



***EYE ON FARMWORKER HEALTH:
CURRENT DEVELOPMENTS IN RESEARCH AND POLICY***
(FORMERLY FJ EYEOPENER)

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Welcome to Farmworker Justice's electronic newsletter covering recent developments in health-related research and policy relevant to migrant farmworkers in the US. Please feel free to send comments, questions, or suggestions for future issues to the address provided at the end of the newsletter. A PDF version of this newsletter is available at <http://www.farmworkerjustice.org/Health&Safety/resources1.htm>.

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1. California farmworkers experience significant occupational health problems
Villarejo D and McCurdy SA (2008). The California Agricultural Workers Health Survey. *Journal of Agricultural Safety & Health* 14(2): 135-146.

California's farmworker community continues to grow as the amount of land in the state devoted to labor-intensive crops such as fruits and vegetables continues to expand. Despite the importance of agriculture - and by extension, farmworkers - to the state's economy, very little is known about the population. Fundamental questions, including the actual number of farmworkers in the state, need to be answered in order to assess their working and living conditions and identify issues that need to be addressed in order to protect the health and wellbeing of this vulnerable segment of the population. To fill this gap, the California Institute for Rural Studies conducted the California Agricultural Workers Health Survey (sponsored by The California Endowment), a statewide survey on the health status of hired farm labor.

Questions covered access to health care, self-reported and physician-diagnosed health problems, and workplace health conditions.

A total of 970 workers, including 627 men and 343 women, participated in the survey. The workers were selected so that they were representative of the overall hired farm labor workforce in California, with women oversampled in order to ensure a sufficient number of female participants for analytical purposes. Health-related findings include:

- Nearly three-quarters of all workers lacked health insurance. Of those who were insured, men were more likely to have insurance through their employers, while women were more likely to have government-sponsored insurance. However, a number of workers declined employer-sponsored insurance because they could not afford the employee share of the premium.
- Of the 6% of men and 2% of women who reported injuries on the job, only 32% and 14% respectively reported receiving workplace safety training prior to being injured.
- Most common health problems perceived by workers to be work-related included irritated eyes, headaches, vision disturbances, and skin irritations. Muscle and joint pain were also widely reported, though not perceived as work-related by study participants. However, workers with more years of farmwork were more likely to report persistent pain in multiple parts of the body.
- One-fifth of the male workers had mixed, loaded or applied pesticides, as well as one percent of women. Just over half of all workers had been trained in pesticide safety. Twelve percent of men and 7% of women reported having been sprayed or drifted upon by pesticides, and 6% of men reported direct accidental contact. Direct contact with pesticides was associated with eye and vision problems, skin irritation, and headaches. In one region of California, a job requirement to taste unwashed grapes for sweetness was associated with persistent stomach aches.

Clinicians should note that although the various health complaints reported by study participants are likely to have occupational etiologies, the workers did not necessarily make that connection, especially muscle and joint pain. A thorough occupational history is helpful in identifying potential problems and guiding patient education efforts. These findings also underscore the importance of workplace training on a range of occupational health issues.

2. 27 field workers injured by fungicide in Iowa

CDC (2008). Acute Pesticide Poisoning Associated with Pyraclostrobin Fungicide - Iowa, 2007. *MMWR* 56(51-52): 1343 - 1345.

In July 2007, 27 farmworkers employed in detasseling corn in Iowa were inadvertently exposed to the fungicide pyraclostrobin via drift from an aerial application to a nearby field. The workers were given skin decontamination onsite, and taken to an

emergency department for treatment of upper respiratory tract pain or irritation, chest pain, and other symptoms of toxic exposure. During the same month, six other cases of acute poisoning by pyraclostrobin were reported in Iowa, including one involving first-degree burns to a pilot who came in direct contact with the pesticide. The other five cases all involved exposure to drift from nearby aerial applications.

Pyraclostrobin is a carbamate pesticide with a toxicity category of II (the second most severe) that is known to cause eye injury and skin irritation, and can be fatal if swallowed. Workers should not enter a treated field for seven days without full protective equipment. It is relatively new in the US, having been approved for limited use in 2002, and for corn in December 2004. By 2005, it was responsible for a reported 12 acute pesticide-illnesses, all related to agricultural work, in different crops around the country. In the case of the 27 workers exposed in 2007, the pilot was aware of the presence of workers in a nearby field, but proceeded with the application anyway. Workers reported feeling the droplets on their skin and seeing the mist from the plane.

Fortunately, none of these individuals were permanently injured by their exposure to pyraclostrobin. However, incidents such as these underscore the importance of proper pesticide handling and compliance with regulations and label requirements. Workers (and others in the area) have little control over exposure from aerial applications that drift off-target, and the injuries could easily be more serious with other pesticides. Local enforcement of application regulations is crucial to avoiding incidents such as the ones described above.

3. Protective clothing and gloves reduce dermal absorption of pesticides in strawberry harvesters

Bradman A, Salvatore AL, Boeniger M, Castorina R, Snyder J, Barr DB, Jewell NP, Kavanagh-Baird G, Striley C, Eskenazi B (2009). Community-based intervention to reduce pesticide exposure to farmworkers and potential take-home exposure to their families. *Journal of Exposure Science and Environmental Epidemiology* 19(1):79-89 (epub March 26, 2008).

The Worker Protection Standard (WPS) established by the US Environmental Protection Agency (EPA) is intended to reduce farmworker pesticide exposure by requiring that workers be provided with basic protective equipment, supplies, information, and safety training, and by restricting the timing and manner of pesticide application to limit worker contact. While full compliance with the WPS should reduce worker exposure, the WPS does not address the potential for “take-home” exposure that results when pesticide residues are transported from work to home on workers’ skin, clothes, and vehicles. Residues can be transferred from crops onto those surfaces even after the mandatory waiting period for entering treated fields (the “restricted-entry interval”) has passed. Researchers working with strawberry harvesters in California wanted to find ways to further reduce exposure to malathion, a widely-used pesticide on that crop. They provided a group of harvesters with additional protective supplies, including hand cleansers, coveralls, and storage containers for transporting contaminated work clothes and gloves. They then compared levels of pesticide metabolites in urine and residues on skin with those of

workers who followed the standard protection procedures (the control group). Urine and skin patch samples were collected from workers who entered treated fields after the restricted-entry interval had expired.

Wearing gloves was associated with lower levels of urinary metabolites and less residue on hands, while eating fruit in the fields was associated with higher levels. Exposure other than to the hands was tested using “skin patches” on different parts of the body under their work clothes and coveralls (intervention group) or work clothes only (control group). Malathion was detected on the skin patch of only one worker in the entire study. This indicates that a single layer of clothing protects the skin from exposure; the coveralls most likely did not increase the skin protection. However, the coveralls likely did protect the clothing underneath, which indicates that wearing coveralls and removing them before leaving work could significantly reduce potential take-home exposure.

These results are valuable in establishing the importance of simple, easy to implement measures for reducing pesticide exposure, i.e., wearing gloves and clothing that covers all parts of the skin with at least one layer of fabric. This information should be part of any standard pesticide safety education training curriculum. Workers should also be informed of the importance of reducing the potential for exposing family members to pesticides by removing work clothing and other protective gear before entering the home or physically contacting anyone.

4. Work-related injuries among farmworkers can be estimated using chart reviews

Earle-Richardson GB, Brower MA, Jones AM, May JJ, Jenkins PL (2008). Estimating the occupational morbidity for migrant and seasonal farmworkers in New York State: A comparison of two methods. *Annals of Epidemiology* 18(1): 1-7.

Agriculture is well-established to be one of the most dangerous occupations in the United States, and migrant and seasonal farmworkers (MSFWs) are believed to be at high risk due to the nature of their work and other factors. However, accurate surveillance of occupational morbidity specifically among MSFWs is lacking because most farm employers are exempt from reporting requirements, and farmworkers tend to be temporary employees with limited access and numerous barriers to health care. Furthermore, the national studies of occupation or health are not able to provide adequate information because of limitations in the way participants are selected or the types of data collected.

Two common ways of estimating morbidity rates include surveys and chart reviews. Chart reviews are considerably less expensive than surveys and are not subject to recall error, but will miss workers who did not receive care. A study undertaken in New York State sought to assess the relative accuracy of the two methods, and to determine if an adjustment factor could be applied to chart reviews in order to obtain more accurate estimates in a cost-effective manner. Researchers interviewed 550 workers in 72 camps about their occupational illnesses and injuries, and reviewed a sample of charts of farmworkers seen at two Migrant Health Centers and one emergency room.

After the analytical adjustments were made, both approaches produced very similar results, indicating a morbidity rate of about 28 injuries per 10,000 worker-weeks (about 200 full-time workers for a year). According to the survey, about 54% of work-related injuries were treated at an MHC, and another 16% at the emergency room. The remainder received treatment elsewhere (18%) or not at all (12%).

These results from the two approaches are in agreement with each other and with other studies of farmworker morbidity rates. This indicates that chart reviews would be a cost-effective surveillance method, and underscores the importance of recording all relevant information in the charts, including the patient's occupation and the suspected cause of an injury or illness. Accurate information on illness and injuries is important for focusing prevention efforts and anticipating need for care.

Eye on Farmworker Health: Current Developments in Research and Policy is an electronic newsletter covering important recent developments in research and regulation on issues affecting the health and safety of migrant farmworkers. It is a joint project of Farmworker Justice and Migrant Clinicians Network, supported by the Health Resources and Services Administration's Bureau of Primary Health Care. Each issue includes summaries of recent articles and reports, as well as advice on using this information to help health professionals, outreach workers, *promotores de salud*, and advocates strengthen their efforts on behalf of farmworkers and their families.

The contents of this publication are solely the responsibility of Farmworker Justice and Migrant Clinicians Network and do not necessarily reflect the official views of the Bureau of Primary Health Care or the Health Resources and Services Administration.

Please send comments, questions or suggestions for topics you would like to see covered to Pamela Rao, editor, at prao@farmworkerjustice.org, or call 202-293-5420, ext 310.

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