

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

**EXECUTIVE SUMMARY**

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.

## **BACKGROUND AND INTRODUCTION**

After eight years of discussion, in 1992, the Environmental Protection Agency (EPA) 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.

The WPS placed ultimate responsibility for training on the agricultural employer no matter if tasks were subcontracted. Employers must provide a brief overview of pesticide safety before workers entered affected areas. A full WPS training is expected by the sixth day of employment. If an employer knows/can prove a worker has been previously trained, the individual does not have to be trained again. All workers must be retrained after five years.

Worker training must cover eleven basic pesticide health and safety points. They must be taught “*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. Guaranteeing comprehension of the information by workers is also not required within the regulation

Those qualified to train workers include certified applicators, other individuals qualified by the state as certified trainers of either workers or handlers. Anyone completing handler training can also train workers.

EPA tried to help in worker training by developing a number of tools and materials that could be used to meet training requirements, including: the handbook *Protect Yourself from Pesticides – Guide for Agricultural Workers*, a similar presentation in flipchart format, and the basic information booklet *Steps to Protect Yourself from Pesticides*. These were available in many languages.

To help states qualify a cadre of trainers who could be certified to participate in a state administered training verification system, EPA presented a Train-the-

Trainer broadcast via satellite downlink and put the presentation on a video as a tool to certify future trainers.

EPA regulations in almost every state are enforced by a state lead agency (SLA), primarily state departments of agriculture, and it fell to these departments to establish and enforce the WPS locally. EPA issued guidance on how such tasks should be carried out and monitors state activities.

In 1993, EPA established the WPS Focus Group, to help review and advise on worker training materials and tools and assist in developing a useable training verification system. At the last meeting of this Group, participants expressed a desire to evaluate WPS worker training a few years after implementation. That request helped spur the current research. This document marks the first comprehensive review of WPS worker training throughout the country, looking at issues from a policy perspective.

## **METHODOLOGY**

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 of 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 on approximately 688,000 farms, nurseries and greenhouses scattered throughout the United States. This does not include those involved in reforestation and land preparation activities, also covered in the WPS.

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

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 structured questionnaires, was attempted but found to provide only limited information. Additional research was conducted in conjunction with development of the recommendations.

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.

### **Secondary Source Review**

Despite a wide search, only ten documents were found to contain at least some relevant information. These included special studies, program reports, public hearing testimony and compliance investigations.

Two sources of quantitative data were also found: tabulated results of a survey of 410 individuals belonging to member organizations of the National Council of Agricultural Employers (NCAE), and four separate 1995 and 1996 data sets from the Association of Farmworker Opportunity Programs' (AFOP) National Farmworker Environmental Education Program which supports AmeriCorps Volunteers, described as Members, engaged in WPS worker training in 26 states.

The first AFOP data set was Pre-Post Training Tests from 25% of workers, 5,789 individuals, provided WPS training. The other data set was Community Needs Assessments in which 2,040 workers, employers, service providers and others were interviewed both before the start of the local training Program and at the conclusion of the Program year.

### **Structured Dialog**

Direct contact was the best means for gathering qualitative information about each of the three study target groups. Techniques used reached knowledgeable respondents who were both accessible and could speak for a broad base of those affected by the WPS training requirement. This included national association, program staff and government officials, as well as those at the local level working with the WPS every day.

The best way to reach those on the "front line" was found to be contacting participants at eight national and local conferences. At most of these, a display about the study was used, questionnaires were distributed, group sessions were held and individual interviews conducted.

In all, eighteen group discussions took place, varying in size from 2-27 people (six groups contained only two people each). A total of 219 participants were

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

Discussion was structured around a specific set of topics but allowed the respondent to address any issues or concerns he felt relevant. The points 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. Interview 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 the other two groups.

Unlike the employer and worker-related target groups, the government agencies most involved with WPS at the state level are well defined as the government arm responsible for implementing EPA-related regulations. It was possible to draw a purposive sample from this group who could be considered representative of all states. The selection targeted a range of states within certain criteria; e.g., size of seasonal labor workforce, variety of training verification systems, extent of nursery /greenhouse activity and reforestation work. At least one state from each EPA Region was chosen: Arizona, California, Colorado, Florida, Idaho, Illinois, Maine, Michigan, Mississippi, Missouri, New Jersey, North Carolina, Texas, Virginia and Washington.

A one hour interview was conducted with each WPS contact in the target states. This was preceded by an introductory call and distribution of an interview guide.

### **Questionnaire Summary**

Although questionnaires were spread through a variety of locations and sources, only 100 were completed. This technique was felt to be unsatisfactory for eliciting information from the broad base of individuals associated with agricultural employers or workers as those responding were self-selected, there was no opportunity to amplify responses and, particularly with employer-related questionnaires compared to dialog input, there was a sense respondents were providing answers they thought the researchers wanted to hear rather than offering a description of actual practices or beliefs.

The one exception was with AFOP AmeriCorps Members who, urged by their supervisors, completed questionnaires at a Program-related conference.

### **Data Analysis**

Each secondary source was reviewed for information concerning WPS worker training and findings summarized. NCAE questionnaire response was examined and AFOP Pre-Post Training Test and Community Needs Assessments tabulated.

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.

Although they were found to be less useful, questionnaire response from employer-related and worker-related questionnaires was analyzed. A more careful analysis of response and comments made on AFOP Member questionnaires was undertaken.

Findings from each methodological technique were then integrated by study topic and examined for patterns. Such findings led to discussion topics. Study Advisory Committee members reviewed and commented on the draft report.

### **Development of Recommendations**

To develop and refine study recommendations, relevant literature was examined, and documents prepared by EPA during development of the regulations were reviewed. Further analysis of 1998 AFOP Pre-Post Training Tests looked at respondent profile information related to pre-test score compared to a 1998 Michigan study of worker pesticide safety knowledge.

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.

### **Terms Used in this Report**

Within this report, comments are described as being from a specific type of respondent.

- 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.

### **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. It was not possible 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. Instead, particularly knowledgeable individuals, a sample of 15 representative SLAs and a wide range of individuals directly affected, were targeted for interview.

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 and their personal understanding of the concept of "training." A large scale randomized survey of workers was well beyond the resources available.

The next best resource individuals to discuss WPS training effects on workers were determined to be those actively engaged in providing such training. They were in a position to know how both workers and growers have responded to these requirements.



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.

## **DISCUSSION**

Study analysis has attempted to look for common themes within the information by grouping data from a variety of sources and respondents. 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.

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?

### **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 and qualitative observations differ.

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 permanent work force. 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.

No matter how many workers have been trained, a common sentiment expressed was the difficulty in training every worker. New workers perform temporary agricultural labor every year, and 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. In contrast, smaller operations must still meet the same requirements but spread these tasks among fewer, already over-stretched staff. Smaller establishments are least likely to know about WPS requirements. Many do not belong to agricultural or crop associations that are a major source for such information.

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

Training is often provided at the work site by the farm owner or an employee acting on his behalf. Employers who are offering training are likely to do so before work begins. Where farm labor contractors are used, employers seem to expect contractors to train their crew members. Some employers said they use contractors to relieve themselves of responsibility for WPS training and other federal requirements.

The second major source for WPS training is AmeriCorps Volunteers who are Members of the AFOP Environmental Education Program. A variety of additional sources are also providing training, including insurance companies, migrant health centers, lay health advisors (promotores) and others.

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

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. Many employers who were interviewed who only knew the one they used was *“EPA approved.”*

Other WPS worker trainers use a variety of teaching techniques including the EPA developed tools: WPS training flipchart and companion handbooks. Many supplement their teaching with discussion, examples, instructional games, prizes or other techniques. Training can take from ten minutes to four hours.

- **There is concern over quality of training.**

One reason for the discrepancy in reported numbers of workers trained may be the quality of the training offered. Information may be presented to workers in fulfillment of WPS requirements, but the manner of presentation may be such that no actual learning occurs.

Many respondents criticized the predominant training method, showing a video, as ineffective. Critics think a more interactive approach will result in greater comprehension and needed behavioral change. Interactive training is the method used by AFOP AmeriCorps Members, lay health advisors (promotores) and other community-based trainers. AFOP AmeriCorps Members say they often have difficulty gaining acceptance from agricultural employers and access to train employees at their work site even though their services are free of cost and language appropriate

- **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 areas in which dedicated teaching tools or material could still be developed are the mushroom and forestry industries.

- **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 represent preferences on both sides of the question. Those wanting training more often would like it every year or two, possibly just a refresher course. Many large agricultural employers 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 as the regulation does not require comprehension or dictate a teaching style. Training difficulties such as language differences or lack of teaching experience are countered by using a video.

The one consistently mentioned issue in training all workers is the difficulty of educating migrant and seasonal workers employed for short periods of time. This is particularly true for those who come on after peak activity has started.

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

If WPS worker training is not difficult to provide and there are outside agents (i.e. AmeriCorps Members) available to help free of charge, the question remains why all employers are not training their workers. One major reason is employers are not convinced of the need. Of all the issues discussed by study dialog respondents, the issue of need for WPS worker training showed the greatest division.

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

Worker-related respondents listen to workers talk and watch their behavior at work and at home. They can observe workers in need of pesticide safety information. These respondents hear workers discuss exposure incidents or complain about unsafe conditions. They ask questions and learn workers know very little about taking precautions around pesticides or what to do in case of accidents. Because they interact more outside of work sites, these respondents think how pesticide exposure can affect all family members, not just the worker in the field. They say workers often will not seek medical attention for pesticide-related exposures. One primary reason is fear of being fired.

- **Many employers say giving WPS training to seasonal workers will make them afraid to work in agriculture, or they will use the information to file ungrounded complaints.**

Employers fear WPS training may result in negative, rather than positive, consequences. They say teaching the information required by the WPS can make workers fearful for no reason and consider pesticide exposure problems that are not real. Some respondents said workers use information they learn in WPS training to file false complaints.

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

The term “*liability*” is often associated with WPS worker training. Employers use a video to avoid liability attached to not presenting all of the required WPS information or not offering it in an appropriate language. They use labor contractors as a way to avoid liability for training workers, but at the same time, fear they will be libel if contractors do not train crew members.

Liability issues are a major reason employers do not want to accept or distribute EPA cards as proof of training. They fear the cards workers carry might be fraudulent and the training represented by the card might not cover 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 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.**

Some measurement of effect of WPS worker training might be obtained by examining workers’ interest in information, their ability to learn and whether they change unsafe behavior after being trained. Several general factors were identified as related to worker interest: if they are paid while in training or kept from work because of training; the ability of the presenter to relate to the audience and hold their interest; the type of presentation; experience with a pesticide-related incident or knowing others who have been affected; interest for the subject shown by their employer; training time, location and the presence of outside distractions around the training area; and perceived or actual intimidation through the presence of supervisors or employers.

On each of these topics (worker interest, knowledge learned and behavior change), there appears to be a difference of opinion between employer-related and worker-related respondents. Many employers believe their workers do not care about the information and are only interested in making money. Worker-

related respondents give examples of workers asking questions and saying they had never previously heard this information.

The dissimilar viewpoints may come from the totally different relationship they have with workers. Employers are producing a crop/product and part of that process involves hiring individuals for certain tasks. Their relationship is one of employer-employee. They resent the government saying they have to train their workers which must be done during their busiest production time.

Worker-related trainers have a very different relationship with workers. Their purpose is to provide information, and their interaction is around this focus: more of a student-teacher relationship. These trainers see groups of workers at a variety of sites, not just one establishment. They believe what they are doing is needed, and workers want this information.

Faced with these differences in roles and perspectives, it is not surprising the two groups have contrasting perspectives. Employers do not believe training is necessary or that they should be required to do it. They do not care if workers learn the information because workers are not in danger. They are not teachers and may face language barriers in talking with employees. It is natural for employers to try to find the quickest way to comply by relying on videos or using labor contractors.

Worker-related trainers' interaction with workers is based on the idea of imparting information. This is not a sideline; it is their avocation. They are convinced of the need, and they want to be sure workers learn and use the information. They employ a more interactive teaching approach that takes more time but helps assure effective teaching.

As a result of their viewpoints, the two groups see differences in whether workers learn the information and/or change their behavior around pesticides.

### **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 implemented, most states were involved with 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.

Now, SLAs are receiving fewer requests for information and assistance on the WPS. They feel the agricultural community knows the requirements, and those

wishing to educate others have themselves been trained. Study respondents were concerned reduction in emphasis on the WPS 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 said employers are wondering if the WPS is still around, and they still need to comply with requirements such as worker training.

- **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 and enforcement vary greatly from state to state, although in most areas, actual WPS enforcement (at the beginning of 1998) may be minimal. Some states have been active in compliance assistance and conduct spot inspections, usually in conjunction with enforcement of all requirements not just WPS. Other states have done little compliance assistance, relying on employer requests to signify interest, and only respond to complaints. In some states, the SLA lead on all WPS activities and the enforcement agent are the same individual.

As there is no requirement for training documentation, SLAs say it is difficult to tell if workers have been trained. They receive few WPS-related complaints and almost none from workers.

Beginning in 1998, EPA shifted emphasis from compliance assistance to more active enforcement. Some respondents felt the guidance change would have little effect on enforcement activities as their state lacked the political direction to emphasize such compliance. Many point to lack of funding and staffing as barriers to enforcement no matter what the EPA directive.

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

Respondents of all types said enforcement plays a major role in whether training occurs. They related incidents where lack of enforcement was stated by employers, labor contractors and even an extension service agent as a reason for noncompliance.

#### **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 other than peak activity time, the card training verification system should be a valuable idea to: train workers well, issue 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. Some employers who say they are distributing a “card” seem to be using other forms of documentation as proof of training, such as having workers sign a list. Although thousands of worker training cards have been given by SLAs to trainers, few of them have been distributed to workers. Respondents do not see many workers with training cards.

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

Each state instituted a card verification system in accordance with its own predilections. Some decided not to get involved, while two required cards prior to enactment of the WPS. Because each state has distinct requirements, certifies trainers and monitors training differently; there is no uniformity in the quality represented by an EPA card. Most do not require their trainers 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 given to any qualified trainer who requests them without requiring specialized instruction.

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. Due to liability concerns, employers would rather retrain all their workers and have them sign a list as proof of training. This method does not help document training for workers when they change employers.

## **RECOMMENDATIONS**

The definition of “success” for 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.

To assess progress, it was first necessary to examine and identify, as much as possible, the extent of current practices and barriers preventing greater WPS training “success.” The “Recommendations” provided here address both the needs and benefits of improving WPS training.

The recommendations 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 for effective training of



short-term agricultural workers and establish a trustworthy method for training verification. The agents suggested for each activity are in brackets.

Several recommendations call for further definition of issues and development of action plans in a coordinated effort. One group is referenced as a means to bring many interested and knowledgeable parties together: the WPS Focus Group convened in 1993 by EPA to help critique training materials and help design the training verification card system.

- **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.**

### **1. Increase WPS Worker Training**

- **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. The primary incentives for all parties, however, are financial considerations. In some areas, reducing or receiving paybacks from decreasing Worker's Compensation claims has been a major safety incentive. This has also encouraged compliance with worker training requirements.

EPA, SLAs and agricultural associations should 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.

- **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]**

It is often smaller agricultural establishments that have the greatest difficulty training workers employed for short-term, peak season tasks. Some private individuals have contracted with smaller agricultural establishments to provide administrative services, taking on the responsibility of assuring their clients are in compliance with all regulations.

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 could help increase the number of workers who are provided WPS training and show a cost savings for smaller businesses.

- **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 issues. Since the WPS was first presented, much discussion has been devoted to clarifying liability. 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 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.

- **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]**

Workers, agricultural employers and SLAs all have concerns related to reporting and investigating WPS violations. What is needed is a mechanism to get these three groups together to design reasonable and effective enforcement mechanisms. These would, first, clearly identify 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 help 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.

- **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. Although many employers do not distribute or accept training verification cards, some say they do keep records as proof of training. In publishing the WPS Final Rule, EPA noted it had the authority to require *"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 Notice of Proposed Rule Making, and interested individuals had no opportunity to comment. The agency, however, did leave the door open: *"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, it may be an appropriate time for EPA to reexamine the option of requiring recordkeeping for workers who are trained.

A possible problem associated with requiring training records might be to switch responsibility for training from the employer to the employee, with some employers refusing to hire anyone without proof of training. Research for this study already found a few instances where this situation was said to occur

- **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. Some SLAs, for example in Idaho, have targeted labor contractors for train-the-trainer efforts. They maintain a list of those who have completed courses and encourage owners of agricultural establishments to utilize that list when engaging 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.

- **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]**

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, only EPA-approved tools and materials are utilized and an interactive teaching method helps assure workers learn the information.

This Program is active in only a select number of states and within those states in only specified locations. 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. AFOP's allotment from the Corporation for National Service is fixed at a specified number per year. More Volunteers could be added, with the Corporation paying the end of service educational award, for a cost of \$19,500 which covers all expenses including the Volunteer's monthly stipend.

In addition, other suggestions might help make local AFOP AmeriCorps Programs more effective: stronger contacts with national agricultural employer organizations, regional EPA offices and SLAs to gain support for Program training; more pre-program efforts in each state to 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 Program; select better qualified individuals to serve as Members; increase the commitment of on-site supervisors to work with and monitor local Members; and encourage more local organizations to host Programs.

- **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]**

Other agents engaged in offering WPS instruction to workers include the Farmworker Health and Safety Institute, Migrant Health Centers, promotores programs and a few insurance companies. Some of these sources, such as the Farmworker Health and Safety Institute have developed a very participatory interactive educational approach.

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. Sources that could help include: EPA, other federal funding agents (such as the Bureau of Primary Health Care), private foundations and agricultural associations.

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

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 educational quality and resulting knowledge level and behavioral change of trained workers.

From examination of these two states, the following might be 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, 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; availability of outside agents to provide WPS worker training; and 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. Once examples have been pinpointed, EPA should widely publicize these programs or areas as models for others.

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

- **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).

However, 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). 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 huge

seasonal work force. Agricultural employers and their representatives will continue to be the major trainer of workers.

It is recommended that EPA coordinate an effort by those experienced in designing instructional tools for migrant and seasonal farmworkers to develop an educational package and 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 present 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.

- **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 be three principal methods in use for teaching WPS information to workers, although in practice techniques of each may be mixed.

- 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, usually an explanatory introduction, asking questions of participants, group discussion, 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, presentation of a skit, use of an educational tool to graphically present information, and participants describing their experiences or activities 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. 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 applied toward developing effective training packages and guidelines.

- **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]**

Current AFOP AmeriCorps Members are not utilized as fully by agricultural employers as might be expected. AFOP Members indicate only a quarter of their time is devoted to actually training workers. They spend half their time selling the program/marketing and convincing agricultural employers to let them train workers. Although for many Members assistance from state officials including SLAs and Extension agents helps to build trust with local employers, for others these same resources present major blocks or are not helpful.

It is recommended, EPA, at both the national and regional levels, do more to promote the AFOP AmeriCorps national and local Programs. In addition, assistance of extension agents, SLAs and agricultural association representatives could make a big difference in convincing local employers to utilize AFOP AmeriCorps Members. Agricultural associations should recognize the benefits of using this Program to its fullest potential and should urge their members to take advantage of the services offered.

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

- **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 was that agricultural employers are not convinced of the need for workers to be educated about basic pesticide health and safety, and they see WPS training only in terms of meeting regulatory compliance.

There is plenty of evidence to counter 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. Independent researchers have conducted studies that verify the need. Some state coordinating bodies and state agencies publish annual reports of pesticide incidents.

This information should be located, summarized and publicized as verification of the need for WPS worker training. In addition, many 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.

- **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 intent of the regulations and was added “*since training and information are essential components of a successful occupational risk reduction strategy*” (U.S. EPA, WPS Final Rule, p. 38105).

The justifications given for worker training included an increase in documented incidents, use of more acutely toxic chemicals and the large number of workers facing potential exposure. In addition, there was concern about the chronic and cumulative effects of repeated pesticide exposures.

Worker training 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,*” as well as by the U.S. Department of Agriculture and Congress (U.S. EPA, WPS Final Rule, p. 38125).

Prior to implementation of the WPS, the requirement was that individuals should stay out of an area where pesticides were used until the “*dust settles or spray dries.*” EPA felt this statement was too vague and wanted to set a bare minimum REI as a safety precaution until individual review of each chemical could be completed.

Adherence to minimum REIs may reduce the concern over acute poisoning but EPA expressed concern over other potential problems from pesticide residues, including dermatitis or conjunctivitis, the potential accumulative effect of repeated exposures, and chronic exposure with the risk of delayed effects. 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. They found evidence of incidents occurring up to five weeks after pesticide sprays dried and dusts settled and so set 30 days as a margin of safety (NPRM, p. 25973).

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. 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.

- **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 is “*just common sense*,” and does not need to be taught. Many farmworkers 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. Individuals raised in Mexico may not be as familiar with the use of chemicals both inside and outside the residence. Parents may be unaware of the dangers to themselves and their children. In dryer climates and in areas with no community-wide systems, lack of knowledge why washing hands before eating is important is likely to combine with a scarcity of water to make this a very foreign concept.

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.

- **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]**

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 would be a way to aim resources at those with the most to gain. However, the characteristics of those least likely to be aware of the information are unknown. Preliminary research has looked at immediate and long-range WPS knowledge retention. What is not known is the effect teaching method might have on these areas.

Independent researchers and academicians should undertake additional studies of such issues as a means to help those involved with WPS training identify what works and target resources where they will have the most meaning.

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

- **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. This is why EPA designed a training verification card system to be administered by each state, but, unfortunately, it has not seemed to work well in practice.

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

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. This Group is a good forum for such a task as it is composed of a wide range of individuals who are directly affected by the WPS and who are knowledgeable of what will work “in the field.” Once the system has been developed, these same individuals are in an excellent position to publicize the results among their constituents.

- **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]**

The current Certification and Training (C&T) network for certifying pesticide applicators involves quality training using a set of guidelines developed and continually refined by those providing courses. Instructors are state extension service personnel or others specifically approved to offer courses. Participants completing training receive a certificate indicating their status. The system is very costly and time-consuming to maintain; however, individuals completing courses and obtaining certificates are considered trained to a specified level of knowledge.

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.

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

The two other recommendations in this section suggest ways to design a feasible national worker verification system; however, no matter what the final method, if agricultural employers fear legal liability from accepting the resulting document as proof of 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.

## **REFERENCES**

- Arcury, Tom, Agricultural Worker Safety and Health Committee. "Partners Against Hazards and Agricultural Risks to Migrant and Seasonal Workers Project." Final report. Chapel Hill, NC. June, 1996.
- Association of Farmworker Opportunities Program. "National Farmworker Environmental Education Program, Pre-Post Training Tests," 1995, 1996, 1998. Arlington, VA. 1998.
- Association of Farmworker Opportunities Program. "National Farmworker Environmental Education Program, Community Needs Assessments," 1995, 1996. Arlington, VA. 1997.
- Dugarte-Stavanja, Mari, Florida Department of Agriculture and Consumer Services. "Investigation Report, Worker Protection Standards, 1995, 1996." Tallahassee, FL. April, 1997.
- Farmworker Health and Safety Institute. *Danger! We Work With Poisons, A Pesticide Training Manual for Farmworkers*. Glassboro, NJ.
- Gilmore, Rod, North Dakota Department of Health. "preliminary results of migrant farmworker survey." Bismarck, N.D. 1997.
- Hornstein, Joyce, Sorrel Brown and Peggy Petrzelka. "Compliance with the Worker Protection Standard: A Survey of Private Pesticide Applicators in Iowa." Iowa State University Extension. Ames, IA. 1997.
- Michigan Department of Agriculture. *Worker Protection Report, 1994-1996*. Lansing, MI. 1997.
- National Council of Agricultural Employers. "NCAE Federal Worker Protection Standard Survey." Unpublished results. Washington, D.C. 1997.
- Perry, Sandy and Chris DiFonzo. *The Worker Pesticide Knowledge Survey: Measuring Success of Worker Protection Standard Pesticide Safety Training*. prepared for the Michigan Department of Agriculture. Lansing, MI. 1998.

- Perry, Sandy. "Worker Protection Standard Survey of Farm Employees." Michigan State University, Pesticide Education Program. East Lansing, MI. 1997.
- Prado, Celia and Don Villarejo, California Institute for Rural Studies. "WPS Worker Survey." Unpublished study. Davis, CA. 1996.
- Roka, Fritz, University of Florida Institute for Food and Agricultural Sciences, Southwest Florida Research and Education Center. "Study of the cost of WPS compliance." Immokalee, FL. 1997.
- Spitzer, Mary Ann, Fred Whitford and Martin Frick. *An Assessment of Migrant Farmworker Training Needs in Response to the Pesticide Worker Protection Standards: An Indiana Perspective*. Purdue University. West Lafayette, IN. September, 1993.
- U.S. Department of Health and Human Services, Public Health Service, Bureau of Health Care Delivery and Assistance. *An Atlas of State Profiles Which Estimate Number of Migrant and Seasonal Farmworkers and Members of Their Families*." Rockville, MD. 1990.
- U.S. Environmental Protection Agency, Office of Prevention, Pesticides and Toxic Substances. *Protect Yourself From Pesticides – Guide for Agricultural Workers*. Washington, D.C. July, 1993.

- U.S. Environmental Protection Agency, Office of Prevention, Pesticides and Toxic Substances and the U.S. Department of Agriculture, Education Services. "Pesticide Safety Training for Agricultural Workers Under the EPA Worker Protection Standard." National AgSAT satellite broadcast and training videotape. College Station, Texas and Washington, D.C., 1993.
- U.S. Environmental Protection Agency, Prevention, Pesticides and Toxic Substances. *Steps to Protect Yourself From Pesticides*. Washington, D.C. October, 1995.
- U.S. Environmental Protection Agency, Prevention, Pesticides and Toxic Substances. *Protect Yourself From Pesticides: Safety Training for Agricultural Workers, Training Notebook*. Washington, D.C. November, 1993.
- U.S. Environmental Protection Agency, Prevention, Pesticides and Toxic Substances. *A National Dialogue on the Worker Protection Standard, Part I: Transcripts of the Public Meetings*. March, 1997.
- U.S. Environmental Protection Agency. "Pesticide Programs; Worker Protection Standards; Final Rules and Proposed Rules," 40 CFR Parts 156 and 170. Washington, D.C., May, 1995.
- U.S. Environmental Protection Agency. "Worker Protection Standards for Agricultural Pesticides; Public Meetings and Proposed Rules" 40 CFR Parts 156 and 170. Washington, D.C. July, 1988.