Work-Related Skin Disorders, Risk Factors and Prevention: A Survey of Agricultural Employers in Washington State

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Executive Summary

As part of a National Institute for Occupational Safety and Health (NIOSH) funded grant to track and prevent skin disorders in the workplace, the Department of Labor and Industries' Safety and Health Assessment and Research for Prevention (SHARP) Program analyzed workers' compensation skin disorders claims between 1995 and 1998. "Crop Production" ranked second in the number of claims reported for dermatitis. A survey designed with input from the University of Washington's Pacific Northwest Agricultural Safety and Health Center (PNASH) was sent to farmers in Washington State to assess their perception of work-related skin disorders in their workers and other general health and safety issues. An independent survey consultant administered the survey.

Five hundred surveys were mailed. Of the 500 surveys mailed, 385 had valid addresses. Responses were obtained in 205 surveys (53%) either through mail or phone interviews. Thirteen percent felt that skin disorders were a significant health problem on their farm/facility. The rate of dermatitis reported was 3 cases/100 workers. Pesticides/herbicides, growing crops and poison oak/ivy were the most frequent causes of dermatitis identified. Dermatitis was most prevalent in the growing and harvest season. Picking and thinning crops were the most frequent tasks causing skin problems. The most successful method identified for dealing with dermatitis was the use of protective clothing. The most useful type of information that was identified by the farmers for dealing with occupational dermatitis was general educational materials on work-related skin problems printed in English and Spanish. The greatest occupational health and safety problem that was identified was "ladder safety/accidents" (31%). "Lack of worker awareness/lack of safety issues and carelessness" was also identified frequently as a safety issue (14%).

Dermatitis was not identified as a major health issue by the farmers despite the high number of claims in this industry sector. Other health and safety concerns appeared to take precedence in this industry. Problems with contact dermatitis from poison oak/ivy will be addressed by the distribution of an educational pamphlet and poster in English and Spanish to tree fruit orchards, agricultural business and education groups and farmworkers clinics. These materials will help workers identify the plants and help growers identify, eradicate and treat exposure to the plants. This type of information was requested by some of the farmers. The concern with ladder safety/accidents will be brought to the attention of key personnel in the Department of Labor and Industries. Though, currently a ladder safety program is being conducted in an agricultural region of the state.

Introduction

This report presents the results of a survey designed by the Department of Labor and Industries' Safety and Health Assessment and Research for Prevention (SHARP) Program with input from the University of Washington's Pacific Northwest Agricultural Safety and Health Center (PNASH). The purpose of the survey was to get input from farmers as to their perceptions of work-related skin disorders in their workers and other general health and safety issues and how SHARP or PNASH might be able to assist. To help ensure the anonymity of those farmers responding, the survey was administered by the Gilmore Research Group, an independent survey consultant.

Background

The SHARP Program has a federally funded program (National Institute for Occupational Safety and Health Cooperative Agreement No.U60/CCU008154) to track and try to prevent skin disorders or dermatitis in the work place. SHARP uses workers' compensation claims and a network of medical providers to identify industries having problems with dermatitis. In Washington State, between 1995 and 1998, "Crop Production" ranked second in the number of workers' compensation claims reported for dermatitis. The agricultural sectors having the greatest number of claims for dermatitis were "Deciduous Tree Fruit," "Field Crops, Except Cash Grains," and "Ornamental Floriculture and Nursery Products." To better take advantage of a regional agricultural health and safety resource, SHARP contacted PNASH to collaborate on the issue. Together, we felt that to be successful we needed to understand the farmers' perspective on the issue of dermatitis among their workers. We decided that surveying 500 farmers across the state would be the best method to get this information.

Methods

Industry Selection

The agricultural sectors selected for inclusion in the survey were chosen based on the number of State Fund workers' compensation claims accepted for occupational skin disorders between 1995 and 1998 in Washington State. The three sectors chosen were "Deciduous Tree Fruit," "Field Crops, Except Cash Grains" and "Ornamental Floriculture and Nursery Products" which accounted for 7% of the dermatitis claims.

Farm Selection

Farms within these sectors were randomly selected from the Departments' database. Five hundred farms were identified in this manner.

Survey Development

The survey was developed in collaboration with PNASH personnel. The main thrust of the survey was to evaluate the scope of the problem and determine if occupational dermatitis was an issue with farmers. We were also interested in determining the best way to communicate with farmers. A copy of the survey is attached.

Survey Administration
The survey was administered by the Gilmore Research Group. The first mailing of the survey occurred at the end of June 1999. The initial response rate was very low. Reminder post cards to non-responders were sent in August. Due to the low response rate and potential interference with the harvest season, the survey was suspended at the end of August and re-started in January of 2000. Surveys were re-mailed to those farms not responding originally. Again, the response rate remained low. We determined that conducting phone follow-up would probably increase the response rate. In March of 2000 Gilmore started and completed a series of telephone calls to the remaining farms not responding to the mail survey.

Data Analyses
For multiple-choice questions, percentages for each response were calculated. For some questions, the range, mean and median were calculated. Answers to questions that were open-ended were counted and categorized according to key word responses. Responses were then summarized by these categories.

Results

A total of 500 surveys were sent in the initial mailing. Of the total number sent, 115 surveys were returned due to incorrect address. Of the remaining 385 farmers, 205 (53%) completed surveys by mail or through phone interviews. There were 180 non-responses (47%).

The majority of respondents (95%) agreed that worker's safety and health issues were ranked high as a business concern (Table 1). Only 13% felt that skin problems were a significant health problem in their business. In the past two years, 23% of the respondents had a history of work-related rashes or other skin conditions at their farm/facility.

The most frequent single cause of dermatitis identified were pesticides/herbicides (Table 2). Ziram (bis[dimethyldithiocarbamato] zinc), a thiocarbamate insecticide/fungicide, was the most commonly identified single agent. Other causes identified included growing crops and poison oak/ivy. Numerous other sources were identified such as rubber gloves, trees, heat, dust, sunlight, insects, allergies, perspiration and lack of hygiene (Table 2). Dermatitis was seen most frequently during the summer growing season and the fall harvest season. Picking and thinning crops were the most frequent tasks causing skin problems.

Forty-five respondents had problems with work-related dermatitis at their farm or facility (Table 3). The number of workers per farm with problems ranged from 1 to 20 with a mean of 4 and a median of 2. The employment levels during the worst season for skin problems ranged from 1 to 275 full-time permanent workers to 1 to 1250 full-time seasonal workers. The respondents reported having a total of 187 workers with skin rashes. To estimate the number of workers potentially exposed, to calculate a rate, we summed all of the types of workers—full and part-time and permanent and seasonal for a total of 5,585 workers. The rate of dermatitis for the farms reporting cases was 3 cases/100 workers. This assumes that farmers were reporting the number of cases and

employees for the previous year. There may have been some ambiguity because of the exact wording of the questions. This is compared to a rate of 0.34 claims/100 full-time employees-yr in 1998 for workers in the deciduous tree industry in Washington State. It is known that there is underreporting of the frequency of cases of occupational dermatitis in workers' compensation data (1). This would help to explain the higher rate reported by the farmers in this survey.

Forty-eight responses were obtained when asked about issues preventing work-related dermatitis (Table 4). Forty-two per cent felt there were no problems. Problems that were listed included "individual sensitivity workers to plants," "misinformation on pesticide use and rashes" and "heat." "Lack of information" was also a frequent response.

The most frequent response to successful methods that were used to deal with work related dermatitis was "use of protective clothing" (46.5% respondents) (Table 4). "Timed pesticide re-entry" was the next most frequent method.

The most useful help or information to prevent work related dermatitis that was identified was "general educational materials on work-related skin problems in agriculture." The information that was felt to be useful included selection of personal protective equipment and prevention strategies for specific causes such as identifying plants including poison oak/ivy (Table 4). All respondents wanted the information printed in English and Spanish. The best way to get the information to the farmers was through direct mailings, growers associations or newsletters. There was no preference given for which contact organization to get the information to the growers.

Table 5 lists the greatest occupational health and safety problems that the growers deal with at the farm/facility. The most frequent response (31%) was "ladder safety/accidents." The majority of the surveys were sent to orchards where the use of ladders is necessary in harvesting the crops. Other frequent problems that were listed included a feeling that there was a "lack of worker awareness/lack of safety issues and carelessness at their facility," "back strain/injuries," "need for proper handling of chemicals/pesticide re-entry" and "general equipment operation/safety."

Table 1: Workers' Health and Skin Problems*				
Statement	**Agree**	**Somewhat Agree**	**Disagree**	**Total Number of Responses**
Workers' health and safety issues rank high in their business concerns	179 (88%)	14 (7%)	7 (3%)	204
Skin problems are a significant problem in their business	6 (3%)	21 (10%)	142 (70%)	203
Skin problems are a significant health problem in their industry	14 (7%)	22 (11%)	71 (35%)	203
In the past 2 years, history of work-related rashes or other skin problems in the farm owners or workers	**47 (23%)**		**158 (77%)**	**205**

*Potential responses were: Agree, Somewhat Agree, Don't Know, Somewhat Disagree, Disagree

Table 2: Causes of Work-Related Dermatitis		
Statement	**Most Frequent Response**	**Other Frequent Responses**
Most frequent causes of dermatitis at the farm/facility	Pesticides/Herbicides Growing Crop Poison Oak/Ivy	**Other:** rubber gloves, trees, heat, dust, sunlight, insects, allergies, perspiration, lack of hygiene
Most frequent pesticide or herbicide causing dermatitis	**Insecticide:** Ziram **Fungicide:** Ziram	
Dermatitis more common in one season than others	**Growing Season:** Summer 19 (57.5%) **Harvest Season:** Fall 9 (41%)	**Growing Season:** Spring 11 (33%) **Harvest Season:** Summer 7 (32%)
Specific tasks that cause more skin problems	**Picking:** 16 (50%)	**Thinning:** 14 (44%) **Weeding:** 8 (25%)

Table 3. Workers with Work-Related Dermatitis and Employment Levels			
Statement	**Range**	**Mean**	**Median**
Total number of workers with work-related dermatitis or skin conditions at the farm/facility: 45 Responses	1-20	4.04	2
Employment levels during the worst season for skin problems:			
Permanent Workers, Full-time	1-275	36	15
Permanent Workers, Part-time	1-70	18	12
Seasonal Workers, Full-time	1-1250	112	20
Seasonal Workers, Part-time	1-400	123	50

Table 4. Problems and Solutions for Work-Related Dermatitis		
Statement	**Most Frequent Response**	**Other Frequent Responses**
Problems faced in preventing work-related dermatitis: 48 Responses	Nothing: 20 (42%)	Other: 18 (37.5%) Individual sensitivity workers to plants Misinformation on pesticide use/rashes Heat Lack of information: 8 (17%)
Successful methods that were used to deal with dermatitis: 43 Responses	Use protective clothing: 20 (46.5%)	Timed pesticide re-entry: 5 (12%) Transfer to another job: 4 (9%) Identification and removal of poison oak/ivy: 4 (9%) Topical medications, sunscreens: 4 (9%)
Help or information that would be most useful to prevent work-related dermatitis: 27 Responses	General educational materials on work-related skin problems in agriculture: 25 (93%). (All respondents wanted materials printed in Spanish and English.) Personal protective equipment selection: 10/25(40%) Prevention strategies for specific causes: 15/25 (60%) (Types of plants causing problems, poison oak/ivy poster in Spanish, personal hygiene)	
Best way to get information concerning prevention of dermatitis: 87 Responses	Direct mail: 28 (32%)	Growers Association: 19 (22%) Newsletters: 18 (21%) Internet: 11 (13%)
Preference for contact organization: 50 Responses	No preference: 42 (84%)	

Table 5: Greatest Occupational Health and Safety Problem to Deal with at the Farm: 200 Responses from 187 Surveys		
Health and Safety Problem	**Number of Responses**	**Percent**
Ladder safety/accidents	62	31
Lack worker awareness/safety issues/carelessness	28	14
Back strain/injuries	19	9.5
Proper handling of chemicals/pesticide re-entry	16	8
Equipment operation/safety	15	7.5
Government regulation	13	6.5
Other: personal hygiene, poison oak/ivy rashes, sunburn, injuries—carpal tunnel, muscle strain, nail puncture, finger injuries, lacerations	13	6.5
Proper lifting techniques	9	4.5
Fraudulent claims	7	3.5
Eye injuries	7	3.5
Tractor accidents	5	2.5
Proper protective equipment	3	1.5
Allergies	3	1.5

Discussion

The farmers in this survey did not identify dermatitis as a significant problem with the workers at their farm/facility. In previous studies and analyzing Washington State workers' compensation claims, occupational dermatitis in agricultural workers has been identified as a significant problem (1-8). Common causes of dermatitis include exposure to poison oak/ivy, pesticides, heat and sunlight. These same agents were identified in this survey. When dermatitis was reported in the survey as a health problem, it was seen more during the growing and harvest season when there is greater contact with the offending agents or harsher climatic conditions. Picking, thinning and weeding are specific tasks that cause most skin problems. The rate of workers with dermatitis in this survey was found to be 3 cases/100 workers.

In calculating the rate of dermatitis cases with these data, we have an estimate of the number of cases of skin disorders on the farms per 100 employees working on the farm in 1998. Thus, a worker who was employed for a three week cherry harvest was counted as an equal to a full-time employee. This would inflate the number of workers when compared to a rate calculated using full time-equivalents (FTEs). As such, a rate calculated using FTEs for this population would be even higher than 3/100 worker. A rate calculated using production levels might be a more sensible measure, but would be difficult to compare to other industries.

The use of personal protective clothing was reported as being most helpful in preventing dermatitis in workers. General educational materials dealing with work-related skin problems were requested by the farmers to help prevent work-related dermatitis. Personal protective equipment selection and help in identifying plants that cause dermatitis was information identified as being most useful. The SHARP program, in cooperation with PNASH and Washington State University Cooperative Extension Service has developed a poison oak/ivy educational pamphlet and poster printed in English and Spanish. The purpose of these efforts is to help agricultural workers and farmers identify poison oak/ivy in all of its growing stages and how to safely eradicate the plant. Poison oak/ivy is a significant problem in many of the orchards. Many of the agricultural workers are unfamiliar with the appearance of the plant and may not be aware of the significant dermatitis that develops from contact with the plant.

The identification of ladder safety/accidents as a significant health concern is not unusual given the fact that many of the farmers surveyed own fruit orchards that require ladders for harvesting the crops. A ladder safety program that addressed the prevention of falls had recently been conducted in an agricultural region of the state where many of the surveys were sent. The results of this survey will be sent to key personnel in the Department of Labor and Industries.

References

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The aim of this survey is to get your input on the types of help that you need in controlling skin problems at your farms. Please help us to serve you and your workers better by taking the time to fill out and return the following survey. Participation is strictly voluntary, thank you for you time. Feel free to use the backs of these sheets for additional comments.

1. Worker health and safety issues rank high in our business concerns (Circle one)
Agree Somewhat Agree Don't Know Somewhat Disagree Disagree

2. Skin problems are a significant problem for my business (Circle one)
Agree Somewhat Agree Don't Know Somewhat Disagree Disagree

3. Skin Problems are a significant problem for our industry (Circle one)
Agree Somewhat Agree Don't Know Somewhat Disagree Disagree

4. In the past 2 years, have you or any of your workers gotten work-related rashes or other skin problems? Yes____ No____
If not, please skip ahead to question 15.

5. Please rank, in order of importance, the top 3 causes of dermatitis at your farm/facility (number 1 being the top source).

Poison Oak/Ivy	____	Growing Crop	____
Pesticides/Herbicides	____	Harvested Crop	____
Fertilizers	____	Animal	____
Other Chemicals	____		

Other Weeds (describe and rank)_____
Other Items (describe and rank) _____

6. If you ranked Pesticides/Herbicides, Fertilizers, or Other Chemicals as causing skin problems in question 2, please give the product name(s):

Insecticides: _____
Herbicides: _____
Fungicides: _____
Fertilizers: _____
Other Chemicals: _____

7. Do you see more skin problems in one season than others? Yes____ No____
If yes which season?

Production Seasons		**Time of year**		
Planting	____ …… Spring	____	Summer ____	Fall____ Winter___
Growing	____ …… Spring	____	Summer ____	Fall____ Winter___
Harvest	____ …… Spring	____	Summer ____	Fall____ Winter___
Off-Season	____ …… Spring	____	Summer ____	Fall____ Winter___

8. Do specific work-tasks cause more skin problems?

Pruning	____	Weeding	____
Thinning	____	Picking	____
Transplanting	____		

Application:

Pesticides	____
Herbicides	____
Fertilizers	____

Other compounds (please give compound name)_____
Other Tasks _____

9. Total number of workers with work-related dermatitis or skin conditions (regardless of whether a workers' compensation claim was filed) ____

10. In order for us to get a better sense of the size of the problem, could you give us some information on your employment levels during your worst season for skin problems?

Number of Permanent Workers	**Number of Seasonal Workers**
Full-time _____	Full-time _____
Part-time _____	Part-time _____

11. What type of help or information would be most useful to help you prevent work related skin problems?

____ On-site visits to help identify processes or procedures exposing workers to skin hazards.

____General educational materials on work-related skin problems in agriculture

____ Personal Protective Equipment Selection

____ Prevention strategies for specific causes

Please list the subjects of other educational materials you would like developed.
_____
_____
_____

Languages you would need the educational materials printed in (check all that apply).

English	____	Laotian	____
Spanish	____	Korean	____
Vietnamese	____	Russian	____
Cambodian	____	Others_____	

12. What would be the best way to get information to you and other farmers? (Check all that apply)

Growers Associations ____	Newsletters ____
Direct Mailing ____	Internet ____
Work-Shops ____	Other _____

13. What are the problems you or your staff face in preventing work related skin problems?

Nothing ____ Lack of information ___
I haven't tried to prevent skin problems ___
Other_____
_____

14. If you have been successful in dealing with skin problem, could you describe how you did it?
_____
_____
_____

15. What, in your opinion, is the greatest occupational health and safety problem you have to deal with?
_____
_____
_____

Please feel free to contact us toll free:
SHARP: 1-888-667-4277

Pacific Northwest Agricultural Safety and Health Center (PNASH) at the University of Washington: (206) 616-1958

Or fill out the form below and we will contact you.

Name: _____

Company/Farm: _____

Address: _____

Telephone Number: _____

e-mail address: _____

Best time to call. _____

Organization you'd prefer to contact you
SHARP____ PNASH____ Doesn't Matter____