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## Migrant Farmworker Training Needs and the Pesticide Worker Protection Standards

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### Introduction

The United States Environmental Protection Agency (EPA) released new worker protection regulations designed to reduce the risks of illness to agricultural workers from exposure to pesticides. The discussion on the regulations has focused primarily on the technical component of the Worker Protection Standards (WPS): application notification, entry restrictions, personal protective equipment, decontamination sites, and emergency assistance.

To date, the mandated pesticide safety training included in the WPS has received minimal attention. The safety training requirements reflect what experts and professionals think farmworkers need to know to protect themselves from pesticide exposure but fail to provide the means to educate this diverse population. This lack of focus on and attention to the educational content and delivery mechanisms needed for such a large scale adult

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education program may reduce pesticide safety training to grower compliance rather than encourage education that actually prevents workers' exposure to pesticides. "The continuing educator's challenge and responsibility is to have an adequate basis for determining what the present situation is and what it ideally should be" (Boyle, 1981, p. 156).

This study focuses on a population subset of the Worker Protection Standards' targeted audience--Indiana migrant farmworkers, their crew leaders, and the growers who employ them. Within this subset, the specific educational needs of migrant farmworkers have not been assessed. "If previously unrepresented segments of a population are incorporated into a needs assessment effort, new evidence will probably be produced and... create a potential for change" (Johnson, Meiller, Miller & Summers, 1987, p. 30). The results reported here attempted to assess the farmworkers' level of pesticide safety knowledge and to identify factors which influence their learning process. The overall objectives were: to uncover specific learner concerns and characteristics, to ascertain the extent and origin of pesticide knowledge, to identify existing communication channels, and to provide educational strategies and recommendations.

### Procedures

Background information on the Indiana migrant farmworker population was gathered, and personal interviews were discerned to be the most effective way to obtain the qualitative and quantitative information described in the objectives. The interview questions were designed to address pesticide knowledge, demographics, and education (Table 1). Content relevance was established by Purdue pesticide and educational professionals. The trial questions were then piloted on a current crew leader and grower. The result was the development of a separate questionnaire for the migrant worker, crew leader, and grower.

**Table 1. Pesticide training information contained in the EPA's Worker Protection Standards and corresponding interview questions for migrant farmworkers and crew leaders.**

<p><b>Minimum Training Standards for Workers:</b></p>	<p><b>**Interview Questions Asked of the Farmworkers and Crew Leaders:</b></p>
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1. Where and in what form pesticides may be encountered during work activities.
  2. Hazards of pesticides resulting from toxicity and exposure, including acute and chronic effects delayed effects, and sensitization.
  3. Routes through which pesticides can enter the body.
  4. Signs and symptoms of common types of pesticide poisoning.
  5. Emergency first aid for pesticide injuries or poisonings.
  6. How to obtain emergency medical care.
  7. Routine and emergency decontamination procedures, including emergency eye-flushing techniques.
  8. Hazards from chemigation and drift.
  9. Hazards from pesticide residues on clothing.
  10. Warnings about taking pesticides or pesticide containers home.
  11. Requirements of this subpart designed to reduce the risk of illness or injury resulting from workers' occupational exposure to pesticides including
1. Where you might find pesticides at work and what different forms they come in.
  2. The dangers of pesticide poisoning including effects that happen right away and others that take longer to show.
  3. Ways that pesticides can enter your body.
  4. Signs and things that happen to you if you have pesticide poisoning.
  5. How to help someone who has been poisoned or injured by pesticides.
  6. Where to get emergency medical care.
  7. Everyday and emergency steps to decontaminate yourself, including flushing your eyes if pesticides get in them.
  8. The dangers from pesticides drifting in the wind.
  9. The dangers of having pesticide residue on your clothes.
  10. Problems with taking pesticides or the containers they came in home.
  11. Your right to be told about when pesticides are put on the crops, when you can go back into the fields, what kind of

application and entry restrictions, the design of the warning sign, posting of warning signs, oral warnings, the availability of specific information about applications, and the protection against retaliatory acts.

protection you need to wear if you go into the fields that have been treated; and if your boss doesn't do these things, you have a right to tell someone without getting in trouble from your boss.

\*\*The respondent was asked "How much do you know about the following:..." to which they responded, nothing, very little, some, or a lot. They were then asked to express what they knew.

Six different farms that employ migrant farmworkers were selected based on accessibility and the concentration of migrant farmworkers in North Central Indiana (Cass, Howard, and Tipton counties). Camp location information was obtained through the Indiana Department of Health, and the Consolidated Outreach Program of Kokomo. Permission to enter a camp was granted by the grower or crew leader. A total of 30 interviews were conducted: 20 migrant workers, six crew leaders, and four growers. All migrant farmworker and crew leader interviews were conducted in person, in Spanish or English. Growers were interviewed in person or by phone. The confidential interviews required 20 to 60 minutes.

## Results

### Population Descriptions

**Migrant Farmworker.** A migrant farmworker is a seasonal laborer whose principal employment is in agriculture and who establishes a temporary residence for such employment. There are over 7,000 migrant farmworkers employed in the state of Indiana, spanning 44 different counties (Office of Migrant Health, 1990). The farmworkers interviewed were primarily American citizens of Hispanic descent whose home base was Texas (n = 10), Florida (n = 8), Georgia (n = 1), or Mexico (n = 1). As part of the midwest migrant stream, they traveled to Indiana in extended family units to work in cucumber and tomato fields from May through October. The workers had labored seasonally on their present grower's farm for an average of five consecutive years.

Thirteen men and seven women were interviewed. The mean worker age was 31 years (youngest = 16, oldest =

54). On average, workers completed a seventh grade education from American or Mexican schools (low = third grade, high = high school graduate). Spanish was their first language, but about half interviewed in English. Four workers stated they could read and write in English, while 14 could read and write in Spanish. When not working in Indiana, workers were generally employed in agricultural jobs (n = 12).

**Migrant Crew Leader.** The responsibility of the crew leader was to serve as a liaison between the grower and the workers. Specific duties included showing the workers how to pick, hiring workers, keeping records, and maintaining order in the labor camp. Most crew leaders could speak, read, and write in Spanish and English, speaking to the workers in Spanish and to the grower in English. The crew leaders indicated that the 40 to 100 workers at each of their camps migrated from Florida, Texas, Mexico, El Salvador, and Guatemala.

The crew leaders had worked an average of 12 years with the same grower. When not employed as crew leaders, they worked in Florida (n = 3), Texas (n = 2), and Indiana (n = 1) in agriculture related jobs. All but one of the crew leaders were male.

**Grower.** Growers either lived next to or nearby their camps. They could not speak Spanish and relied on their crew leader to communicate specific instructions to the migrant workers (e.g., where pesticides have been applied). Growers indicated the necessity of having a good crew leader to manage the daily activities of the workers. Workers were perceived by growers as being highly dependable while doing a job which required long hours of repetitive hard labor.

#### Pesticide Knowledge

Migrant farmworkers and crew leaders answered a series of pesticide questions, responding that they knew nothing, very little, some, or a lot about the subject of each. They were then given the opportunity to express what they knew.

**Migrant Farmworker.** Workers generally knew "very little" pesticide information. The information most frequently expressed (25% to 50% of the time) was: pesticides come in powder form; pesticides can enter your body by breathing or smelling and through the skin; pesticides can lead to getting sick; wash your hands before lunch and

take a shower in the evening; wash work clothes daily and keep them separate from other clothing; and emergency medical care can be obtained at the health clinic or hospital. All workers indicated they had no responsibilities for mixing, loading, and applying pesticides.

**Migrant Crew Leader.** Crew leaders were generally more familiar with pesticide terms than workers. Their knowledge was concentrated in the following areas: where and what form pesticides are found at work, where to obtain emergency medical care, everyday steps to remove pesticides from your body and clothing, and dangers of pesticide drift. Their understanding of pesticides was based on personal experience. Crew leaders indicated they were not involved in the pesticide application process.

**Grower.** Three of the growers hired commercial applicators to apply their pesticides, while one grower utilized his son. Two growers explained they used a "schedule" or "system" in which they sprayed the fields most recently picked by the workers, waited five to seven days, and then reentered the fields to do more picking. The growers' knowledge about the new EPA Worker Protection Standard varied. Each grower indicated that crew leaders and farmworkers had no responsibilities with pesticides.

### Training Considerations

Open-ended questions concerning pesticide training were asked of each participant. Thirteen farmworkers would like to know more about pesticide safety, stating, "it never hurts to learn more" or "why not?" Only four indicated a fear of pesticides. One worker commented that pesticides are "...very dangerous, but you need to work, so weigh the odds." Many initially responded ambiguously to the need for pesticide safety training but, by the end of the interview, felt they might need to know more. Five workers felt they didn't need training, commenting, "I've never been sick" and "it's not very important." Two workers reported personal pesticide exposures, while seven workers knew of someone else who had been exposed; none of the exposures referenced occurred in Indiana. Growers and crew leaders stated that pesticide training was not necessary, but it wouldn't hurt. They offered more pressing education for workers: basic hygiene, nutrition, and money management. Many crew leaders and growers believed pesticides pose little risk to workers because they never worked directly with them and were not allowed to work in recently sprayed fields.

Grower, crew leader, and worker responses to the three most important things that workers should know about pesticides were categorized into: (a) preventive measures such as washing hands before you eat, not touching your face, wearing gloves and protective clothing in the fields, and washing tomatoes before eating them; (b) job-related pesticide information such as what pesticides are being used, reentry periods, and recognizing or asking about what might be dangerous; and (c) emergency procedures.

Ten workers suggested that pesticide safety training should be conducted in Spanish. Six workers indicated either Spanish or English, and four indicated they would like training in English. Videos, publications, and oral communication were identified by the workers as the best ways to teach them. One worker commented that the teaching method used needed to "capture their attention." A grower pointed out that any training should be done in coordination with the farmworkers' work schedule (e.g., in the evening and not during harvest time).

According to the workers, they have acquired what they already know about pesticides on the job and through various life experiences (n = 7) such as working in California during the time of Cesar Chavez, seeing a video in Texas, and working with chemical engineers in Mexico. Other individuals said they learned through school, parents, health clinics, handouts, common sense, and the news. The crew leaders' knowledge of pesticides was based on their job experiences.

The dissemination of information on the farm originated with the grower and was passed on to the crew leader, who informed the workers. Crew leaders often communicated information to migrant workers by talking to the head of the family and depended on word of mouth for further dissemination. A majority of the workers indicated a high degree of faith in the crew leader and grower, feeling that when they were told to enter a field, it was safe.

### **Conclusions**

Several important conclusions can be derived from the interview data. First, migrant farmworkers are a population with many unique characteristics. Formal education is limited and elementary school could be the last time workers are taught in a formal setting. Migrant workers' use of Spanish and their inability to read English distinguish them from other adult learners. Experiential learning has made the workers extremely "job-wise," and they do

practice some preventive pesticide safety measures.

Second, growers, crew leaders, and migrant farmworkers were ambiguous about the need for pesticide safety training. The potential dangers from pesticides are not immediately apparent because workers and crew leaders have no responsibilities with pesticides and do not enter fields recently treated. Preventive health and safety education, literacy training, and money management overshadowed their perceived need for pesticide training. The desire to learn more was sparked in the farmworkers after the interviews, implying that awareness stimulated interest.

Finally, the growers are mandated by the WPS to educate their workers on basic safety practices; but growers themselves are more typically the recipients of educational programs. Mandating that growers serve as educators may prove difficult. Additionally, growers cannot communicate directly with their workers and have to rely on the crew leader to pass on important information. Growers are concerned about the general welfare of their workers and, with the cooperation of the crew leaders, have developed an informal system of communication built upon each group trusting the decisions of the one above it.

### **Recommendations**

The intent of the EPA's Worker Protection Standard for pesticide safety training for farmworkers is to be commended. It is important to the implementation of the WPS that the transfer of compliance information occur. However, it is crucial that the educational information be incorporated into actual practice.

This study has produced recommendations that are designed to strengthen the effectiveness of the educational component of the WPS. The following insights are intended to aid pesticide educators in providing effective and useful pesticide training to protect the health and well-being of migrant farmworkers:

1. Assess and build on learner knowledge. When designing a pesticide training program for WPS, one must assess the knowledge base of the workers and their specific needs as learners (language, literacy, formal education experience). Once these are discovered, the educator can build upon current strengths, dispel misconceptions, and introduce new concepts in a manner that is learner appropriate



(Whitford, 1993; and Frick, 1989).

2. Stimulate interest through relevancy to real life issues. Methods of instruction should rely on creative teaching techniques that simulate the learner's environment, use real life examples, and provide relevancy to their lifestyle and work. Crew leaders can be used to review training materials to see if they are appropriate for the topic being presented. Take into consideration what the workers and crew leaders can contribute to the educational process. Examples that the learners can share will stimulate interest and establish relevancy.
3. Recognize the effectiveness of the existing communication system. Special attention should be given to the existing communication between the commercial applicators, growers, crew leaders, and workers. Education can be strengthened and enhanced by utilizing the established trust system. The commercial applicators could relay important pesticide information to growers and crew leaders, while the crew leader could be assigned the responsibility of communicating information to workers. Establishing rapport and identifying needs with the growers, crew leaders, and workers will also greatly enhance the educational programs undertaken.
4. Utilize established state contacts, resources, and programs. Pesticide educators should work with the state migrant outreach programs. Initial steps to develop a training program should be established during the growing season prior to implementation. A multidisciplinary approach to the delivery of pesticide information will help ensure follow-up and increase the workers' retention of the information.

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