLAs liked the idea of offering compliance assistance as a way to introduce requirements to employers.

In two states, the SLAs said they get a number of assistance requests as employers know they will be cited if they are not in compliance. In another state, the inspector will appear on site first, and if any problems are found, assistance will be offered.

In one state, a positive relationship has been built between the SLA and the AFOP AmeriCorps Member around enforcement. If inspection finds an employer deficient on worker training, he/she is referred to the Member for assistance.

Every state currently responds to any complaints about the WPS, but most receive few of these. At least four said they have not gotten any. Many were concerned about farmworkers not complaining. One said his agency maintains a Spanish language hotline and has distributed 5000 cards detailing this information (half in Spanish) but has yet to receive the first WPS complaint.

Almost half of the targeted SLAs said their state does spot inspections for WPS -- random checks of work sites to assure compliance. Many of these were integrated with inspection activities for other regulations. Very few spot inspections are WPS specific.

Four SLAs were not sure their state would be able to move to active enforcement, even given the new EPA directive changing from an emphasis on compliance assistance to one of enforcement. They hesitated to go uninvited on to agricultural property to do spot inspections. At least three referred to state politics that discourage such activity.

#### **e. Overlapping Regulations**

All of the target states indicated there were no remaining issues of overlap in multiple federal agency or state and federal regulations related to the WPS. In each of these states, it appears federal and state regulations were integrated in state statutes or state agencies reached some understanding on which was responsible for what activities.

In one state, there may still be a little confusion over regulations for greenhouse operations regarding which is the enforcement agent. The deciding factor seems to be whether the personnel involved at the facility have a commercial or private applicator's license.

The only training-related issue mentioned as an overlapping regulation problem was some confusion with what is required under OSHA Hazard Communication as opposed to WPS. Most SLAs reported few employer complaints concerning overlap or confusion and indicated they had prepared materials explaining the jurisdictional limits of each agency.

### **C. QUESTIONNAIRES**

Summary of results from the Employer Questionnaire and Trainer (Worker-Related) Questionnaire are presented here but should be reviewed with caution. It is felt these questionnaires are not representative as very few responses were obtained through this research technique and individuals completing questionnaires may be biased. The information presented may be best

considered in conjunction with what has been obtained through secondary source review and interview dialog.

Results from the questionnaire used with AFOP AmeriCorps Members are also presented and may be given more weight as this response represents approximately half of those involved in the AFOP Farmworker Environmental Education Program for 1996.

A complete assessment of all questionnaire results is included in the Appendix.

## **1. Employer-Related Questionnaire Response**

A total of 77 completed Employer Questionnaires were returned. Only four of these were obtained by mail; the rest were completed by conference participants. Individuals represented 18 states, with over half of the response from California, Florida or Washington State.

Three-fourths of those returning questionnaires were farm operators. Another 13% were foremen, supervisors or farm managers. A wide range of commodities were grown by respondents. The most prevalent crop was apples (12%) followed by potatoes (9%). The mean number of seasonal workers hired by respondents was 311.

Almost ninety percent of employer respondents said they felt pesticide education is important for workers, and 84% said WPS pesticide safety training is taught to workers at their agricultural establishment. This instruction is primarily provided by either the respondent, a foreman or supervisor, or other establishment employee (such as a safety director). Only ten percent of respondents indicated they use an outside agent to provide training. Three respondents felt contractors, not they, are responsible for WPS training.

Two-thirds of those responding said they train employees before they begin work, and 86% said they pay their workers while they are in training. Over half of the respondents said they use a videotape for training. Others use a variety of tools including the EPA flipchart and EPA worker handbook.

Respondents were almost evenly divided on whether they offer their workers a training card. This response may be misleading, however, as only 9 of the 22 responding positively indicated they offer an EPA or state card. The others seemed to refer to a "*farm card*," list of names or a signed test paper when they answered affirmative to offering a "*card*."

Two-thirds of respondents felt most workers learn the information they are given, and almost half felt most workers change their behavior after training. Half of the

respondents felt WPS worker training every five years was “*about right.*” Forty-five percent felt this five year interval was not often enough.

Nine employers (12%) answering the survey question of “*Why is it hard to comply to WPS worker training?*” felt it was not difficult. For ten (13%), training takes too much time. Several said it requires too much paperwork. Two complained it costs too much money to comply to buy equipment to show the video, purchase a training tape and/or hire a trainer.

## **2. Trainer (Worker-Related) Questionnaire Response**

Trainer questionnaires were completed by 23 individuals. One was returned by mail and two responses were received via the internet. The others were completed at Migrant Health Stream Forums. Thirteen states were represented through returned instruments, with 17% from Oregon, 13% from Arizona and 13% from Florida. Half of the respondents were associated with provision of health care services.

Only 39% of those returning questionnaires had taught WPS worker education. Two-thirds of those who had not taught workers had considered providing this service. Half of the eight individuals responding had taught WPS sessions at least 11 times, while another 38% had taught at least 6 sessions. The technique used for teaching varied, although over one-third had used the EPA flipchart and 28% used a videotape.

Almost 90% of the 8 respondents who had provided training had given workers an EPA training card. All of these individuals felt at least half of those they taught learned the information. Two-thirds thought at least half of the workers changed their behavior after they were trained. Over fifty percent of these respondents felt workers were not trained enough and should be given instruction before the conclusion of five years.

## **3. AFOP AmeriCorps Members Questionnaire Response**

Nineteen AFOP AmeriCorps Members completed questionnaires at their Graduation Conference. These individuals represented ten states.

All used the EPA flipchart as their primary teaching tool. Over three-fourths of Members responding felt there was no better way to present the information. Two-thirds had no suggestions for improvement. Those who felt changes could be made offered a variety of options including using color in the pictures to make them more visible at a distance, showing real people instead of drawings, not using the same pictures, changing the way the instrument is bound, and reordering the presentation of issues.

Members found they needed to supplement the flipchart information to help assure understanding. This was true for almost two-thirds of those responding to survey questions. One described having the narrative on the back of each page for easy reading to the audience as “*a crutch*” which makes the presentation grow stale. She found more participant interest when she rephrased questions and used examples.

Three-fourths of the respondents felt at least half of the workers changed their behavior after they were trained, and women were more likely to change than men. Other characteristics of those most likely to change their behavior were individuals with more education, those with families, people who have experienced or know of a pesticide-related incident and others new to farm work.

When asked to describe the best training session they had conducted, individuals gave a variety of locations; such as a farm, a labor camp or in a school. Most described a situation where less than thirty farmworkers participated. A variety of presentation tools were used including the flipchart, props, and other visuals. What seemed to make this presentation particularly good, as noted by respondents, was the audience, who were either interested, friendly or asked a lot of questions.

When asked to describe their worst session, the locations given did not vary much from the description of the best session. Farmworkers made up half these audiences, although many other types of individuals also attended. The average size was only slightly larger than the best sessions. Presentation methods were similar to those used in the best situations. What made these sessions bad was a disruptive, uninterested or negative audience, noted by 58% of respondents, or a presentation that was not done well, noted by 21%.

AFOP AmeriCorps Members were asked why employers were hesitant to let Members train their workers. Over one-third of respondents replied employers said their workers were already trained -- by using a video. Another 19% indicated employers say they have no time for training.

Two-thirds of respondents felt training workers every five years was not enough. Almost half said the WPS is “*rarely*” enforced.

## IV. DISCUSSION

### A. INTRODUCTION

Study analysis has attempted to look for common themes within the information by grouping data from a variety of sources and respondents. The discussion points presented here are drawn from these patterns. A note of caution is in order when reading these conclusions. The profile presented of employers and worker-related trainers tends to suggest all look alike. This is not the case. For example, although most employers seem to use videos to present worker training information, not all do. Similarly, not all worker-related trainers use a more interactive approach. In order to derive meaning from the wealth of information and opinions documented through this research it has been necessary to generalize.

All parties involved with WPS worker training have good intentions. What is constructive to learn from this research is the viewpoint and approach different groups bring to the training requirement. This Discussion section also attempts to pinpoint some of this commonality and describe major differences between the respondent groups.

Discussion points are divided into four sections, grouping issues around common themes posed in the form of a question. (1) Is WPS worker training happening? (2) What are the barriers to WPS worker training? (3) What is the extent of state level activity around WPS worker training? (4) Are training verification cards used and accepted?

### B. DISCUSSION POINTS

#### 1. Is Wps Worker Training Happening?

- **It is not clear how many workers have been trained or the number of employers doing WPS worker training.**

Whether or not WPS worker training is happening is a matter of debate. Opinion and fact seem to vary from state to state and source to source. Quantitative data and reported activities or observations differ.

As far as actual numbers of workers trained, one SLA may have summarized the difficulties involved with the statement: *"I don't know and I'm not sure I know of any way of finding that out."* The following are some of the figures found through this study:

- SLAs in five states reported 65,000 WPS worker cards distributed by state certified trainers. Many others may have received cards but these are the only figures available from the contacted states.
- AmeriCorps Members have trained over 140,000 farmworkers in three years.
- In Colorado, the Agricultural Health and Safety Center has trained 4,345 workers in four years.
- Florida WPS investigations for a two year period found 87% % of 1,431 establishments checked had provided WPS worker training (Dugarte-Stavanja, Florida Department of Agriculture and Consumer Services, 1997).

On the other hand, the following sources documented lack of WPS training:

- Preliminary findings from a North Dakota Department of Health study found 90% of migrant farmworkers registering at Migrant Health Centers in North Dakota and Minnesota had not had WPS training (Gilmore, 1997 information provided).
- Investigations from 1994-1996 by the Michigan Department of Agriculture showed 60% of establishments checked had not provided WPS training to their workers (Michigan Department of Agriculture, 1997).
- A California study conducted at farmworker residence sites found 84% of those interviewed had not received WPS training (Prado and Villarejo, 1997).
- Testimony provided by Texas Rural Legal Aid at a WPS Public Meeting described an informal client survey which indicated 27% of farmworkers had not been trained (U.S. EPA, A National Dialogue on the wps, 1997).
- AFOP Farmworker Environmental Education Program pre/post training tests found 71% of farmworker participants had not previously received WPS training.

Many agricultural employers interviewed for this study said they are training their workers; however, it was often not clear whether this applied to all their employees or only their more permanent work force. Worker-related respondents were also mixed in their replies, indicating some but not all employers are engaged in such training.

Some areas of the country are more likely to see worker training; e.g., where verification cards are mandatory. In other locations with few outside training agents (no AmeriCorps Members providing worker training), less emphasis from the SLA, and lack of concern by employer associations; there may be very little training.

To further confuse the matter, workers, particularly those who are trained through use of a video or audiotape, may not think of this as “*training*” or may not honestly remember they have participated in such sessions. For these reasons, when asked, they may deny such training ever took place. One Michigan study (Perry, 1997 information) has reworded and tested a survey question 15 times trying to find an appropriate way to ask workers if they received pesticide health and safety training.

No matter how many workers have been trained, a common sentiment expressed was the difficulty in training every worker. This frustration seemed strong as new workers perform temporary agricultural labor every year. Additionally, all workers must be retrained every five years.

- **Those least likely to train their workers are smaller establishments.**

Many study participants indicated larger establishments have the resources to hire staff who can train, keep records and assure all federal regulations are followed. They may establish quite sophisticated systems whereby every seasonal hire must undergo an employment process which includes required training. In contrast, smaller operations must still meet the same requirements but spread these job tasks among fewer, already over-stretched staff. They are described as the least likely to meet WPS training requirements particularly for their seasonal employees.

In addition, study respondents indicated smaller establishments are least likely to know about WPS requirements. Many may not belong to employer or crop associations which are described as a major source for spreading information among agricultural employers.

- **The major providers of WPS worker training are agricultural employers or their direct agents (including supervisors and labor contractors). The second primary source for training is AFOP AmeriCorps Members.**

The primary source for worker training seems to be their employer. Study dialog respondents, those completing questionnaires for this study and NCAE survey participants all verified this point. Training is often provided at the work site by the farm owner or an employee acting on his behalf. From study response it

seems employers who are providing training are likely to do so before work begins.

In areas where farm labor contractors are used, employers seem to expect the contractor to train his crew members. Some employers said one reason they use contractors is to relieve themselves of responsibility for WPS training and other federal requirements related to employees.

The second major source for WPS training is AmeriCorps Volunteers who are Members of the AFOP Environmental Education Program. These individuals are not directly connected to agricultural employers, but many assist employers by training their workers. At least half of AFOP AmeriCorps Member training sessions occur away from work sites. AFOP Programs are not available in every state.

A variety of additional trainers are also at work including insurance companies, migrant health centers, lay health advisors (promotores) and others.

Community agents who are not often mentioned by respondents as providing direct worker training include: SLAs, the agricultural extension service, agricultural associations and private individuals for hire. Although there are a few notable exceptions, most SLAs concentrate on maintaining a card distribution system, offering Train-the-Trainer courses, making training material available and providing outreach. Similarly, most agricultural associations assist by educating their members about WPS and distributing training material rather than directly training those who are employed by their members.

- **The most widely used medium for training is a video.**

The employers' tool of choice for delivering training information is through a videotape. This was the overwhelming response from agricultural employers directly interviewed for this study and from questionnaire information (no studies were found at the time research for this study was conducted which asked how workers are trained). This information was also verified by worker-related respondents and SLAs who were interviewed. Individuals said employers use videos because they are quick and easy, take care of language barriers employers may have with their workers and are guaranteed to meet all the requirements of the WPS.

However, there seems to be no predominant video used. Several were named, and in fact, only 7 of the 46 employer-related questionnaire respondents who said they use a video could provide the name of the one they use. This was also true for employers who were interviewed who only knew *"it is EPA approved."*

Other WPS worker trainers use a variety of teaching techniques including other EPA developed tools such as a WPS training flipchart and companion handbooks. Many supplement their teaching with discussion, presenting examples, instructional games, distributing prizes or other techniques.

Training using the methods described can take from ten minutes to four hours. Generally, the length of time presented by respondents seemed to follow these patterns:

- 10-30 minutes: video or audiotape, possibly having workers sign a sheet indicating they have been trained.
  - 30-45 minutes: video with questions, a little discussion, cards or signing a sheet indicating training.
  - 45-60 minutes: more examples and discussion, use of a presentation tool such as the flipchart or EPA handbook for instruction.
  - 1-1½ hours: introductory discussion and asking questions, use of a teaching tool (video, flipchart, handbook), follow-up discussion and examples, answer questions, distribute cards or sign a training sheet.
  - More than 1½ hours: very interactive session which may use the flipchart or other tool as a discussion source, may include participant skits or other theater presentation, encourages discussion through asking and answering questions. Session may include a self-discovery method where participants learn the information by asking themselves questions.
- 
- **There is concern over quality of training.**

One possible reason for the discrepancy in reported numbers of workers trained may be the quality of the training offered. This point was emphasized by close to 50 study respondents. Several worker-related respondents and SLAs who were interviewed felt workers who have not received adequate instruction may not even realize they have been “*trained*.” They felt information may be presented to workers in fulfillment of WPS requirements, but the manner of presentation may be such that no actual learning occurs.

In fact, the WPS only specifies the eleven basic pesticide safety points be presented by a qualified trainer. A guarantee of comprehension is not required.

Many respondents criticized the predominant training method: showing a video to workers as an ineffective training means. Even if an opportunity were given at the conclusion of the tape, many felt workers would be reluctant to ask questions.

This is particularly true when the instructor and the audience speak different languages.

Critics of this training method think a more interactive approach, allowing workers to discuss the information, will result in greater comprehension and needed behavioral change. An effective training session is described as one in which the instructor clearly has an interest in his audience, exchanges information and examples with participants, and uses discussion to help teach.

More interactive training is the method used by AFOP AmeriCorps Members, lay health advisors (promotores) and other community-based trainers. These individuals, particular AmeriCorps Members, say they often have difficulty gaining acceptance from agricultural employers and access to train employees at their work site. AFOP AmeriCorps Members said one of the primary reasons employers give for not utilizing their services, which are free of cost and language appropriate, is they have already trained their workers with a video.

- **The training tools and materials developed by EPA seem adequate.**

Those training workers are using a variety of tools and materials. No strong criticism was expressed for any. Additionally, no one video is the predominant vehicle for presentation.

Most language needs for presentation of information seem to be met. Special tools have been developed for nurseries and greenhouses. The one area mentioned where dedicated teaching tools or material are not available is the mushroom industry. No specific information targeted to training those engaged in reforestation activities was found leading to a belief that additional learning resources might be needed in this industry as well.

- **Many feel workers should be retrained within a time frame shorter than five years.**

Whether WPS worker training should occur more often than five years raises mixed opinions. Respondents of each type seem to represent preferences on both sides of the question. Most worker-related dialog respondents expressing the view training every five years is sufficient usually qualified their answer by saying the original training needed to be effective. Those completing questionnaires were directly asked about this issue, with 45% of growers, 58% of trainers and 63% of AFOP AmeriCorps Members expressing the opinion workers should be trained more often.

Those wanting training more often said they would like to see it every year or two, possibly just some type of refresher course to remind workers about safety. In a few states, SLAs have already instituted such courses for certified trainers.

Many agricultural employers, with larger operations and staff, are educating their workers on an annual basis anyway. They find it easier to show all workers a video than determine who is already trained.

## **2. What are the Barriers to WPS Worker Training?**

- **Providing WPS worker training in strict compliance with the law is not considered to be extremely difficult; however, training seasonal and mobile workers is problematic.**

Employers and SLAs described few actual difficulties to providing worker training in accordance with WPS requirements. The regulation simply calls for presentation of the information and does not require comprehension or dictate a certain style of teaching. Training difficulties that might normally occur in this situation: language differences between workers and employers or lack of teaching experience; are of little concern when an EPA approved video is used.

NCAE survey respondents did not rate WPS as a great concern. Only 22 of 410 respondents said they had no knowledge of WPS requirements and only 10 said they had poor knowledge of required worker pesticide safety training. A Florida study found employers who were *“tired of hearing about it”* (Roka, 1997).

A few comments were heard from those interviewed for this study concerning cost and excessive paperwork, although these factors can be minimal depending on how much effort the employer wishes to place on training; e.g., recordkeeping of those who are trained is not required but is recommended. In fact, the only study found to estimate the cost of training workers under the WPS put an annual cost of \$7.05 on this activity (Hornstein, Brown and Petrzela, 1996).

The one consistently mentioned issue in providing training to all workers is the difficulty of educating seasonal and migrant workers employed for short periods of time and particularly those who come on after peak activity, such as harvest, has started. Respondents say seasonal and migrant workers come and go in the work force or different individuals are brought in to work every day making it very difficult to track and meet training needs.

If the establishment is large enough, all new hires will go through an orientation process, including training, presented by an employee dedicated to administrative tasks. On smaller places, staff are not available to follow-up as thoroughly making training less likely to occur.

- **Employers are not convinced of the need for worker training.**

If WPS worker training is not difficult to provide and if outside agents (i.e. AmeriCorps Members) are available to provide such training free of charge, the question remains why all employers are not training their workers. One major reason pinpointed through this study is that employers do not seem convinced of the need for pesticide health and safety training for their seasonal workers. This response was seen in a split in the viewpoint of employer-related respondents and worker-related respondents.

Prior to implementation of the WPS, an Indiana study (Spitzer, Whitford and Frick, 1993) found employers and crewleaders felt there was no need to train workers on pesticide health and safety; yet, the study found workers knew little about the topic. In AFOP Community Needs Assessments, 60% of growers but only 28% of farmworkers felt there were no community pesticide-related problems. The same percent of growers (60%) felt workers know when they are exposed to pesticides, but only 46% of farmworkers agreed with this assessment. Again, 59% of growers felt workers seek medical attention for pesticide-related problems while only 43% of farmworkers felt this was true.

Of all the issues discussed by study dialog respondents, the issue of need for WPS training showed the greatest division. Fifty-one employer-related respondents and twelve others, while discussing employers' viewpoints, said seasonal workers do not need basic pesticide health and safety information. On the other side 28 worker-related respondents, plus 5 SLAs and 10 employer-related respondents expressed the opposite view.

Although they seem to think pesticide safety instruction is needed for pesticide applicators, handlers and their more permanent laborers; many employers seem unconvinced this is necessary for seasonal workers. They feel harvest employees and others hired for only short-term tasks are not exposed to any pesticide residues as they are not allowed in sprayed areas until after the REI is expired. Workers only need to be told which fields not to enter and what to do if they encounter pesticide drift. Employers say they and their family members are working alongside their workers. Since they would never put themselves and their families at risk, why should workers worry. They insist basic pesticide health and safety is simply a matter of using common sense. Last, since they believe workers know and will seek medical attention when they have experienced pesticide exposure, employers point to lack of reported incidents as proof of a lack of need.

More permanent employees who apply or handle pesticides are a different matter. Employers seem to agree these individuals have a greater potential for exposure to pesticides, and if they are not careful, exposure can be harmful. They need safety training, and this additional education can make them more

valuable employees. Their skill enhancement is a good business investment as this training can occur during the off-season when production tasks are less demanding.

Seasonal workers, on the other hand, are hired during the peak season and are only present for a short period offering little time for training. They are needed immediately for work, and they want to go to work at once to make as much money as they can. Employers say to invest in training for this population is a waste of resources and time. Many of those who are training their seasonal workers say they are only doing so because it is required not because they think it will make a difference.

Worker-related respondents, particularly those who provide WPS training, see workers on a more global scale, not just at one job. They can interact with workers when they are employed but also at other times and in other situations. These trainers see workers at their job sites, at their residences, when they seek health care and other assistance or when they are going about normal living activities; such as, doing laundry, grocery shopping, going to church, visiting their children's schools or attending festive events.

Worker-related respondents listen to workers talk about their activities and watch their behavior at work and at home. They say they can clearly observe workers in need of pesticide safety information. These respondents hear workers discuss exposure incidents or complain about unsafe conditions. They ask questions of workers and learn they know very little about how to take precautions around pesticides or what to do in case of accidents. Because they interact more outside of work sites, these respondents tend to think how pesticide exposure can affect all family members, not just the worker in the field.

In addition, many of the worker-related respondents are themselves often from a farmworker background. They may have their own stories of pesticide exposure or situations when they were not careful. They do not look at training workers as teaching them to work safely at only one job site. These respondents see effective teaching as a means to educate workers to stay safe all the time as they change seasonal jobs and when they are at home with their families.

Last, farmworkers and worker-related respondents do not think workers know of or will seek medical attention for pesticide-related exposures. One primary reason for not reporting such incidences, as noted by AFOP Community Needs Assessment farmworker respondents and others engaged in dialog for this study, is fear of being fired.

- **Many employers say giving WPS training to seasonal workers will make them afraid to work in agriculture or convinced every ailment is pesticide-related. They are also concerned their workers will use the**

### **information against them by filing ungrounded complaints.**

Employers seem to fear WPS training may result in negative, rather than positive, consequences for them.

Thirty-one employer-related respondents to this study (and six others comments about agricultural employers) raised this topic. They felt giving workers the information required by the WPS makes them fearful for no reason and consider pesticide exposure problems which are not real.

One-third of NCAE survey respondents thought there was a potential for increase in reported illness and injury claims as a result of WPS training (44% had no opinion). More than one-third felt there was potential for employees to refuse to work as a result of training (32% had no opinion). Another Florida study (Roka, 1997) found employers discussing similar issues.

Some employer-related respondents said workers use information they learn in WPS training to file false complaints. Three related such incidents where they were inspected or forced to pay for unjustified medical tests. One study respondent commented he felt these “*fear*” issues may be a reason other employers do not provide WPS worker training.

- **Employers attach many liability-related concerns to providing WPS worker training.**

Employer-related respondents engaged in dialog for this study, and others in discussing the viewpoints of employers, often used the term “*liability*” associated with providing WPS worker training. They expressed a major concern with avoiding lawsuits. This was also seen in the NCAE survey where over half of the respondents said they feared “*potential legal liability*” resulting from worker training (another 27% had no opinion).

Employers responding to this study often point to using a video as a training tool as a way to avoid liability attached to not presenting all of the information required under the WPS or not offering training in an appropriate language. Liability issues are a major reason employers say they do not want to accept or distribute EPA cards as proof of training. They fear the cards workers carry, issued by another source, might be fraudulent, and they are concerned the training represented by the card might not be in accordance with all WPS requirements. They worry that if they issue EPA cards an individual who formerly worked for them might have an accident elsewhere but sue the employer who offered the training and whose name is on the card.

Employers say they use labor contractors as a way to avoid liability for training workers. At the same time, they also fear that they will be libel if contractors do not train crew members.

- **Employers and worker-related trainers disagree on whether workers are interested in or learn the information and if they change their unsafe behavior as a result of training. Differences in viewpoints may be attributable to the differing roles each group has with workers.**

The purpose of WPS worker training is to encourage people to practice safety around pesticides to avoid pesticide-related illness and accidents. This is a very difficult concept to measure as any change in the number of pesticide-related incidents reported could mean either the training is working because reports are down or the training is working raising awareness levels and reports are up. In reality, the requirement is still too new to observe any long-range change.

Some measurement of expected effect might be obtained by examining workers' interest in pesticide health and safety information, their ability to learn the information and whether they change unsafe behavior after being trained. The only quantifiable measurement found on these issues is Pre-Post Training Test scores of a select group of individuals trained by AFOP AmeriCorps Members. Each of the years for which data were available show an improvement in scores, reflecting knowledge gained during training (although pre-training test scores were unusually high, probably as a result of selection bias from Members choosing the situations in which they administered the test).

On each of these topics (worker interest, knowledge gained, and behavior changed), as with the question of whether WPS worker training is needed, there seems to be a difference of opinion between individuals interviewed for this study who were employer-related and those who were worker-related.

Many employer-related respondents believe their workers do not care about the information and are only interested in making money. Worker-related respondents, give examples of workers asking many questions and saying they had never previously heard this information. From the comments made, several factors seem to relate to worker interest:

- If the worker is paid while in training, or is kept from work because he/she must first be trained.
- The ability of the presenter to relate to the audience and hold their interest.
- The type of presentation.
- Worker previous experience with a pesticide-related incident or knowledge of others who have faced such situations.
- Interest for the subject shown by their employer.

- Training time, location and the presence of outside distractions around the training area.
- Perceived or actual intimidation through the presence of their supervisor or employer.

In the larger picture, the dissimilar viewpoints of employers and worker-related trainers may come from the totally different relationship they have with workers.

Employers are concerned with producing a crop/product and part of that process involves hiring individuals to perform certain tasks. Their relationship with those they hire is one of employer-employee. They need specific things accomplished and workers are willing to perform such labor in exchange for payment. They see this as the extent of their relationship with their workers, but, many complain, the government tells them they must also be responsible for training their workers. Worse, this education is often required during their busiest production time. In addition, a lot of employers are not convinced of the need for this training.

Worker-related trainers (AFOP AmeriCorps Members, lay health advisors, migrant health center outreach workers and others) have a very different relationship with workers. Their purpose is to provide information, and their interaction with workers is built around this focus. It is more a relationship of student-teacher. These trainers see groups of workers at a variety of sites, not just one work establishment. They believe what they are doing is needed, and that workers want this information.

Faced with these differences in roles and perspectives, it is not at all surprising the two groups have contrasting perspectives on how they view or present WPS training. Employers do not believe training is necessary or that they should be required to do it. Their only concern is to get it done the quickest, easiest way to *“get the regulators off their backs.”* They don't care if workers learn the information because they believe workers are not in danger. They are not teachers, have no desire to become ones, and may face language barriers in talking with their employees. Given this perspective, it is natural to expect employers to rely on videos to present the information or, when possible, relieve themselves from this responsibility by using labor contractors.

Worker-related trainers, on the other hand, have a totally different desire. Their interaction with workers is based on the idea of imparting information. This is not a sidelight; it is their avocation. They are convinced of the need, and they want to be sure workers learn and use the information. It is natural for them to employ a more interactive teaching approach that takes more time. Their techniques include asking and answering questions and using props and examples to make sure workers understand what is said. These trainers believe that only by taking

these extra measures can they be assured workers will learn and understand the information.

As a result of these different approaches to imparting information, the two groups see differences in whether workers learn the information and change their behavior around pesticides. Employers generally say workers do not learn anything, are not interested in the information and only want to work. This may be reflective of both the situation under which the information is given, during peak activity, and the method used, predominantly showing a video which has been criticized as an ineffective teaching method. Workers who have only seen a video may not remember watching it or, if they are not being paid for training time, they may much rather be working. If their employer does not think it is important, why should they.

Worker-related trainers generally believe workers do learn the information and do then practice more caution at work. Their teaching approach makes them available to workers for discussing issues. They interact more with workers than strictly on-the-job. They take more time and care to train and strive to succeed in imparting information. Achieving success in knowledge gained and changing behavior is an integral part of their contact with workers.

### **3. What is the Extent of State Level Activity Around WPS Worker Training?**

- **SLAs have less time to spend on WPS, lack staffing and funding, and, therefore, emphasize worker training less now than when the regulation was first enacted.**

When WPS was first implemented, most states put forth a reasonable to major effort on: outreach activities to inform employers of requirements, presenting train-the-trainer programs to develop a cadre of individuals who could educate workers, distributing tools and materials for use in training, and establishing a card verification system. Some did less while others did even more including active compliance assistance drives or even direct worker or crew leader training.

Outreach efforts to inform employers of the requirements seemed to have been reasonably successful. Most employer-related respondents seem to be well aware of the regulation, and the NCAE survey found employers feeling both they and their peers are knowledgeable of WPS requirements.

Now, SLAs are receiving far less requests for information and assistance on the WPS. They feel the agricultural community is well educated on the requirements and that those wishing to educate others have themselves been trained. Although one SLA respondent said he felt there should be at least one full-time WPS contact in each state, this does not appear to be the case. What may have begun in a state as a fully-staffed effort has now, in most states, dwindled to part-

time work. SLAs express frustration at trying to maintain WPS activities while balancing other programs. Much of the full-time WPS staff have been lost.

Study respondents were concerned that reduction in staffing, funding and emphasis on the WPS will or already has relegated this regulation to back burner status. At the same time, they recognize WPS is not a “one shot deal,” but will continue to need emphasis into the future. Some SLAs expressed concern that agricultural employers are beginning to wonder if the WPS is still around and they still need to comply with such requirements as worker training. To add to these difficulties, SLAs also pointed out that even workers who were educated at the beginning of the regulation (1994) have reached the five year limit and must now be retrained in accordance with WPS requirements.

- **WPS training requirements, as of 1997, were not greatly enforced by SLAs. New guidance from EPA emphasizing enforcement over compliance assistance may or may not change this situation.**

As with other issues around WPS, compliance assistance activities vary greatly from state to state. Some have been active in compliance assistance and also conduct spot inspections, usually in conjunction with enforcement of all requirements not just WPS. This is particularly true where states had pesticide education programs and similar state requirements prior to enactment of the WPS. For SLAs actively engaged in compliance assistance activities, there is a sense the early emphasis has served its purpose to help educate employers about requirements. Very few comments were heard from employers about receipt of compliance assistance.

Other states have done little compliance assistance, relying on employer requests to signify interest, and only responding to complaints. In some states, the SLA lead on WPS and the enforcement agent are the same individual. In others, there are several layers from the lead down to the local inspector. Still other states place SLA training/outreach activities and WPS enforcement in different divisions or even different agencies.

Actual WPS enforcement (as of the beginning of 1998) may be minimal. Sixty-eight percent of NCAE employer survey respondents said they have not been inspected or investigated for WPS. Several employers participating in this study felt any inspections that are done target only larger operations. Two-thirds of AFOP AmeriCorps Members, individuals who have spent at least a year on WPS worker training, say WPS is “rarely” enforced. SLAs say very few spot inspections are WPS specific, and many say because there is no requirement for training documentation, it is difficult to tell if workers have been trained.

SLAs said they receive few WPS-related complaints and almost none from workers. Both respondents for this study and those farmworkers taking part in

AFOP Community Needs Assessments mentioned workers' fear of being fired as a reason for their hesitancy to take action in both reporting violations and seeking medical care for possible pesticide exposure.

Beginning in 1998, EPA shifted emphasis from compliance assistance to more active enforcement. Some respondents felt this change in guidance would have little effect on enforcement activities as their state lacked the political direction to emphasize such compliance. Other individuals were not sure of the impact this new guidance might have. Many individuals pointed to lack of funding and staffing as barriers to enforcement activities no matter what directive might be issued by EPA.

- **Lack of enforcement may affect lack of training.**

Respondents of all types, including those associated with agricultural employers or SLAs, expressed the idea that enforcement plays a major role in whether training occurs. Eighteen of the agricultural employers responding to the NCAE survey said "*lack of enforcement and therefore no incentive to comply*" was the greatest barrier to WPS compliance. Study respondents related incidents where lack of enforcement was stated by employers, labor contractors and even an extension service agent as a reason not to comply.

Many respondents felt enforcement supplies a needed incentive for providing training, and when it is not present or expected, training does not occur. Employers interviewed for this study said the threat of enforcement is the only reason they offer WPS training to workers, and they indicated other employers would do more if they knew it was enforced. SLAs felt the "*ripple effect*" in the agricultural community would be quite positive if word of enforcement activity got out. Many agree enforcement seems to provide that added incentive to offer training.

#### **4. Are Training Verification Cards Used and Accepted?**

- **Training cards are not widely used or emphasized (except in two states where state cards are mandatory).**

Given a need to train seasonal workers at times other than peak activity, the card training verification card system designed by EPA seems like a valuable idea to: train workers well, issue them proof of training and let employers trust this documentation meets WPS requirements. Although good in concept, the card system may not be as useful as intended. Study respondents indicated they do not issue cards and see few workers who have cards. AFOP Community Needs Assessments found only 30% of the farmworkers interviewed had EPA cards (and most obtained them in training provided by AFOP AmeriCorps Members).

Most employers completing questionnaires for this study said they use cards, but their definition of a “card” included a list or other document they personally kept of who was trained. Although nine of the SLAs interviewed said they had distributed a total of 691,000 worker cards to qualified trainers, only five of these SLAs kept track of the cards and could account for only 65,000 actually distributed to workers. In one state, the SLA said the only agents who ever asked for cards to distribute were AFOP AmeriCorps Members.

There is a definite sense among employers-related study respondents that within a group of workers if only a few do not have cards it is easier to retrain the whole group than to screen out those with cards. Only very large establishments have the resources to keep a computerized system of which workers do or do not have cards and offer training only to those in need.

- **The quality of training represented by state distributed EPA cards can differ greatly. Each state trains, certifies trainers and monitors training differently.**

Each state has chosen to institute a card verification system in accordance with its own predilections. Some have decided against this system, while two required cards prior to enactment of the WPS. For each state, trainer certification requirements, recordkeeping and training demands within the verification system differ.

For example, of the eighteen states for which SLAs provided information for this study, four require those who distribute cards to attend a train-the-trainer course, and one of these demands the trainer pass a written test. In ten states, anyone who is a certified applicator or attends a train-the-trainer course can distribute cards. Two states only use a state card system, two others have no card system, and one state dropped out of the program.

While some states are relatively lax on their requirements, a few have established more stringent systems. Two states require a recertification class for worker trainers. A study in Florida (Roka, 1997) found employers who move their work crews across state lines to be frustrated with the different requirements for card distribution.

Because each state trains, certifies trainers and monitors training differently, there is no uniformity in the quality represented by an EPA card. Most train-the-trainer programs do not require their graduates to use a prescribed method or tool for teaching workers. It is not clear if any state actively monitors training sessions conducted by those distributing worker cards. In some states, cards are distributed to any qualified trainer who requests them without requiring specialized instruction for these trainers.

Given this variance, it is not surprising employers are hesitant to trust an EPA card shown by a worker as proof of training if the training was not conducted by the employer. Only one-third of SLAs interviewed felt employers value EPA cards. Agricultural employers find reinforcement of this idea from their associations and from attorneys representing the agricultural industry who discourage them from accepting EPA cards they do not issue.

EPA and SLAs have tried to alleviate liability concerns over accepting cards, but these efforts do not seem to have widespread success. Employers would rather retrain all their workers themselves and have them sign a list as proof of training as the one way they can be assured WPS requirements have been met. This method does not help document training for workers when they change employers.

## **V. RECOMMENDATIONS**

### **A. Introduction**

The definition of “successful” WPS worker training is unclear. By regulation, it means meeting the stated purpose of the WPS “*to reduce the risk of pesticide poisonings and injuries among agricultural workers.*” Quantitative goals for the number or percent of workers trained or employers providing training have not been established and may not be the best way to measure success. For purposes of this study, success has been defined as increasing worker knowledge and associated behavior related to pesticide safety.

In order to assess progress in this regard, it was first necessary to examine and identify, as much as possible, the extent of current practices around WPS worker training and barriers preventing greater WPS training “success.” The “Recommendations” provided here follow “Discussion” of these findings. They address both the needs and benefits of improving WPS training.

Additional research was conducted in conjunction with development of these recommendations. Relevant literature was examined for background information and documents prepared by EPA during development of the regulations were reviewed. Pre-Post Training Tests conducted during 1998 by AFOP AmeriCorps Members were also analyzed to pull participant profile information related to test scores. These were compared to another 1998 Michigan study of pesticide safety knowledge among workers.

Attendance at six conferences offered opportunities to seek and explore possible recommendations. Discussion was also held with knowledgeable individuals attached to federal and state government and private business. This included personnel from EPA, state departments of agriculture, agricultural associations, agricultural employers, personnel at farmworker social service and advocacy agencies, agricultural consultants, academicians and training experts. In addition, specific individuals were targeted for contact because of their particular knowledge about specific recommendation points.

The recommendations in this section are divided into four categories: (1) increase WPS worker training, (2) utilize more effective training methods, (3) examine and publicize the need for worker training, and (4) design more systems to provide effective training for short-term agricultural workers and establish a trustworthy method for training verification. Each recommendation is stated followed, in brackets, by the agents it is suggested might undertake this activity.

Several suggestions call for further definition of the issues and development of action plans utilizing a coordinated effort of knowledgeable and affected parties.

One group in particular is referenced as a means to bring many interested and knowledgeable parties together. This is the WPS Focus Group convened in 1993 by EPA to help critique WPS training materials and help design the training verification card system. This Group was unique as it consisted of a wide range of individuals representing constituencies affected by the WPS. Included were SLAs, farmworker service providers, worker advocates, agricultural association staff, and extension service personnel, in addition to representatives from various divisions within EPA. The entire Focus Group and its subcommittees provided an excellent forum to exchange ideas, listen to varying viewpoints and devise workable solutions acceptable to all.

At the last Focus Group meeting, members agreed on the need to reconvene after implementation of the WPS to exchange information, identify successes and failures and make suggestions for improvement. This idea was applauded by EPA as an excellent way to measure regulatory progress.

***It is recommended that EPA reconvene the WPS Focus Group to discuss overall WPS implementation successes and barriers as well as address several of the specific recommendations presented in this study.***

## **B. Increase WPS Worker Training**

### **1. Incentives, such as Worker's Compensation pay back programs should be provided and other benefits identified to encourage more employers to educate workers. [Agricultural associations, insurance companies, state agents and private businesses]**

One way to encourage more compliance is to identify and where possible provide incentives for WPS worker training. These might be of both a positive and negative nature. Some of the current incentives for employers to offer training include:

- Avoiding law suits by training employees to work safely to prevent accidents.
- Keeping regulators “off my back” by complying with requirements, avoiding fines and lengthy beaurocratic hassles.
- Maintaining a good quality and dependable work force by showing employees supervisory staff is concerned about their welfare, follow government regulations and maintain a safe work environment.

An additional positive incentive utilized by a few SLAs is to reward employers who comply. In Oregon, if an agricultural producer takes four hours of safety

training annually and has no violations, he stays off the Oregon-OSHA spot inspection list. In North Carolina, a “Gold Star Employer” list is maintained for those found to be in compliance with comprehensive checks. These individuals are literally wined and dined (with an annual luncheon) and given other forms of recognition by the State Department of Agriculture.

Another suggested incentive might be for insurance companies to document the liability exposure to employers who fail to take safety measures. This might take the form of negative consequences which can result from such action as not locking pesticide storage areas.

Workers also face positive and negative incentives from learning and practicing pesticide safety.

- Avoiding a pesticide-related illness or accident means protecting themselves from illness or injury and the related medical expenses and down-time from work.
- Since pesticide residue can affect the entire family, safety at work means protecting others.

Negative incentives might be productive with workers who refuse to follow safe work patterns. The WPS Final Rule suggest management might change the duties of employees who fail to follow safety procedures or, if necessary, fire someone for repeated violations (U.S. EPA, WPS Final Rule, 1992).

The primary incentives for all parties, however, are financial considerations. One suggestion offered by individuals interviewed by the Pacific Northwest Agricultural Safety and Health Center for their “Farm Summit” (1998) was to perform a good cost/benefit analysis which could document the impact of positive safety measures on “*the bottom line.*”

Financial reward is also an area in which compliance can make a difference. Several states already have in place a system where fewer accident-related expenses mean savings on Worker’s Compensation. For many, this also means money back.

Worker’s Compensation rates are calculated within an occupational pool so the more claims that occur in that pool, the higher the rates. In some states, private Worker’s Compensation providers have established a system where members of the pool pay a specified rate at the beginning of the year based on expenses the whole group is expected to incur. If the members’ claims against the total do not match what is expected, each member receives a refund. In most states, this system seems to only apply where Worker’s Compensation is offered by private providers. However, in California, the same system is in place for those insured through the state agency.

In an effort to help keep claims down, insurance providers may offer their members direct WPS worker training, although this most often seems to apply to full-time rather than seasonal employees. Additionally, peer pressure and the individual employer's desire to receive an annual refund encourages an atmosphere of safety at the agricultural establishment.

Several individuals who have mentioned this scenario as a positive incentive to encourage compliance and worker safety, have said the monetary reward must be offered to all affected parties. They suggest rewarding supervisors for maintaining a safe environment through bonus pay or simply by changing their job description to encompass a performance review which includes safety.

It is also suggested that workers should, likewise, share in the reward. They should be provided effective training and encouraged through a financial incentive to maintain safe work habits.

A possible problem that could arise through use of a Worker's Compensation payback system is pressure to maintain a safe work record no matter what. This negative incentive might take the form of discouraging workers from reporting incidents or seeking medical care for anything that might be claimed under Worker's Compensation. One individual with whom this recommendation was discussed described an incident where a worker hurt his arm and was taken to a health clinic by his employer. The employer handled all the paperwork, telling medical staff the worker was injured while fixing his car. The worker was grateful for not having to pay for the care he received, but this work-related injury was not reported to Worker's Compensation.

***EPA, SLAs and agricultural associations should more closely investigate the use of incentives to encourage more and better quality WPS worker training and publicize both positive and negative aspects. In particular, they should take a closer look at the Worker's Compensation payback plans already in place, encouraging more states to adopt such measures and more agricultural employers to participate.***

***Independent researchers and academicians should consider developing a cost/benefit analysis on providing a safe work environment and document liability exposure for those failing to do so.***

1. **Smaller agricultural employers should consider engaging a "human resources/training" contractor to assist in meeting regulatory compliance including required worker training. [Agricultural associations and SLAs]**

As identified in the research for this study, it is often smaller agricultural establishments that have the greatest difficulty training workers employed for short-term, peak season tasks. Smaller establishments have limited

managerial/supervisory staff all of whom are totally engaged in agricultural production. This is particularly true during times of the year, such as harvest, when seasonal workers are most likely to be hired. Individual worker turnover during such times can make finding opportunities and staff to do training even more difficult.

Larger establishments are more likely to have staff dedicated solely to administrative tasks such as regulatory compliance, personnel issues, establishment of policies and attention to reporting requirements. It would be their job to monitor staff turnover or new entries and assure all requirements, such as WPS pesticide safety training, are met. The size of the work force on such establishments would make it cost effective to employ an individual in such a position.

Some private individuals have contracted with smaller agricultural establishments to provide these administrative services, taking on the responsibility of assuring their clients are in compliance with all regulations. Other than anecdotal information, no studies have been found to show possible cost savings or other benefits for smaller agricultural businesses versus the actual cost of these services.

***It is recommended agricultural associations, insurance companies and private businesses examine and consider promoting the idea of hiring an outside agent who, for a fee, could fulfill all administrative functions for multiple smaller agricultural establishments.*** Such an individual or firm that could be relied upon to help agricultural clients assure they are in regulatory and reporting compliance could help increase the number of workers who are provided WPS training and show a cost savings for smaller businesses.

**2. General liability concerns of agricultural employers around WPS worker training should be identified and addressed. [EPA, with the help of other groups such as WPS Focus Group members]**

Agricultural employers are worried about their legal responsibilities under the WPS related to training related issues. They are not clear whether they or their labor contractor are legally responsible for training workers. They refuse to use the EPA training verification card due to liability issues. They fear legal retribution from their employees.

Some of these issues were addressed by EPA in the introduction to WPS as discussed in the Notice of Proposed Rulemaking (NPRM) published in 1988 and in the WPS Final Rule, published in 1992; however, some points still seem confusing. For example, in the NPRM, EPA stated “*The owner . . . is one person who will virtually always be considered responsible for seeing that the Part’s [WPS] requirements are followed,*” and “*violations by workers and supervisors may subject them to enforcement action*” (U.S. EPA, NPRM, p. 25978). Yet, this

same discussion goes on to state enforcement liability would consider “*each person in the chain of management*” in weighing responsibility for non-compliance (U.S. EPA, NPRM, p. 25979).

Similarly, this document refers to a labor contractor as a “*supervisor*” acting on behalf of the owner. At the same time, it notes that a contractor who does not reference WPS requirements in his agreement with the owner can be held responsible (U.S. EPA, NPRM, p. 25978). Last, the regulations clearly define the agent responsible for providing training as the employer, yet it is unclear if an employer has the right to refuse to hire an individual if he does not possess documentation verifying he has previously received WPS training: “*The failure of an employer to provide training in any language and, instead to consistently require current training certificates from applicants for those jobs whose activities require WPS training could thereby be causing a disparate impact which could, under some circumstances, be interpreted as constituting discrimination based on national origin*” (U.S. EPA, WPS Final Rule, p. 38127).

Since the WPS was first presented, much discussion has been devoted to clarifying liability issues. This included response to questions posed to EPA and participant discussion on the internet WPS Forum. Nevertheless, employers still seem confused.

What is needed is the opportunity for liability concerns to be clearly stated and direct response obtained from EPA. ***It is recommended that a statement of liability issues and concerns be prepared by employers, agricultural associations and attorneys working with agricultural interests. EPA could then make a definitive response to each point raised. The results should be well publicized by agricultural associations and publications and by governmental interests including EPA (at the national and regional levels) and SLAs.***

No matter how much attention is paid to liability issues, it still may not keep agricultural employers from being sued. In a legal situation parties can sue anyone they want. However, if EPA clearly spells out the chain of responsibility and legal liability these facts would weigh heavily in any court-based legal discussions.

- 3. WPS provisions requiring worker training should be enforced. [EPA and SLAs] Affected parties should meet together to establish effective and reasonable means for enforcement and assure investigations are thorough and fair. [SLAs, as well as workers, agricultural employers and the advocates for each of these groups]**

When research for this study was initiated, EPA was encouraging SLAs to undertake Compliance Assistance activities to inform agricultural employers of the regulation. Some SLAs had also conducted enforcement activities including

WPS specific spot inspections, while all SLAs investigated any complaints received. At the conclusion of the research period, EPA was directing SLAs to move into more active WPS enforcement activities.

Many of those contacted for this study gave examples and consistently expressed the sense that lack of WPS enforcement was a primary reason many agricultural employers do not train their workers. SLAs, in particular, said that when major enforcement activity occurs the word spreads throughout the community causing others to comply with regulations for fear of also being cited.

On the other hand, many SLAs discussed the difficulty of enforcing this regulation and in investigating incidents.

- Their lack of staff makes it difficult to conduct spot inspections and look into alleged problems
- State Legislatures can tie investigators' hands by limiting their access to agricultural establishments or their ability to levy fines for violations.
- Many medical practitioners are not trained to identify pesticide-related illness, may not recognize symptoms as related to pesticides, do not report suspected cases or delay confirming incidences as pesticide-related. During an investigation, enforcement agents may find their hands tied by having no medical evidence to prove causal relationship to pesticide exposure.
- Proof of worker training is not required under the law, so investigators have difficulty confirming or disproving the occurrence of training.
- Many investigators attached to state departments of agriculture who have not, in the past, gone on agricultural establishments to talk directly with workers, now feel uncomfortable taking this action.
- Enforcement agents may not be able to locate workers to ask questions during an investigation, or they may have difficulty getting to the worker when a labor contractor is involved.
- If workers are located, they may be hesitant to talk to an investigator, or the investigator may not speak the predominant language of the worker making communication difficult.

Workers who experience pesticide-related incidents may be hesitant to report them or even seek medical attention:

- They are afraid to complain for fear of losing their job.

- They do not want to lose work time to go to a doctor when they are ill.
- They have no money to pay for medical care so they ignore minor symptoms.
- They do not trust state agents and are afraid to talk openly to them about their work situation.
- Some say when they do complain, the investigators only talk to the employer not the worker.

Agricultural employers also have issues around enforcement:

- Some say they do train their workers yet find workers deny being trained or ignore the information they have been given and do not practice safety.
- Employers are fearful enforcement agents will “*nit pik*” checking even the smallest detail until they find something wrong.
- They complain enforcement agents only target larger establishments and ignore some of the smaller “*bad apples*.”

***What is needed is a mechanism to get these three groups together to design reasonable and effective enforcement mechanisms. These would, first, clearly identify all of the issues around enforcement, then write guidelines teaching investigators how to gain the trust of and talk to workers and developing a priority checklist identifying the important points to examine for compliance. Last, the group could continue work begun by EPA in 1998 to better educate medical providers in recognition of pesticide-related illness and reporting of incidents.***

***In order for such a coordinated effort to occur, EPA needs to reinforce the idea with the SLAs that it is serious about WPS compliance, and the agency needs to work with states to obtain the resources necessary to effectively enforce this regulation.***

**1. EPA should revisit the idea of requiring recordkeeping as proof of worker training.**

SLAs, those who assist workers and even some employers have discussed the difficulties caused by EPA’s failure to require recordkeeping on workers who have been trained. State investigators indicate it is often difficult to tell if training occurred as employers are not required to keep a list or workers to have a card. Investigators have to rely on the word of both employers and workers. As

presented in the Findings section of this report, workers who have seen a video may honestly answer they have not been trained as they either forgot the occurrence or do not consider this mode of instruction to be “*training.*”

Although many employers do not distribute or accept training verification cards, some say they do keep records as proof of training. They are encouraged to do so by agricultural associations and attorneys specializing in agricultural issues even though these same sources may discourage employers from distributing EPA cards. The most sophisticated agricultural establishments keep computerized individual employee training records.

When issuing the NPRM for the WPS in 1988, EPA felt that the regulations could not require recordkeeping as proof of worker training as the Agency had no authority under FIFRA to make such demands of private applicators. By 1992 in publishing the WPS Final Rule, EPA had become convinced that such action was possible, as FIFRA does not prohibit “*requiring trainers, including trainers who happen to be private applicators, to keep records verifying any training they did.*” (U.S. EPA, WPS Final Rule, p. 38129)

EPA chose not to institute this requirement because it was not presented in the NPRM and, therefore, interested individuals had no opportunity to comment. The agency, however, did leave the door open to such a requirement: “*If experience under the final rule indicates that recordkeeping would be warranted, EPA will revisit this issue*” (U.S. EPA, WPS Final Rule, p. 38129). ***Given the difficulty investigators face in verifying training compliance and the fact many employers are already following this procedure, this may be an appropriate time for EPA to reexamine the option of requiring recordkeeping for workers who are trained.***

Required documentation could consist of keeping a list of trained employees or might take the form of checking worker training cards. This requirement might serve to further encourage exploration of a useful training verification card system.

A possible problem associated with requiring training verification recordkeeping might be to switch responsibility for training from the employer to the employee. Some employers might refuse to hire anyone without proof of training. Research for this study already found a few instances where this situation was said to occur in states with a mandatory training card including workers required to pay for training.

- 2. Labor contractors should be targeted for train-the-trainer efforts and encouraged to educate their crew members. [SLAs] Agricultural employers relying on labor contractors to provide WPS worker training should specify this in their contractual arrangements and make sure**

### **contractors train their workers.**

Labor contractors are described as a major source for WPS worker training, although, similar to agricultural employers, it is not clear how many are actually training their crew members. Many labor crews are composed of individuals who stay together throughout an agricultural season, while others are made up of workers who can change on a day-to-day basis. Utilizing the services of labor contractors to guarantee a steady supply of workers is a well-established practice in many parts of the countries.

Workers within a crew rely on their supervisor to handle all employment arrangements as well as, often, transportation and housing. As they expect to receive instruction from their crew leaders, it would be natural for them to also expect to receive WPS training. Owners of agricultural establishments rely on labor contractors to supervise their crew members, and although an owner is not relieved of all responsibility for WPS training, he may rely on the contractor to provide this instruction to workers within his crew.

Some SLAs, for example in Idaho, have targeted labor contractors for train-the-trainer efforts around WPS worker training. They have determined such individuals are key to assuring workers are trained. In addition, in Idaho, the SLA maintains a list of labor contractors who have completed train-the-trainer courses and encourages owners of agricultural establishments to utilize that list when looking to engage the services of a labor contractor.

***Other SLAs should maintain similar practices of targeting labor contractors for train-the-trainer sessions and encouraging owners of agricultural establishments to utilize those who have completed such sessions. In addition, labor contractors, with the encouragement of SLAs and agricultural employers, should utilize the services of AFOP AmeriCorps Members to provide quality WPS training to their crew members.***

- 3. The AFOP Farmworker Environmental Education Program, which sponsors AmeriCorps Members providing WPS pesticide safety training for workers should be enlarged and helped to increase its effectiveness. [AFOP, EPA, AFOP member organizations, the Corporation for National Service, private foundations and other social service organizations]**

This study found the AFOP Farmworker Environmental Education Program, which uses AmeriCorps Members to provide WPS worker training, is second only to agricultural employers in the number of workers trained.

The AFOP AmeriCorps Program represents a way to offer quality interactive WPS training to workers. Services are provided free to employers, training is sensitive to language and training time needs, and only EPA-approved tools and materials are utilized. Members are instructed in teaching basic pesticide health

and safety and often have additional training including qualification as a state certified WPS trainer. Some even obtain certification as private applicators. AmeriCorps Members are well trained and monitored both at a national and local level. They are made to feel part of a larger national program that goes beyond their local efforts.

This Program is active in only a select number of states and within those states in only specified locations. The effort is funded through a variety of sources including the Corporation for National Service, the EPA Office of Pesticide Programs, local social service agencies providing job training assistance to farmworkers (JTPA 402 programs) and other agents such as state Departments of Agriculture, local Farm Bureau offices and other non-profit agencies.

The Program is both focused on providing WPS training to farmworkers and offers face-to-face interactive education that has been described as having more potential to increase worker knowledge and influence behavior than the primary instructional method used by agricultural employers, showing a video. Increasing the size of this Program, both in terms of number of states and locations served and number of AmeriCorps Members involved, would help to meet the stated objectives of the WPS.

Both the AFOP Program staff and Program Members were queried on suggestions for enlarging the Program by increasing the geographic area and number of individuals involved, allowing those in the Program to train more workers.

Program staff said their AmeriCorps Volunteer allotment from the Corporation for National Service is fixed at a specified number per year. Each Volunteer requires local level commitment to provide supervision and functional resources as well as a small matching amount of \$1500 per individual. The Service Corp funding, with assistance from EPA, covers AFOP administrative and monitoring staff, training costs, field visits, Program and site coordination, conference attendance, data analysis, reporting and other administrative and coordination responsibilities. In addition, the Service Corp provides a monthly stipend for each Volunteer and an educational award of approximately \$5000 for those completing a year of service.

Although the number of Volunteers allocated to AFOP is fixed, the Service Corp offers an option where it will pay the educational award for qualified individuals but it leaves other costs up to the AmeriCorps sponsoring organization. AFOP staff were asked to break out these additional costs. An estimate of approximately \$19,500 for each additional Volunteer was calculated which includes the \$1,500 local match. This amount was derived as follows:

- \$8,500 stipend for the Volunteer,

- \$8,000 training costs, conference attendance, training of local site supervisors, overall program operating costs, AFOP supervision and coordination.
- \$3,000 local costs including on-site supervision, Volunteer travel expenses, facility space, telephone, supplies and copies.

Staff believes local response has been very positive to their Program since it was initiated, and many other states would be interested in participating. Some that now have AFOP AmeriCorps Members, such as Florida, Texas and Washington, could benefit by increasing the number of Members located in different state sites. AFOP Program evaluations indicate the longer local efforts are present in a State the more positive Program results in terms of local knowledge of pesticides and Program efforts becoming an accepted “*part of the agricultural community.*”

Looking at the idea of making existing AFOP local Programs more effective, staff and Members were asked what it would take for them to train more workers. The following recommendations were heard:

- On a broad basis, stronger contacts could be made with national agricultural employer organizations (such as the Farm Bureau Federation and the National Council of Agricultural Employers), regional EPA offices and SLAs to gain support for the training effort.
- More pre-program efforts prior to initiation of work in each state could help make local contacts, introduce the training concept, identify the system for becoming state certified to distribute EPA or state training verification cards, and publicize the benefits of the Program. This would make it easier for Members to establish necessary relationships.
- Better selection of Members to identify those best able to work independently, stick with the Program, and have the capacity to work with a variety of people would make a difference in what each individual can accomplish. Someone with an understanding of agricultural production and the farmworker population as well as have bilingual ability where communication requires additional language skills would also make the work easier.
- On-site supervisors who work with and monitor the work of local Members are essential to success and increasing their commitment could help a great deal.
- Encouraging more JTPA 402 programs (AFOP member organizations) to serve as local hosts and supervisors of AmeriCorps Members and identifying other local organizations to fill this roll is essential if the

Program is to grow.

***It is recommended that AFOP, EPA, SLAs, AFOP member organizations, Corporation for National Service], private foundations and other organizations work together, using the suggestions listed above, to enlarge this Program to increase the number of participatory states and sites.***

1. **Non-profit organizations, insurance companies and other agents should be encouraged to provide quality WPS training to workers. [EPA, foundations, the Bureau of Primary Health Care, agricultural associations and others]**

In addition to agricultural employers and AFOP AmeriCorps Members, there are other agents engaged in offering WPS instruction to workers. These include the Farmworker Health and Safety Institute, many Migrant Health Centers, promotores programs and some insurance companies. Such assistance is offered for a variety of reasons; for example as part of a commitment to general health education for farmworkers, by Migrant Health Centers, or to help encourage safety and regulatory compliance as a means to avoid adverse incidents, on the part of insurance companies.

The Farmworker Health and Safety Institute has developed a very participatory interactive educational approach for workers that it teaches in extensive train-the-trainer sessions. Trainer recruitment includes local community leaders and advocates who are encouraged to train workers outside of their place of employment. Several people contacted for this study who have attended a train-the-trainer session or reviewed the training curriculum feel the Institute's training techniques may have the greatest potential for making an impact on workers who participate (no independent evaluation has been made of this Program).

As discussed below, training efforts are most effective when quality education is offered that maximizes the potential for learning by participants. ***It is recommended that more of these outside agents engaged in interactive worker training techniques be encouraged and supported to provide worker training, particularly for those who are seasonally employed in agriculture. Those who could provide such assistance include: EPA, other federal funding agents (such as the Bureau of Primary Health Care), private foundations, agricultural associations and other resources;***

2. **“Success factors” of model states and training programs should be documented and publicized. [independent researchers, academicians, EPA]**

This study has discussed many issues that seem to hamper WPS worker training, although other instances were reported where quality training seems to occur. It is not clear what are success factors that make WPS worker training function well within a particular setting. Two states, Arizona and Idaho, have

been suggested by many as presenting elements which appear to encourage training, although no studies have been conducted on the quality of the WPS training and resulting knowledge level and behavioral change of trained workers.

The following factors seem of relevance in training programs conducted in each state:

- State Level Commitment. Arizona is one of only two states that had a requirement for a worker training card associated with pesticide safety education prior to implementation of the WPS. This commitment came from the State Legislature and was enforced by the SLA that had been active in this regard for a number of years. The WPS was simply integrated into existing regulation and, in fact, State law appeared to be more strict than federal requirements, for example, in making a worker training card mandatory. Agricultural employers in the State were already familiar with training requirements.

In Idaho, no State worker training requirement predated the WPS, and no official Legislative notice was enacted. However, the SLA, the Idaho Department of Agriculture, fully took on WPS implementation, possibly due to the influence of a few individuals in the department who were very interested in the area of pesticide safety training.

- State Agency Dollars and Staffing. The Arizona Department of Agriculture was allowed to commit full-time staffing to all aspects of WPS/State pesticide safety training. This included outreach and education, train-the-trainer programs and enforcement. This level of effort required state funding far beyond what was provided by EPA for WPS training implementation. Again, it occurred because the State was already committed to its own system of worker training.

Also in Idaho the commitment of State resources to worker and handler training efforts was well beyond that offered by most other states. A total of 12 staff throughout the State were involved in WPS efforts. At least two full-time staff were provided for outreach as well as offering numerous train-the-trainer sessions.

- Intensive Outreach and Information Efforts. Arizona SLA staff spent a good deal of time educating agricultural employers about State worker pesticide safety training requirements and/or the WPS. They utilized agricultural associations in these efforts and were themselves very visible at events attended by agricultural employers as well as working directly with individual employers. State agents conducted compliance assistance checks of establishments and then offered advice on corrective action.

Exactly the same pattern was utilized in Idaho with staff very visible throughout the state at events and offering compliance assistance checks to individual employers. In addition, Idaho staff targeted labor contractors to attend train-the-trainer sessions, then encouraged agricultural employers to check the list of those certified to distribute EPA cards prior to hiring a labor contractor.

- Serious Enforcement. Both Arizona and Idaho let employers know they are serious about enforcing the requirement for worker pesticide safety training and follow-through with enforcement action. In Arizona, the state requirement for a worker card simplifies enforcement as investigators ask workers if they have a card. Study respondents, however, did describe instances where employers would not hire workers who did not already have cards or where workers were charged for obtaining a card.
- Train-the-Trainer Programs Conducted By the SLA. Both states have conducted train-the-trainer programs to certify those who are eligible to distribute EPA cards. Arizona keeps a list of all certified trainers and refers any inquiries for training assistance to those on the list. Some of these individuals do charge for their training services, but others do not. Idaho has been very aggressive in its train-the-trainer offerings encouraging employers, their representatives and others to attend. In addition, SLA staff in Idaho also directly conduct worker and handler training on request.
- Existence of Outside Worker Training Agents. Local AFOP AmeriCorps Programs were begun in both Arizona and Idaho in 1999. Both states also have other agents outside of state government who offer WPS training assistance to workers. These include Migrant Health Centers, promotores programs, legal services, the Farmworker Health and Safety Training Institute and private individuals.
- Acceptance of the Idea of Worker Training by Agricultural Employers. Although no studies have been conducted of employers or workers in Arizona or Idaho, anecdotal information seems to suggest a large percentage of agricultural employers are offering their workers basic pesticide safety training. It is not clear if there compliance is from a sense such instruction is needed or because they know the regulation is enforced. There is no reason to believe these employers are using a training method different from what most employers throughout the country seem to use: showing a videotape. In addition, there is no evidence to show workers in these states are more or less knowledgeable on pesticide safety issues than workers elsewhere.

Examination of these two state programs might suggest the following are important factors to enhance program compliance within a state:

- State support, commitment and interest in training issues.
- State agency staffing and monetary support beyond that provided by EPA.
- Active enforcement including staffing, inspections and follow-through (re-checks when violations are found and punishment for violations).
- Extensive outreach and information efforts by the state.
- Train-the-trainer programs conducted by the state along with actual worker training by state staff.
- Availability of outside agents to provide WPS worker training.
- Extent to which employers and workers agree with the need for training.

***EPA should further document the elements that help promote WPS worker training looking at model states and how their programs operate. Success should be measured in terms of knowledge gained and changes in poor safety practices. Additionally, examination should include acceptance of the importance of training by both employers and workers. Once examples have been pinpointed, EPA should widely publicize these programs or areas as models for others.***

#### **A.Utilize More Effective WPS Worker Training Methods**

1. **An effective and efficient method to provide WPS worker training which can reasonably be delivered by agricultural employers or their representatives should be developed. [EPA, with the assistance of WPS Focus Group members and educational experts who are experienced in reaching agricultural workers]**

The WPS Final Rule concluded there was no undue burden on agricultural employers to conduct worker training, no matter what their size of operation, due to the “options in the rule that allow employers to select the most cost-effective option for their particular circumstance” (U.S. EPA, WPS Final Rule, p. 38146). In practice, this has meant a great deal of reliance by agricultural employers on audiovisual presentations. There is reason to believe, however, that many workers learn very little from this type of presentation.

Using a very ineffective teaching method as the predominant mode of instruction means WPS worker training is not meeting the stated regulation purpose. *“to reduce the risks of illness or injury resulting from workers . . . occupational exposures to pesticides . . . and also from the accidental exposure of workers . . . to such pesticides”* (U.S. EPA, WPS Final Rule, p. 38151).

As noted in this report, there are many reasons why employers choose to use a video for training: it is quick, does not require any special training for use, covers all required WPS information and can overcome language barriers. Nonetheless, to present pesticide safety information in a format that is ineffective is a waste of time for both the employer and the worker.

Although it will help, increasing the number of outside agents who can provide WPS worker training will not be able to meet all the educational needs of a seasonal work force estimated to range from 1.6 to 6 million with an estimated 20 percent annual turnover. Agricultural employers and their representatives will continue to be the major trainer of workers.

What is needed is a reasonable training technique to be conducted by employers and their representatives that goes beyond merely showing a video. It should have greater potential for effective communication leading to increasing worker knowledge and their resulting safety-related behavior. The following are some suggestions for what such guidelines might contain:

- Introduction to the training discussing purpose and assuring workers management is serious about pesticide safety
- A video that is more interactive than those presently available which would require the presenter to stop the viewing periodically to discuss issues and answer questions.
- Examples to illustrate points and suggestions of other techniques to encourage participation by workers and better assure their understanding of the information.

Whatever is designed should be presentable in 45 minutes and adaptable for use in any location. Although this would not provide the in-depth coverage of information offered by other interactive teaching approaches, this suggested method might be something more likely to be adopted by agricultural employers and their representatives.

***It is recommended that EPA coordinate an effort by those experienced in designing effective instructional tools for migrant and seasonal farmworkers to develop an educational package and instructional guidelines that will help employers and their representatives provide more effective WPS training to workers.***

***Additionally, Extension Agents who develop Certification and Training courses for private applicators should design classes to help individuals charged with training workers learn to be better instructors. EPA should also consider either updating or developing a video similar to “You Can Do It; How To Teach Pesticide Health and Safety to Farmworkers and Their Families,” which is an aid for learning how to teach pesticide health and safety prepared prior to implementation of the WPS.***

**1. A formal field comparison of the three primary methods to present WPS worker instruction should be conducted to judge the success of each in imparting information and encouraging behavioral change. [Independent researchers and academicians]**

There seems to currently be three principal methods in use for teaching WPS information to workers, although techniques of each may be mixed in the actual presentation. Each of these methods requires a different timeframe to deliver and different leader skills.

- Use of a videotape usually followed by asking participants if they have any questions. Information is primarily presented via the teaching tool: a video.
- Oral presentation using the EPA flipchart, EPA Handbooks or a video. This usually includes an explanatory introduction that may ask questions of participants and often uses group discussion, presentation of examples, and other participant activity. Information is primarily presented by the trainer.
- Total interaction between the instructor and participants. This might take the form of participants asking and answering questions, dialog among all those in the training, role playing or presentation of a skit. An educational tool such as the EPA flipchart might be used but primarily to graphically present information for discussion. Those being trained might describe their normal safety-related activities which are used as examples. Participants primarily teach themselves the information through their questions, discussion and other activities.

Although anecdotal information suggests the more interactive the approach the better the retention, it is not clear exactly which elements in each method are the most effective for teaching workers. Having a better understanding of what factors work best for retaining and using pesticide safety information could go a long way toward developing an effective teaching approach for employers and their representatives as well as establishing guidelines for a quality teaching program represented by a training verification card system.

***EPA should fund field trials to test the effectiveness of each teaching method and to judge knowledge retention and behavioral change. Those elements found to be most successful should be utilized in developing effective training packages and guidelines.***

**1. Agricultural employers should be encouraged to utilize AFOP AmeriCorps Members as a viable no cost means to effectively train their employees under the WPS. [EPA, SLAs and agricultural associations]**

As discussed above, expanding the AFOP Farmworker Environmental Education Program, using AmeriCorps Members, to provide WPS worker education, is very desirable as a means to train more workers. However, current AFOP AmeriCorps Members are not utilized as fully by agricultural employers as might be expected.

AFOP Members attending their 1998 Program Graduation Conference marking the completion of at least one year of service in the Program, were asked in what activities they spend the majority of their efforts. They indicated selling the program/marketing and “convincing agricultural employers to let them train workers” took up approximately half of their time. Other tasks, such as attending training and completing paperwork, took up additional time. Actual training of farmworkers only comprised approximately 25% of their time, although they all had a desire to do more of this activity.

The primary barriers to more teaching centered around gaining access to workers through their employers. In fact, for 7 of 14 states in which Members worked, at least half of all worker training occurred outside the work site. Some Members described frustrating experiences of trying, without success, to coordinate with agricultural employers to reach their workers. Although for many Members assistance from state officials including SLAs and Extension agents provided in-roads to building trust with local employers, for others these same local resources presented major blocks or were simply not helpful in making connections.

Many SLAs strongly support local AFOP AmeriCorps Program efforts and several have stated these Members offer direct training assistance to employers which is something the state is unable to do. Several state agencies have helped local sponsoring organizations meet their matching funds requirement, thus assuring the Program stays in their state.

***It is recommended, that EPA, at both the national and regional levels, do more to promote the AFOP AmeriCorps Program across the country and locally. In addition, state assistance of extension agents, SLAs and agricultural association representatives could help open doors to convince local employers to utilize AmeriCorps Members for providing training.***

***Agricultural associations should recognize the benefits of using this program to its fullest potential and should urge its members to take advantage of the services offered.***

**A. Examine and Publicize Evidence of the Need for Training Workers on Basic Pesticide Health and Safety Issues**

- 1. Research and anecdotal evidence concerning the need for workers to receive basic pesticide health and safety information should be gathered from a variety of sources and promoted. [EPA, independent researchers, academicians, farmworker service providers and advocates and agricultural associations]**

A major finding from the research for this study was the idea agricultural employers are not convinced of the need for workers to be educated about basic pesticide health and safety, and, therefore, see WPS training only in terms of meeting regulatory compliance. Employers say their workers are not in any danger from pesticide exposure, and they feel most workers are aware of safety procedures.

In addition to employers, some workers are also not convinced of the importance of pesticide safety information. They are described as more interested in working than in training and may not see the relationship between their safe work habits and protecting their families.

There is plenty of evidence to counteract this sense of a lack of need. Worker-related trainers and others point out instances of unsafe behavior, discuss workers' lack of knowledge and offer other examples that clearly indicate a group in need of this information. Independent researchers have conducted studies that verify the need.

- Researchers at the University of Washington found children of farmers and farmworkers are more likely to be exposed to pesticide residues than other children whose homes are not near farms (Simcox, et. al., 1995).
- A California study of farmworkers found exposure to clothing contaminated with pesticides provides a risk to both the individual and members of their household. They also found older workers or those engaged in farm work for long periods of time are less likely to take precautions in storing and washing contaminated clothing (Grieshop, Villanueva and Stiles, 1994).
- A study looking at the pesticide-related beliefs of North Carolina farmers and farmworkers found most individuals had little knowledge of long-term

effects of low-level exposure (Quandt, Arcury, Austin and Saavedra, 1998)

- On-going research by Dr. Richard A. Fenske uses a video imaging technique and fluorescent tracer deposits to illustrate the prevalence of pesticide residues on workers' skin and clothing (Fenske and Birnbaum, 1997; Fenske, Wong, Leffingwell and Spear, 1986).

Other documentation of incidents which lead to the conclusion worker training is needed have been gathered by state coordinating bodies and state agencies that publish annual reports of pesticide incidents (for example, reports from the Washington State Pesticide Incident Reporting and Tracking Review Panel and Oregon Pesticide Analytical and Response Center).

There is a great deal of anecdotal, illustrative and research evidence pointing to a need for workers to increase their knowledge of basic pesticide safety issues. ***This information should be located, summarized and publicized as verification of the need for WPS worker training. Strong evidence could counter the sense employers hold of workers not needing training. In addition, many individuals say an excellent technique for convincing workers of the importance of this training is to give them real life examples of the consequences of failing to practice safety around pesticides.***

**1. The information used in support of the WPS requirement for worker training, the sense that REIs are not sufficient to guarantee worker safety and the rationale for continuing training 30 days after conclusion of the REI should be emphasized. [EPA and agricultural associations]**

The requirement for workers to be trained on eleven basic pesticide health and safety points coincides with the stated intent of the regulations: *"to reduce the risk of pesticide poisonings and injuries among agricultural workers and pesticide handlers through implementation of appropriate exposure reduction measures"* (U.S. EPA, WPS Final Rule, p.38102). Three types of provisions are recognized as being addressed by these regulations, the last of which is to inform employees about the hazards of pesticides, *"since training and information are essential components of a successful occupational risk reduction strategy"* (U.S. EPA, WPS Final Rule, p. 38105).

Although worker training was not originally proposed in the NPRM, it was very heavily favored by those commenting on this WPS draft document including *"worker advocates such as unions and legal and health service providers, . . . universities, chemical companies, State lead agencies and other State agencies, employers, and agricultural organizations"* (U.S. EPA, WPS Final Rule, p. 38125).

In addition, extensive review of the draft by the U.S. Department of Agriculture and Congress also favored this option. The latter source suggested inclusion of workers' rights and employers' responsibilities as well as the five year retraining requirements.

In suggesting the addition of worker training, the Regulations summarize:

*“The Agency believes that providing information about ways to avoid or to mitigate occupational exposure to pesticides will reduce pesticide-related illnesses and injuries among agricultural workers significantly, and it has been convinced by the public comments that training as well as displaying a poster will better convey this information”* (U.S. EPA, WPS Final Rule, p. 38126).

The specific justifications given for worker training included:

- Worker exposure data demonstrated a need for more worker protection.
- From 1974 to 1992, there was an increase in use of more dangerous chemicals; such as, organophosphates and carbamates. These were described as *“more acutely toxic to humans than previous pesticides in common use in agriculture”* (U.S. EPA, NPRM, p. 25973).
- There is a large group of individuals, estimated in the Regulations at 2.3 million, *“exposed directly or indirectly to agricultural pesticide products or their residues as a result of occupational activities”* (U.S. EPA, NPRM, p. 25973).
- Although it is difficult to obtain accurate numbers of pesticide-related incidents given the population mobility, failure to diagnose pesticide-related incidents and failure to seek care; figures from California showed a 35% increase in reported pesticides-related poisonings from 1976-1983. Evidence was also found throughout the country of problems: in pesticides other than organophosphates, for pesticide residues on crops other than tree fruit, and for tasks other than harvesting (U.S. EPA, NPRM, p. 25973).

In addition, these documents continually expressed concern about the chronic and cumulative effects of repeated pesticide exposures. *“A single exposure period might not trigger a poisoning incident, whereas repeated exposures on a frequent or regular basis may lead to an acute poisoning or to chronic or subchronic effects such as cancer”* (U.S. EPA, NPRM, p. 25974).

Another issue often brought up by agricultural employers as evidence of the lack of need for workers to be trained in basic pesticide safety is a sense that no pesticide danger remains in fields once the REI has concluded. They believe the

REI for each chemical is established by EPA relying on scientific evidence. They feel this margin of safety, established by EPA, should be sufficient to assure no one is inadvertently exposed to pesticides. A 1998 study by Quandt, et. al. found both farmers and farmworkers have trouble with the concept of pesticide residues causing harm.

In reality, however, an examination of the WPS Final Rule clearly spells out the rationale for establishment of differing REIs and discusses the considerations the Agency still has over these as safety indicators. This document estimated EPA would take at least ten years to review all of the new chemical registration requests and the reregistration demands it had in-house at that time, 1992. The Agency did not feel it should wait that long to place safeguards into effect.

Prior to implementation of the WPS, the regulatory requirement was that individuals should stay out of an area where pesticides were used until the *“dust settles or spray dries.”* In revising the law, EPA felt this statement was too vague to serve as a minimum precaution as it relied on pesticide users to be the judge of conditions that can be affected by weather, wetness, wind and other environmental factors as well as agricultural production differences such as crop type, height and density. It was stated the desire was to set a bare minimum REI as a safety precaution until individual review of each chemical could be completed.

Even with the establishment of these minimum REIs, EPA, as expressed in the NPRM and WPS Final Rule, felt worker safety was not guaranteed and wanted to require precautions be taken to assure worker safety even after the conclusion of the REI. The NPRM states that *“although residues may not pose a significant risk of acute poisoning, they may cause other conditions, such as dermatitis or conjunctivitis.”* Repeated exposures could have an accumulative effect and result in an *“added burden of medical expenses and loss of income during illnesses that may result”* (U.S. EPA, NPRM, p. 25974). A final concern expressed was over chronic exposure to pesticides and the risk of delayed effects that may be unrecognized at present” (U.S. EPA, WPS Final Rule, p. 38135).

Before the WPS, regulatory language defining an area in which pesticides had been used was vague: *“any surface that has been treated with a pesticide during the agricultural crop production cycle in which the task occurs”* (U.S. EPA, WPS Final Rule, p. 38135). EPA wanted to *“limit and better define”* this period of time past expiration of the REI within which it was felt possible pesticide-related danger was still present. Evidence presented in the WPS-related documents described workers experiencing exposure *“incidents occurring up to five weeks after pesticide sprays have dried and dusts have settled”* (U.S. EPA, NPRM , p. 25973). As such, EPA set a margin of 30 days during which it was felt some pesticide-related danger might remain and workers should be cautioned to work safely.

***The reasons for and technicalities of these decisions on the need for worker training, establishment of REIs and the requirement training be provided for a period of 30 days after pesticide use have faded. Nevertheless, without an understanding of why such standards have been set it is easy to see why employers might assume a lack of need. EPA should work with agricultural associations, agricultural publications, SLAs, extension service offices and other agents that maintain direct contact with agricultural employers to clearly communicate this information as a further indicator of need for WPS worker training.***

**1. Behavioral patterns and beliefs in Mexico and other home countries of the majority of migrant and seasonal farmworkers that might lead recently arrived workers not to view pesticide safety as “common sense” should be documented. [Independent researchers and academicians]**

Agricultural employers often say pesticide safety information taught within the WPS is “*just common sense*,” and they, therefore, do not feel it is their responsibility to teach such basic knowledge to their workers. Included in this category are safety instructions such as washing hands before eating, changing work clothes daily and washing clothes.

What these individuals are really referring too is “*common cultural practices*” considered prevalent in the United States. Children are often drilled in school on the potential dangers of chemicals and the necessity to wash their hands before eating. This message is reinforced by their parents who have, likewise, been taught that such practices provide a measure of safety.

Many farmworkers, on the other hand, were raised in a different country with a different set of “*common cultural practices*” which may not totally match those of the country in which they work. Kathleen Kilpatrick in her work in Mexico with families whose members travel to the United States to work in agriculture found “*concepts of hygiene, relative risk of various environmental hazards, and how to respond to those risks are definitely culturally, educationally, economically, and situationally determined*” (Kilpatrick, 1999).

Individuals raised in Mexico may not be as familiar with the use of chemicals both inside and outside the residence. Parents may be unaware such substances can pose danger to themselves and their children. In dryer climates and in areas with no community-wide systems, water might be limited and considered a valuable commodity. Lack of knowledge why washing hands before eating is important is likely to combine with a scarcity of water to make this concept seem very foreign.

Ms. Kilpatrick’s research in Mexico found such an example “*when handwashing, showering, and separation of clothing for washing were mentioned as a method*

*for reducing hazardous pesticides exposure to doctors and health workers in a rural clinic in Nayarit, they laughed. 'Wash hands before and after using the toilet? They'd be lucky to HAVE a toilet!'" (Kilpatrick, 1999).*

***More work is needed by farmworker service providers and advocates, researchers and academicians to document common cultural practices around pesticide safety in Mexico and other countries from which many migrant and seasonal farmworkers come. EPA and private foundations could help fund and publicize such efforts.***

**2. Additional research should be undertaken to assess the level of pesticide health and safety knowledge among different groups of workers and profile those least likely to have this information as a means to target more comprehensive training. [Independent researchers and academicians, with the help of EPA, other government sources and private foundations]**

Research has shown that some workers are already aware of pesticide safety issues, while trainers and employers indicate other workers find required WPS instruction too basic to be useful. Targeting quality pesticide health and safety training to the least knowledgeable workers would be a way to aim resources at those with the most to gain from the educational process. However, the characteristics of those least likely to be aware of the information is unknown.

The AFOP AmeriCorps Pre-Post Training Test instrument used in 1998 included, for the first time, additional demographic data which offer a basic profile of individuals being trained. These individuals do not reflect a representative sample of all agricultural workers or even those trained through the AFOP AmeriCorps Program.

As in previous years, test scores show a 1.4 average point gain on a 15 point scale. Again similar to past years, average pre-test scores were very high (11.32). To see if there are different characteristics among those with differing knowledge of pesticide safety issues, before training, respondents were grouped by those scoring below 9 (low score) or 9 and above (high score) on the pre-test. Only 195 of the 2153 total fell into the low score group. As would be expected, average gain pre to post-test was greater for those with low pre-test scores (4.74) compared to those with high pre-test scores (1.06).

Demographic profiles of the two groups were compared. The results, examined by mean score for coded response, were very similar.

The only significant difference was educational level. Both groups scored very low, with 90% of those with low pre-test scores and 78% with high pre-test scores not completing high school. When the coded mean scores are compared,

those in the low score group have significantly less education than those in the high score group.

Results from AFOP Pre-Post Training Tests can be compared to conclusions of a Michigan State University Study which looked at retention of pesticide safety knowledge after WPS worker training (Perry and DiFonzo, 1998). The demographic profile of the 404 migrant farmworkers involved in the Michigan study is strikingly similar to those individuals included in the AFOP Pre-Post Training Test.

Sixty-five percent of the Michigan study respondents said they had previously been trained in pesticide safety. These individuals were asked in the past year how they got information about pesticide safety, although it is not clear their responses referred strictly to WPS training. Fifty-nine percent of respondents said they had seen a training video, and fifty-one percent said they had received information from their boss or supervisor (this may have referred to simple instructions such as which fields not to enter because of pesticide use). Only ten percent indicated attending a pesticide training program given by someone other than their boss or supervisor.

A series of open-ended knowledge questions concerning pesticide safety were asked of all respondents. No separation was made between those who had or had not been trained or indicated training via video. Coding was applied to the responses based on a number of potential correct replies.

From 19% to 38% of respondents could not give any response to five of the questions. Interpretation of results is difficult, and the authors indicate a need for additional analysis and research. However, they do conclude that training is happening but *“Retention of much of the training information ranges from minimal to about 50%. It is not clear if the lack of retention is due to poor or no training, poor materials or language barriers.”*

Comparing results from these two assessments of worker pesticide safety knowledge is interesting although not conclusive in any way. AFOP tests occurred immediately following training, while the Michigan study asked questions presumably within a period of time after training. While knowledge gain was seen in the pre-post training situation, retention of pesticide safety knowledge was not strong among Michigan respondents. Because the two groups were entirely different, they suggest but cannot be used to conclude trained workers will not retain pesticide safety knowledge.

The two studies might also suggest that the method of training makes a difference in knowledge retention. All of the AFOP participants were trained using the EPA flipchart and a teaching style that encompassed discussion and other interactive techniques. Thirty-five percent of the Michigan workers were not trained, and the vast majority of those who received training saw a video.

***Independent researchers and academicians should undertake additional studies of immediate and long term retention of pesticide safety knowledge by workers who are trained. Such research should also assess differences related to training method.***

**E. Design More Systems To Provide Effective Training for Short-Term Agricultural Workers and Establish a Trustworthy Method for Training Verification.**

- 1. The WPS Focus Group (whose members include SLAs, farmworker service providers and advocates, agricultural association representatives, extension service personnel and others) should be reconvened as a forum for discussion of a workable training verification system. [EPA]**

One of the major issues in training all workers is reaching those hired for short periods of time, particularly migrant workers who can travel across the country working for numerous employers. When hired, these individuals are needed for immediate time sensitive work, and they are primarily interested in working not in being trained (particularly if they are not paid while engaged in educational activities). Both workers and employers would benefit if such training could be done during the off-season. This is one of the primary reasons EPA instituted a training verification system and encouraged states to develop train-the-trainer programs to certify those who could train workers and distribute cards.

Unfortunately, this has not worked as well as it was hoped because each state has its own training system with different methods of trainer certification and few guidelines on required worker training techniques. The result has been inconsistent quality represented by the EPA card, and employers unsure and distrustful of accepting cards as proof of thorough training.

What is needed is a national system to guarantee quality and consistent training that does not differ from state to state so an employer in one part of the country could trust the training quality represented by a card issued in another state.

Although many people agree developing a method that would issue cards to workers who receive quality training would be highly useful, how such a system should be structured is not clear. It would require design of training guidelines, a monitoring procedure, and tracking scheme to assure trustworthy and worthwhile results. The new system would have to be integrated into existing state card systems. It is also not clear who would provide worker training, how such trainers would be certified and how assurances of quality training would be maintained.

The new training verification card system would have to be something agricultural employers could trust, and worker-related trainers could feel assured had the maximum potential for providing knowledge and promoting behavioral change. If SLAs were involved, the system would need to fit within their resources and existing structures.

The best, and perhaps only, way to develop a workable system for all parties is to involve them in the design. ***It is recommended that EPA reconvene the WPS Focus Group to discuss and derive a new training verification system. The WPS Focus Group is a good forum for such a task as it is composed of a wide and varied range of individuals who are directly affected by the WPS and who are knowledgeable of what will work “in the field.” In addition, once the system has been developed, these same individuals are in an excellent position to publicize the results among their constituents.***

**2. A national level card system administered by EPA using certified trainers, set instructional guidelines and a card that represents quality education should be developed. [EPA]**

There is in use today an education system known for training individuals to a high level of pesticide safety knowledge. This Certification and Training (C&T) network, used to certify pesticide applicators, is coordinated by the U.S. Department of Agriculture and administered by state extension service offices. It involves quality training utilizing a set of guidelines developed and continually refined by those providing courses. Instructors are state extension service personnel or a select group of others specifically approved to offer courses. Participants completing training receive a certificate indicating their status as private or commercial applicators.

This system of certification is very costly and time-consuming to maintain; however, individuals completing courses and obtaining certificates are considered trained to a specified level of knowledge. The results are uniformly well-respected across the country.

The C&T system could serve as a model for establishing a similar network of programs that could, first, certify trainers to distribute EPA approved WPS worker training cards, and second, provide quality training to workers who would then have proof of receipt of training. Last, because the system under which such cards were distributed would be standardized and more controlled than the current individual state training verification systems, agricultural employers would have more confidence in the level of knowledge represented by workers presenting national cards.

***It is recommended that the WPS Focus Group, with input from SLAs and EPA national and regional offices, examine the C & T network for***

***suggestions for building a national WPS worker training verification program.***

The following might be some of the elements considered in such a system:

- A framework for certifying trainers.
- Guidelines specifying material to be covered, format for presentation, use of interactive techniques and systems for issuing cards or other proof of training documents.
- Timeframe requirements for worker training; e.g., a minimum of one hour.
- Suggested teaching techniques and methods for participant interaction.
- Requirements for recordkeeping by certified trainers of workers receiving cards or other proof of training documents.
- Monitoring procedures to verify quality worker instruction by certified trainers.

**1. Liability concerns of agricultural employers around training verification systems and acceptable documentation should be researched and addressed. [EPA and agricultural associations]**

Liability issues are seen as major barriers to agricultural employers accepting training verification cards they do not issue. This covers lack of clarity over training quality represented by cards issued by various states and sources, fear that a worker in possession of a card will sue the employer who issued it if an accident occurs, and worry the card presented might be a forgery. The result is employers refusing to take part in training verification card systems and encouragement in this direction by agricultural associations and consulting attorneys.

The two other recommendations presented in this section describe a method to design quality WPS worker training programs utilizing input from those most affected and possibly modeling a training network after existing successful C&T systems. No matter what the final method, if agricultural employers fear legal liability from accepting the resulting document as proof of worker training, the system will not work.

***EPA should carefully analyze and respond to liability and other concerns of agricultural employers in regard to their acceptance of a WPS national worker training verification card system. Agricultural associations should fully participate in the design of such systems, on behalf of their members,***

***and then work to assure their members of the value of the results. SLAs should also inform agricultural employers they will not be penalized but will instead benefit from accepting the resulting cards.***

## **VI. APPENDICES**

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## **STUDY INSTRUMENTS**

### **QUESTIONNAIRES AND INTERVIEW GUIDES**

#### **AGRICULTURAL EMPLOYERS INTERVIEW GUIDE**

1. Do you think workers need basic pesticide health and safety information?
  - a. Why/Why not?
2. Do your workers receive WPS pesticide safety training?
  - a. Who teaches it?
  - b. How are your workers trained: methods, tools, materials?
  - c. When are your workers trained: before beginning work, before six days of employment, other?
  - d. Are your workers given a card to show they have been trained?
    - (1) Type of card.?
    - (2) Why do you not use a card?
  - a. Are your workers paid for attending a training session?
1. Do you think workers are constantly being retrained as they move from place to place?
2. Do you think workers learn the pesticide safety information you offer?
  - a. Why/Why not.?
3. Do you think the information you give workers about pesticide safety makes them change their behavior?
  - a. Why/Why not?
  - b. Can you think of any better way to encourage workers to change unsafe behavior?
1. Do you think the WPS requirement workers be retrained every five years is too much training, too little training or about right?
2. Are you concerned with enforcement of WPS worker training?
  - a. Has your operation been inspected?
3. What makes it hard for you to comply with the WPS requirement to educate workers?
4. How could WPS worker training be improved?
5. Is there anything else you can tell me about your experience training workers under the WPS?

## **TRAINERS INTERVIEW GUIDE**

1. Do you think workers need basic pesticide health and safety information?
  - a. Why/Why not?
1. Have you taught pesticide health and safety to farmworkers?
  - a. For what reason (WPS or non-WPS)?
  - b. What methods did you use?
  - c. What tools/materials did you use?
1. Have you given workers a card to show they have been trained?
  - a. What type of card?
  - b. Why do you not use a card if you are teaching under the WPS?
1. Do you think workers learn the pesticide safety information you offer?
  - a. Why/Why not?
1. Do you think the information you give workers makes them change their behavior?
  - a. Why/Why not?
1. What makes it hard to teach workers pesticide safety information?
  - a. Would additional tools/materials (including those in other languages) be helpful?
1. Do you think the WPS requirement workers be retrained every five years is too much training, too little training or about right?
2. Do you know anyone else in your area teaching workers under the WPS?
  - a. What groups or individuals?
1. How could WPS worker training be improved?
2. Is there anything else you can tell me about your experience training workers under the WPS?

## STATE LEAD AGENCY INTERVIEW GUIDE

**Introduction:** Studying worker education part of the WPS. **Not** looking at handler or applicator training.

Includes agriculture, nursery/greenhouse and forestry.

Want to know how your agency made decisions/what decided.

Want to know if and how it is working in your state.

1. Do you think workers need basic pesticide health and safety information?
2. Does your state use a card system?
  - a. What type of system (EPA cards, state cards, no cards), and why was this chosen?
  - b. Who distributes the cards/what requirements must they meet; e.g., attend train-the-trainer class?
  - c. How many cards have been issued to trainers?
  - d. How many workers have been given cards?
  - e. Does the SLA keep records of workers given cards?
  - f. What do growers and workers say about the value of the card system?
3. Have train-the-trainer sessions been conducted in your state?
  - a. Why not?
  - b. Who did/does these sessions? Why does this agent do the sessions?
  - c. Have the sessions been successful?
    - (1) Number of individuals trained.
    - (2) Type of individuals trained; e.g., growers, crew leaders, farmworker assistance programs, farmworker advocates, private trainers.
    - (3) Number of sessions held – when was last one.
4. Does WPS worker education overlap with: (1) existing state regulations? (2) OSHA Hazard Communications?
  - a. Has this caused any problems?
  - b. What has your agency done to help this situation?
5. What percent of employers do you think are educating their workers (or having them educated)?
  - a. Who is doing this education?
  - b. What tools and materials are they using?
6. What is the pattern for the grower least likely to educate workers: (a) large/small, (b) crop specific, (c) race/ethnicity, (d) age (younger/older), (e) years in farming, (f) other characteristics.
7. Are workers learning the information?
  - a. Are they changing their behavior?
8. Is WPS actively enforced in your state?
  - a. When did full enforcement activities start?
  - b. Are inspections: (1) random, (2) only when complaints are received?
9. Why do employers find it hard to comply with worker education under the WPS?
10. Is there anything that makes it hard for SLAs to deal with this requirement?



## TRAINERS WORKSHOP SESSION

- A. Pesticide Education Session Structure and Educational Tools.
  - 1. Is pesticide education needed?
    - a. Why?
  - 2. Do you know anything about the WPS?
    - a. How much do you know?
  - 1. Have you taught pesticide health and safety to farmworkers?
    - a. Describe the situation.
    - b. Under WPS or for another reason?
    - c. How have you taught WPS pesticide education?
      - (1) What methods?
      - (2) What tools and materials?
  - 1. What are the good and bad features of the tools and material you used?
    - a. EPA flip chart.
    - b. EPA worker handbook.
    - c. Video (which?)
    - d. Other.
  - 1. What else do you wish you had which could really help you teach?
    - a. Tools
    - b. Material
    - c. Props
    - d. Videos
    - e. Language needs
    - f. Other
  
- A. Farmworkers Learning and Using the Information.
  - 1. Do you think what you taught caused farmworkers to change their behavior?
    - a. How do you know they changed behavior?
  - 1. What are barriers to teaching farmworkers pesticide safety?
  - 2. Describe the farmworker LEAST LIKELY to change his/her behavior (sex, age, race/ethnicity, type of work, other).
    - a. How can we reach this person?
  
- A. Relations With and Activities of Growers.
  - 1. What was the general attitude of growers to:
    - a. The requirement their workers be trained about pesticide safety?
    - b. They or their supervisory employees doing the training?
    - c. You an outside agent training their workers?
  - 1. What reasons did growers give you for not wanting you to teach their workers?
  - 2. Are growers training their workers as required?
    - a. How are they training?

- (1) Interactive method.
- (2) EPA flipchart.
- (3) Read through EPA Handbook with workers.
- (4) Video.
- (5) Other.
- a. Do you think this method is effective so workers learn the information?
  - (1) How do you know?
- 1. Are workers paid for attending training sessions? (Are sessions held at the work site during work time?)

A. General.

- 1. Why are you doing WPS pesticide education? What difference are you making?
- 2. Do workers you train and/or meet already have EPA or other pesticide training cards?
  - a. What type of card?
  - b. From other states? Which states?
- 1. The WPS says workers should be retrained every five years. Is this a good idea or should they be retrained more often or less often?
- 2. Describe THE IDEAL farmworker training session:
  - a. Where would it take place?
  - b. Who would attend (farmworkers, students, parents, other)?
  - c. How many people would participate?
  - d. How would the information be presented?
  - e. How long should the session take?
  - f. What else about the worst session?
- 1. Describe THE WORST farmworker training session:
  - a. Where would it take place?
  - b. Who would attend (farmworkers, students, parents, other)?
  - c. How many people would participate?
  - d. How would the information be presented?
  - e. What else about the ideal session?
- 1. What would happen to pesticide education for workers if you were not there?
  - a. Would it happen?
  - b. Who would do it (growers, extension, other)?

A. Additional Topics for AFOP AmeriCorps Volunteers.

- 1. Where did the sessions you held take place: farm, camp (or other residence), office, social service program site, church, other location?
- 2. What percent of the sessions you held were "sponsored" by employers as opposed to reaching workers through other sources (social service program, at a residence site, etc.)
- 3. Were State Lead Agency personnel and Extension agents helpful in your efforts to train workers (e.g., introduced you to growers, vouched for you)?
  - a. How did they help or not help?

- A. Workshop Background and Purpose.
  - 1. Introduce facilitators.
  - 2. This is a workshop where participants talk to the facilitators not the other way around. You are the people out in the field.
  - 3. We are conducting a national evaluation of the worker training part of the WPS.
    - a. Want information from those who work with farmworkers, agricultural employers, state government, extension service and others.
    - b. Will be using several different methods to gather information: attend national conferences, hold workshops like this, talk one-to-one, ask people to complete questionnaires.
    - c. Plan to later target 15 states for more in-depth work.
    - d. Will try internet research: WPS Forum.
  - 1. Participants introduce themselves: name, program/agency, title, location.

## EMPLOYER PESTICIDE SAFETY EDUCATION WORKER PROTECTION STANDARD QUESTIONNAIRE

I am evaluating farmworker pesticide health and safety training under the Worker Protection Standard to help understand what has happened since the regulation was put into place in 1992. Your experience in educating workers under this regulation: what works, what doesn't and how to make training better; can help improve worker safety around pesticides.

I am asking anyone who has educated farmworkers about pesticide safety or who, as an employer or other interested party, has been involved with the Worker Protection Standard to answer the following questions. I hope to learn as much as I can from your experiences. Please remember I am only evaluating pesticide education for workers NOT handlers or applicators.

Your Home State \_\_\_\_\_

1. Are you a:

- |  |  |
|--|--|
| <input type="checkbox"/> Farm operator (Owner or manager)                              | <input type="checkbox"/> Nursery operator (Owner or manager) |
| <input type="checkbox"/> Greenhouse operator (Owner or manager)                        | <input type="checkbox"/> Farm/nursery/greenhouse worker      |
| <input type="checkbox"/> Farm labor contractor   | <input type="checkbox"/> Agricultural association employee   |
| <input type="checkbox"/> Crop advisor/consultant                                       | <input type="checkbox"/> Other (Please describe) _____       |
| <input type="checkbox"/> Health care worker (Type of organization) _____               |  |
| <input type="checkbox"/> Farmworker organization employee (Type of organization) _____ |  |

2. If a farm, greenhouse or nursery operator, what commodities do you grow?  
\_\_\_\_\_

3. How many seasonal workers do you employ annually?  
\_\_\_\_\_

4. Do you feel it is important for workers to be given basic pesticide health and safety information? (Workers do not include pesticide applicators or handlers.)

No  Yes

5. Is Worker Protection Standard (WPS) pesticide safety training taught to workers at your establishment?

No (Please ONLY answer question 6)  Yes (Please skip to question 7 and answer the rest of the survey questions)

6. Why is WPS pesticide safety training not taught at your establishment?

7. Who teaches WPS pesticide health and safety information to your workers (or where you work)?

- |  |   |
|--|---|
| <input type="checkbox"/> I teach workers                 | <input type="checkbox"/> Farm labor contractor                              |
| <input type="checkbox"/> My foreman/supervisor           | <input type="checkbox"/> Outside consultant or crop advisor                 |
| <input type="checkbox"/> Extension service               | <input type="checkbox"/> Outside program (e.g., AFOP AmeriCorps volunteers) |
| <input type="checkbox"/> Grower or crop association      | <input type="checkbox"/> Migrant health center                              |
| <input type="checkbox"/> State Department of Agriculture |   |
| <input type="checkbox"/> Other Who? _____                |   |





[PLEASE RETURN THIS QUESTIONNAIRE TO: Alice Larson, Ph.D., Study Director, E-Mail: [workgrp@wolfenet.com](mailto:workgrp@wolfenet.com) OR TO: P.O. Box 801, Vashon Island, WA 98070, TEL: 206-463-9000]

## FARMWORKER PESTICIDE SAFETY EDUCATION WORKER PROTECTION STANDARD QUESTIONNAIRE

I am evaluating farmworker pesticide health and safety training under the Worker Protection Standard to help understand what has happened since the regulation was put into place in 1992. Your experience in educating workers under this regulation: what works, what doesn't and how to make training better; can help improve worker safety around pesticides.

I am asking anyone who has educated farmworkers about pesticide safety or who, as an employer or other interested party, has been involved with the Worker Protection Standard to answer the following questions. I hope to learn as much as I can from your experiences. Please remember I am only evaluating pesticide education for workers NOT handlers or applicators.

Your Home State \_\_\_\_\_

- Type of respondent.  
 Farmworker organization employee (Type of organization) \_\_\_\_\_  
 Health care worker (Type of organization) \_\_\_\_\_  
 Farm operator (Owner or manager)       Nursery operator (Owner or manager)  
 Greenhouse operator (Owner or manager)       Farm/nursery/greenhouse worker  
 Farm labor contractor       Agricultural association employee  
 Crop advisor/consultant       Other (Please describe) \_\_\_\_\_
- Have you ever taught Worker Protection Standard (WPS) pesticide safety training to workers?  
 No (Please ONLY answer question 3)       Yes (Please skip to question 4 and answer the rest of the survey questions)
- Have you ever considered training workers under the WPS?  
 No       Yes. Why have you decided not to offer such training? \_\_\_\_\_  
\_\_\_\_\_
- How many times have you conducted WPS training for workers?  
 1 time       2-5       6-10       11-20       More than 20 training sessions
- What tools and materials have you used to train workers about pesticide safety under the WPS?  
 EPA flipchart       EPA Worker Guidebook  
 Videotape (Title) \_\_\_\_\_       Audiotape (Title) \_\_\_\_\_  
 Other (Please describe) \_\_\_\_\_
- Are there any other tools or material you wish you had which would help you teach workers better?
- Have you given workers a card to show they have been trained?  
 No       Yes. Which card?       EPA card       State card  
 Other (Please describe) \_\_\_\_\_

8. Do you think workers learn the pesticide safety information you offer?  
 Yes, most workers       Yes, many workers       Yes, but only a few workers  
 No, very few. Why? \_\_\_\_\_
9. Do you think the information you give farmworkers about pesticide safety makes them change their behavior?  
 Yes, for most workers       Yes, about half the workers       Yes, for some workers  
 No, very few actually change their behavior
10. Why don't workers change their behavior after hearing pesticide safety information?
11. What makes it hard to teach workers pesticide safety information?
12. Do you know any other groups in your area teaching workers under the WPS?  
 No       Yes. Who?       Extension Service       Employers/Growers  
 AFOP AmeriCorp Volunteers       Migrant Health Center  
 State Department of Agriculture  
 Other (Please describe) \_\_\_\_\_
13. Do you find workers are continually being retrained as they move from place to place or as they return to your area year after year?  
 No       Yes
14. The WPS currently requires workers to be retrained every five years. Is this too often, not often enough or about right?  
 Trained too often       Not trained enough       Trained about right
15. Is there anything else you can tell me about your experience training workers under the WPS or any ideas you have for improvement?

If you would like a summary copy of the results of this study, please provide the following:

Name \_\_\_\_\_  
Organization/Business \_\_\_\_\_  
Address \_\_\_\_\_  
Telephone \_\_\_\_\_

**THANK YOU VERY MUCH FOR YOUR HELP**

**EVALUATION QUESTIONNAIRE FOR  
AFOP AmeriCorps VOLUNTEERS**

**I AM EVALUATING FARMWORKER TRAINING UNDER THE WORKER PROTECTION STANDARD. YOU AND THE OTHER VOLUNTEERS HAVE DONE MORE TO EDUCATE FARMWORKER FOR THIS REGULATION THAN ALMOST ANYONE ELSE IN THE COUNTRY. THE INFORMATION YOU CAN GIVE ME ABOUT WHAT WORKS, WHAT DOESN'T AND HOW TO MAKE TRIANING BETTER WILL HELP EPA MAKE SURE MORE FARMWORKER ARE EDUCATED TO WORK SAFELY AROUND PESTICIDES.**

**I WILL BE TALKING TO ALL OF YOU AT THE AmeriCorps GRADUATION CONFERENCE IN SAN FRANCISCO IN EARLY DECEMBER. BEFORE THEN, PLEASE ANSWER THE FOLLOWING QUESTIONS TO HELP ME LEARN AS MUCH AS I CAN FROM YOUR EXPERIENCES.**

Name \_\_\_\_\_

State \_\_\_\_\_

1. I know you have heard lots of stories from farmworkers about working around pesticides (e.g., exposure, safety, accidents, etc.). Please describe three of them.

Story One:

Story Two:

Story Three:

2. Do you have any suggestions for improving the WPS flip chart?

\_\_\_\_\_ No

\_\_\_\_\_ Yes. What suggestions?

1. Besides what EPA developed, were there any other tools or materials you could have used to help educate farmworkers about pesticide health and safety?

\_\_\_\_\_ No

\_\_\_\_\_ Yes. What tools or materials?

2. can you think of a better way, or another good way, to educate farmworkers besides using the WPS flip chart and guidebook?

\_\_\_\_\_ No

\_\_\_\_\_ Yes. How?

3. Please describe your best farmworker training session.

Where did it take place? \_\_\_\_\_

Who attended (farmworkers, students, parents, etc.)? \_\_\_\_\_

How many people were there? \_\_\_\_\_

How did you present the information (props, visuals, etc)? \_\_\_\_\_

\_\_\_\_\_

What else made it good?

4. Please describe your worst farmworker training session.

Where did it take place? \_\_\_\_\_

Who attended (farmworkers, students, parents, etc.)? \_\_\_\_\_

How many people were there? \_\_\_\_\_

How did you present the information (props, visuals, etc)? \_\_\_\_\_

\_\_\_\_\_

What else made it bad?

5. What are some good ideas for encouraging growers to let you educate their workers?

6. What are some reasons growers would give you for not letting you train their workers?

7. Can you think of anything else which has made it difficult for you to educate workers about pesticide health and safety?

8. The WPS says workers should be retrained every five years. Is this a good idea or should they be retrained more often or less often?

\_\_\_\_\_ Trained too often  
\_\_\_\_\_ Trained about right

\_\_\_\_\_ Not trained enough

Why?

9. Is the WPS enforced in your area? That is, does someone from the State check to make sure growers are training their workers?

\_\_\_\_\_ Yes, a lot  
\_\_\_\_\_ Yes, but only a little

\_\_\_\_\_ Yes, some  
\_\_\_\_\_ No, rarely or not at all

Comments

10. Do you think the information you give farmworkers about pesticide safety makes them change their behavior?

\_\_\_\_\_ Yes, for most workers  
\_\_\_\_\_ Yes, but only for some workers

\_\_\_\_\_ Yes, about half the workers  
\_\_\_\_\_ No, very few actually change their behavior

Comments

11. What kind of farmworker is most likely to change behavior because of what you teach? (age, sex, type of work, other characteristics)

**THANK YOU VERY MUCH FOR YOUR HELP. I LOOK FORWARD TO MEETING YOU AND HEARING MORE IN SAN FRANCISCO.**



[PLEASE RETURN THIS QUESTIONNAIRE TO: ALICE LARSON, STUDY DIRECTOR, P. O. BOX 801, VASHON ISLAND, WA 98070, TEL: 206-463-9000]

## STATE LEAD AGENCY PESTICIDE SAFETY EDUCATION WORKER PROTECTION STANDARD QUESTIONNAIRE

I am evaluating worker pesticide health and safety education under the Worker Protection Standard to help understand what has happened since the regulation was put into place in 1992. Your experience in administering this regulation for your state -- how your agency made decisions and what was decided; how the requirement is working or not working -- can help improve worker safety around pesticides.

I am asking anyone involved with worker education under WPS (employers, those who help workers, trainers, extension agents, others) to help me gather information. I would appreciate your help by answering the following questions. I hope to learn as much as I can from your experiences.

Please remember, I am only evaluating education for workers NOT handlers or applicators.

Your State \_\_\_\_\_ Your Agency \_\_\_\_\_

Your Title \_\_\_\_\_

1. Do you think workers need basic pesticide health and safety information?

Yes  No

2. Does your state use a card system?

Yes  No

a. What type of card system ?

EPA cards  State cards  Other cards (Please describe) \_\_\_\_\_  
 State administers no card system \_\_\_\_\_

b. Why was this card system (or no system) chosen?

c. Who distributes the cards to those eligible to hand them out?

Your agency  Another agent Who? \_\_\_\_\_

d. What is required before an individual can distribute cards (e.g. be trained)?

e. Who keeps the records of those trained?

Your agency  Another agent Who? \_\_\_\_\_

f. How many cards have been issued? \_\_\_\_\_

g. How many workers have been given cards? \_\_\_\_\_

h. What do growers and workers say about the value of the card system?

3. Have train-the-trainer sessions been conducted in your state?

Yes  No Why not? \_\_\_\_\_

a. Who did/does these sessions?

Your agency  Another agent Who? \_\_\_\_\_

b. How many individuals have been trained? \_\_\_\_\_

c. What type of individuals have been trained

Employers  Crew leaders  Extension agents  Migrant health workers

AmeriCorps volunteers  Private individuals

Others Who? \_\_\_\_\_

d. How many training sessions have been held? \_\_\_\_\_

When was the last training session? \_\_\_\_\_

4. When it was first issued, did WPS overlap with:

a. Existing state regulations?  Yes  No

b. OSHA Hazard Communications?  Yes  No

c. Has this caused any problems?  No  Yes What kind of problems? \_\_\_\_\_

d. What has your agency done to help this situation?

5. What percent of employers do you think are educating their workers (or having someone else educate them)? \_\_\_\_\_%

a. Who is doing this education?

Employers  Extension service  Grower or crop association

Your agency  Farm labor contractors  Migrant health centers

AmeriCorps volunteers  Private individuals/companies

Other farmworker service programs  Other Who? \_\_\_\_\_

b. What tools and materials are they using?

EPA flipchart     EPA Worker Guidebook  
 Videotape (Title) \_\_\_\_\_     Audiotape (Title) \_\_\_\_\_  
 Other (Please describe) \_\_\_\_\_

6. What is the pattern for the grower least likely to educate workers?

Large producer     Small producer     Few years farming     Lots of years farming  
  
 Younger in age     Older in age     Certain race/ethnicity    Which? \_\_\_\_\_  
 Grow a specific crop    Which? \_\_\_\_\_  
 Other characteristics  
What? \_\_\_\_\_

7. Are workers learning the information?

Yes     No

a. Are they changing their behavior?

Yes     No

8. Is WPS being actively enforced in your state?

Yes     No (Skip to Question 9)

a. When did full enforcement activities start? \_\_\_\_\_

b. Are inspections:

Random     When complaints are received     Both  
 Other (Please describe) \_\_\_\_\_

9. Why is it hard for employers to comply with the worker education requirements of the WPS?

10. Is there anything that makes it hard for SLAs to deal with this requirement?

**PLEASE PROVIDE THE FOLLOWING INFORMATION SO WE MAY CONTACT YOU IF WE HAVE ANY QUESTIONS:**

Name \_\_\_\_\_ Telephone \_\_\_\_\_

Address \_\_\_\_\_

**THANK YOU VERY MUCH FOR YOUR HELP**

## QUESTIONNAIRE RESPONSE

### EMPLOYER QUESTIONNAIRE RESPONSE

**Respondent Total**                      **77**

#### Home State

Alabama	1.3%	Indiana	5.2%	Pennsylvania	1.3%
California	28.6%	Michigan	2.6%	South Carolina	1.3%
Colorado	5.2%	New Jersey	1.3%	Texas	1.3%
Delaware	1.3%	New York	5.2%	Virginia	2.6%
Florida	19.5%	North Carolina	6.5%	Washington	9.1%
Georgia	1.3%	Oregon	2.6%	Wisconsin	3.9%
				<b>n=77</b>	<b>100.0%</b>

#### Respondent Type

farm operator	76.1%	farm/nursery/ greenhouse worker	1.4%	crop advisor/farmwker	1.4%
greenhouse operator	2.8%	foreman/supervisor/ manager	12.7%	sales manager	1.4%
crop advisor/consultant	1.4%			employee in family	
nursery operator	1.4%			business	1.4%
				<b>n=71</b>	

#### Commodities Grown

almonds	0.8%	grain	0.8%	potatoes	8.5%
apples	12.4%	grapes	2.3%	prunes	1.6%
beans	1.6%	greens	0.8%	radishes	0.8%
blueberries	0.8%	herbs	1.6%	squash	2.3%
broccoli	0.8%	lettuce	2.3%	strawberries	3.1%
cabbage	5.4%	melons	1.6%	sugar beets	0.8%
cantaloupe	0.8%	mushrooms	0.8%	tomatoes	0.8%
cherries	3.9%	nectarines	0.8%	vegetables-assorted	7.8%
christmas trees	0.8%	nursery	0.8%	vegetables-leafy	0.8%
citrus	4.7%	onions	3.9%	vegetables-oriental	1.6%
corn	1.6%	peaches	3.1%	walnuts	1.6%
cucumbers	3.9%	pears	0.8%	watermelon	2.3%
fruit	1.6%	peas	1.6%	wheat/barley	0.8%
fruit-soft	0.8%	peppers	3.1%		
fruit-tree	3.1%	plums	0.8%		
				<b>n=129</b>	<b>100.0%</b>

#### Number of Seasonal Workers

Range	0 - 3,000
Mean	311

#### Pesticide Education Important

No	10.6%
Yes	87.9%
they have right to know	1.5%
<b>n=66</b>	<b>100.0%</b>

#### Teach WPS Worker Education

no	10.8%
yes	83.8%
contractor does it	4.1%
employees trained	

---

before WPS	1.4%
<b>n=74</b>	<b>100.0%</b>

**Who Teaches WPS Worker Education**

Respondent	25.4%	outside agent:assn,	9.9%	other employee: human	28.2%
Foreman/supervisor	26.8%	chemical co., con-		resource, safety	
Insurance company	1.4%	sultant, social serv		director, trained	
Other	8.5%	program		employee	
				<b>n=71</b>	<b>100.0%</b>

**When are Workers Trained**

Before begin working	66.7%
Before work 6 days	21.1%
twice a year	3.5%
on the job	1.8%
other	7.0%
<b>n=57</b>	<b>100.0%</b>

**Are Workers Paid While Training**

no	12.5%
yes	85.7%
hourly-yes, piece	1.8%
rate-no	
<b>n=56</b>	<b>100.0%</b>

**Tools/Materials Used for Training**

EPA flipchart	12.9%	slides	1.2%	pass a test	2.4%
videotape	54.1%	questions	2.4%	state supplied material	1.2%
EPA worker	14.1%	state info sheets	1.2%	talk to them	3.5%
guidebook					
audiotape	1.2%	handouts	4.7%	use notebook	1.2%
				<b>n=85</b>	<b>100.0%</b>

**Which Video is Used**

Idaho Dept. of Agric.	22.2%	Don't know name	22.2%
Michigan Extension	11.1%	Several	22.2%
Texas Dept. of Agric.	22.2%	<b>n=9</b>	<b>100.0%</b>

**Are Workers Given a Training Card**

No	53.4%
Yes	46.6%
<b>n=58</b>	<b>100.0%</b>

**Given Which Training Card**

EPA card	22.7%
state card	18.2%
farm card	27.3%
sign paper they	27.3%
trained	
sign test paper	4.5%
<b>n=22</b>	<b>100.0%</b>

**Workers Learn the Information**

yes most	63.0%
yes half	13.0%
yes some	11.1%
no very few	13.0%

**Workers Change Behavior**

yes most	48.1%
yes half	17.3%
yes some	17.3%
no very few	17.3%

**Retraining Every Five Years**

trained too often	3.9%
not trained enough	45.1%
trained about right	51.0%
<b>n=51</b>	<b>100.0%</b>

| n=54 100.0%

| n=52 100.0%

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## TRAINER QUESTIONNAIRE RESPONSE

**Respondent Total**                      **23**

<b>Home State</b>					
Arizona	13.0%	Michigan	8.7%	Oregon	17.4%
California	8.7%	Nevada	4.3%	Texas	4.3%
Colorado	4.3%	New Jersey	4.3%	Washington	4.3%
Florida	13.0%	North Carolina	8.7%	<b>n=23</b>	<b>100.0%</b>
Georgia	4.3%	North Dakota	4.3%		

<b>Respondent Type</b>					
farmworker organization	9.1%	extension	9.1%	other	4.5%
health care	54.5%	academic	4.5%	<b>n=22</b>	<b>100.0%</b>
farmworker coalition	4.5%	health promoter	13.6%		

<b>Taught WPS Worker Education</b>	
no	60.9%
yes	39.1%
<b>n=23</b>	<b>100.0%</b>

<b>Considered Teaching WPS Worker Education (Only) (Those Who Not Taught)</b>	
no	35.7%
yes	64.3%
<b>n=14</b>	

<b>Times Conducted WPS Session</b>	
once	0.0%
2-5 times	12.5%
6-10 times	37.5%
11-20 times	50.0%
<b>n=8</b>	<b>100.0%</b>

<b>Tools/Materials Used for Training</b>	
EPA flipchart	36.0%
videotape	28.0%
EPA worker guidebook	16.0%
other material	20.0%
<b>n=25</b>	<b>100.0%</b>

<b>Which Video is Used</b>					
Idaho Dept. of Agric. and Mich Dept. of Agric.	20.0%	"Chasing the Sun"	40.0%	"Something in the Rain"	20.0%
		"You Can Do It"	20.0%	<b>n=5</b>	<b>100.0%</b>

<b>Give Workers a Training Card</b>	
no	12.5%
yes	87.5%
<b>n=8</b>	<b>100.0%</b>

<b>Given Which Training Card</b>	
EPA card	100.0%
<b>n=7</b>	<b>100.0%</b>

**Workers Learn the Information**

yes most	66.7%
yes half	33.3%
yes some	0.0%
no very few	0.0%
<b>n=9</b>	<b>100.0%</b>

**Workers Change Behavior**

yes most	55.6%
yes half	11.1%
yes some	22.2%
no very few	11.1%
<b>n=9</b>	<b>100.0%</b>

**Know Others Doing WPS Training**

no	18.2%
yes	81.8%
<b>n=11</b>	<b>100.0%</b>

**Who Else Doing WPS Training**

extension service	5.6%	agricultural employers	27.8%	labor contractor	11.1%
AFOP Americorps	5.6%	migrant health centers	11.1%	head start program	5.6%
Volunteers		special project	5.6%	<b>n=18</b>	<b>100.0%</b>
state depts. of agric	22.2%	private group	5.6%		

**Workers Continually Retrained**

no	60.0%
yes	40.0%
<b>n=10</b>	<b>100.0%</b>

**Retraining Every Five Years**

trained too often	0.0%
not trained enough	58.3%
trained about right	41.7%
<b>n=12</b>	<b>100.0%</b>

## AFOP AMERICORPS VOLUNTEERS QUESTIONNAIRE RESPONSE

**Respondent Total**                      **19**

**Home State**

Arkansas	5.3%	New Jersey	10.5%	Utah	5.3%
California	21.1%	New York	5.3%	Virginia	15.8%
Indiana	5.3%	Ohio	10.5%	<b>n=19</b>	<b>100.0%</b>
Maryland	10.5%	Pennsylvania	10.5%		

**Improve EPA**

**Flipchart**

no	63.2%
yes	36.8%
<b>n=19</b>	<b>100.0%</b>

**Want Other Tools/Materials**

no	76.5%
yes	23.5%
<b>n=17</b>	<b>100.0%</b>

**Where Best Session**

farm/orchard	29.4%	farmworker residence	5.9%	packing shed	5.9%
social serv organizatn	5.9%	employer's shop	5.9%	other	11.8%
labor camp	23.5%	high school	11.8%	<b>n=17</b>	<b>100.0%</b>

**Who Attended Best Session**

farmworkers	84.2%
farmworker parents	5.3%
employers	5.3%
students	5.3%
<b>n=19</b>	<b>100.0%</b>

**How Many Attended**

<b><u>Best Session</u></b>	
range	6-81
mean	27

**How Presented Best Session**

flipchart	27.5%	used props	22.5%	audience participation	2.5%
rewards	7.5%	showed examples	12.5%	used visuals	15.0%
told stories	2.5%	EPA worker guidebook	2.5%	other	7.5%
				<b>n=40</b>	<b>100.0%</b>

**Why a Good Session**

good audience (friendly, interested, Enthusiastic, relaxed, Grateful, listened)	40.0%	audience participated/ asked questions	36.7%	other	10.0%
		presentation well done	13.3%	<b>n=30</b>	<b>100.0%</b>

**Where Worst Session**

farm/orchard	7.1%	farmworker residence	7.1%	nursery	14.3%
Social serv organizatn	7.1%	housing authority bldg	7.1%	mushroom company	7.1%
labor camp	14.3%	high school	7.1%	other	28.6%
				<b>n=14</b>	<b>100.0%</b>

**Who Attended Worst Session**

farmworkers	56.3%	supervisor/crew	12.5%
nursery workers	6.3%	leader	0.0%
farmworker parents	12.5%	farmworker families	6.3%
students	6.3%	<b>n=16</b>	<b>100.0%</b>

**How Many Attended**

<b>Worst Session</b>	
range	1-100
mean	33

**How Presented Worst Session**

flipchart	14.3%	used props	17.1%	used visuals	5.7%
rewards	37.1%	showed examples	14.3%	other	5.7%
told stories	2.9%	EPA worker guidebook	2.9%	<b>n=35</b>	<b>100.0%</b>

**Why a Bad Session**

bad/disruptive audience (uninterested, drunk, negative)	57.9%	presentation done poorly	21.1%	other	21.1%
				<b>n=19</b>	<b>100.0%</b>

**Why Employers Not Let****Volunteers Train Wkers**

already trained	37.5%	not trust presenter	9.4%	no need to train	3.1%
not interested/care	9.4%	training will create fear in workers	9.4%	other	12.5%
no time for training	18.8%		0.0%	<b>n=32</b>	<b>100.0%</b>

**Retraining Every Five Years**

trained too often	0.0%
not trained enough	63.2%
trained about right	36.8%
<b>n=19</b>	<b>100.0%</b>

**WPS Enforced**

yes a lot	5.9%
yes some	23.5%
yes a little	23.5%
no rarely	47.1%
<b>n=17</b>	<b>100.0%</b>

**Workers Change Behavior**

yes most	52.6%
yes half	21.1%
yes some	21.1%
no very few	5.3%
<b>n=19</b>	<b>100.0%</b>

**What Sex Farmworker Most Likely to Change**

female	71.4%
male	28.6%
<b>n=7</b>	<b>100.0%</b>

**Other Characteristics Farmworker Most Likely to Change**

have more education	17.6%	new to farm work	11.8%
experienced/know of pesticide incident	11.8%	know the trainer	5.9%
		have a boss who cares	5.9%
have permanent farm job	5.9%	other	23.5%
have family/children	17.6%	<b>n=17</b>	<b>100.0%</b>

