

Hidden Costs:

Farm Workers Sacrifice their Health to Put Food on Our Tables

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Colorado Legal Services is a non-profit organization working to provide civil legal services to low-income people. The Casillas Pesticide Action Project (CPAP) is a project of Colorado Legal Services, Migrant Farm Worker Division. CPAP was founded in September 2000, funded by a fellowship from Equal Justice Works. CPAP's name honors the memory of José Casillas, a seventeen-year-old farm worker who died after being sprayed with pesticides twice during a seven-day period. Lacking pesticide training, he thought he had been sprayed with water and he continued wearing his contaminated clothing and even slept in it.

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*This report is dedicated
to the forty or fifty thousand
farm workers
who labor
in Colorado fields
to provide fresh fruit
and vegetables
for our tables.*

Farm workers feed the world.

Background

Colorado Legal Services' Casillas Pesticide Action Project (CPAP) conducted an extensive survey of migrant farm workers in Colorado during the 2001 growing season. Office volunteers and staff traveled to farm labor camps and other locations throughout Colorado's agricultural regions and asked farm workers to answer a detailed questionnaire. The questionnaire asked for information about the farm workers' experience with pesticides, training and medical conditions.

Population

Forty to fifty thousand farm workers labor in Colorado each year.¹ Ninety-seven percent are Hispanic.² They work in one of the most hazardous occupations in the United States and suffer from high rates of occupational injuries.³ The average farm worker earns between \$5,000 and \$7,500 per year.⁴ Colorado farm workers labor in the state's agricultural regions near Greeley, Fort Lupton, Brighton, Avondale, Manzanola, Rocky Ford, Lamar, Center, Monte Vista, Palisade, Delta and Olathe.

Survey method

In most cases, interviews were conducted in workers' homes. Each interview was conducted in Spanish and took approximately thirty minutes. CPAP collected eighty-eight completed questionnaires.

The surveyed workers included seventy-eight men and six women. The average age was thirty-nine years. The average respondent had worked in agriculture for sixteen years, and began working in the fields at age eighteen. Two of the farm workers were less than eighteen years old at the time the survey was conducted. Many began working in the fields at a very early age. One began working at age six, four at age eight, one at age nine, nine at age ten and two at age twelve. Two began working at age 13, seven at age fourteen, five at age fifteen, five at age sixteen and four at age seventeen.

Unless otherwise noted, statistics and stories in the text of this report and in the highlighted boxes are derived from the survey.

¹ Jan Buhrmann, Ph.D., *Easing Troubled Waters: Ensuring Safe Drinking Water Sources in Migrant Farmworker Communities in Colorado*, Draft Report by the Environmental Justice Program, U.S. EPA, Region 8, 16 (October 26, 2000).

² *Id.*

³ Margaret Reeves *et al.*, *Fields of Poison: California Farmworkers and Pesticides*, Report by Californians for Pesticide Reform, California Rural Legal Assistance Foundation, Pesticide Action Network North America and the United Farmworkers of America, AFL-CIO 10 (1999).

⁴ Richard Mines *et al.*, *A Profile of US Farm Workers: Demographics, Household Composition, Income and Use of Services*, Report by the U.S. Department of Labor, Chapter 3 (1997) (available at <http://www.dol.gov/asp/programs/agworker/report/main.htm>).

At a Glance

The survey shows that Colorado farm workers frequently experience pesticide poisoning, and that many employers illegally place their workers' health and lives in danger. A few significant reported findings include:

- Fifty-nine percent of the surveyed farm workers reported that they had never received training in pesticide safety, which is required under United States laws.
- After working in the fields, forty-nine percent of the farm workers reported experiencing skin irritation, headaches, or inflamed eyes.
- Forty-seven percent reported irritation of the nose or throat.
- Twenty-six percent stated that they had experienced dizziness or weakness.
- Twenty-two percent reported difficulty breathing.

Forty-eight percent of the farm workers reportedly believed that they had been sent to work in a treated field before it was safe to enter.

- The surveyed workers stated that they took safety precautions when facilities were available. When hand-washing water was available, ninety-six percent of the surveyed workers said they used it.
- Forty-one percent of the surveyed workers reported that they did not have access to hand washing water while they were working and were unable to wash pesticide residue from their skin.

These figures would improve if employers complied with federal laws designed to protect farm workers from toxic pesticide exposure. Current compliance levels appear to be very low. In 2001, United States Environmental Protection Agency inspectors found that ninety-one percent of inspected Colorado growers were in violation of pesticide safety laws.⁵ Increased compliance would lead to fewer pesticide exposures and fewer poisonings of farm workers.

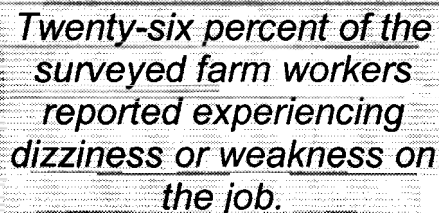
⁵ The Casillas Pesticide Action Project obtained the inspection reports, describing worker protection standard and pesticide use inspections, through a Freedom of Information Act request filed with the United States Environmental Protection Agency. Copies of the reports are on file with the author. See the enforcement section for further discussion.

Farm workers face frequent pesticide exposures.

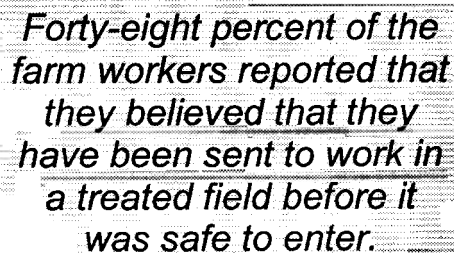
Whether harvesting, thinning, weeding or planting, agricultural workers risk exposure to lethal pesticides. Workers also face exposure while mixing or applying pesticides, and while living in close proximity to treated fields. Pesticides are substances used to control pests. References to pesticides include herbicides, fungicides and insecticides.

Farm workers face more exposure to pesticides than any other group of people. The federal government estimates that tens of thousands of farm workers suffer from acute pesticide poisoning each year in the United States.⁶ Most exposures are due to drift or contact with pesticide residues on plants rather than direct sprayings.⁷

These exposures are exacerbated because many employers fail to take safety measures to protect workers from poisoning, even when the law requires these measures. In addition, many farm workers live in substandard housing and do not have adequate access to shower and laundry facilities to remove pesticide residue from their bodies and clothes. Finally, many farm workers fail to speak up about dangerous conditions because they fear retaliation.



Twenty-six percent of the surveyed farm workers reported experiencing dizziness or weakness on the job.



Forty-eight percent of the farm workers reported that they believed that they have been sent to work in a treated field before it was safe to enter.

Pesticides take a particularly heavy toll on children, who are especially susceptible to contaminants.⁸ Some children face exposure when they work in the fields. Others are in the fields because their parents lack day care. They also come into contact with pesticide residues on their parents' contaminated clothing and in their living quarters.⁹ A 1990 survey of farm worker children found that ten percent had mixed or applied pesticides, more than forty percent had worked in fields that were still wet with pesticides, and forty percent had been sprayed by

⁶ J. Rouff Reigart, M.D., *et al.*, Recognition and Management of Pesticide Poisoning, Published by the United States Environmental Protection Agency 19 (1999) (available at <http://www.epa.gov/pesticides/safety/healthcare>).

⁷ Margaret Reeves *et al.*, *Fields of Poison: California Farmworkers and Pesticides*, Report by Californians for Pesticide Reform, California Rural Legal Assistance Foundation, Pesticide Action Network North America and the United Farmworkers of America, AFL-CIO 15 (1999).

⁸ *Id.* at 3, 19.

⁹ *Id.* at 19.

crop dusters or drift.¹⁰

Pesticides cause many health problems such as dizziness and weakness, nausea and vomiting, hives, and swelling of the skin. These symptoms are often mistaken for the common cold or flu.¹¹ Pesticides also cause long-term problems such as cancer, sterility, birth defects and miscarriages that may appear a long time, even years, after exposure.¹²

Forty-nine percent of the workers reported experiencing headaches after working.

Farm workers can decrease their exposure to toxic pesticides by wearing protective clothing; frequently washing pesticides from their hands; avoiding eating, smoking or sleeping near pesticides; and showering and changing clothes immediately after work. Field workers should also keep children away from the fields, wash their work clothes separately from their family's clothes, and avoid re-using pesticide containers.

Even when farm workers take all the recommended safety precautions, employers who fail to comply with federal safety laws place farm workers' lives and health in serious danger. Federal law generally requires that employers warn their workers when dangerous pesticides have been applied, provide pesticide training to field workers, provide water in the fields so that workers can wash the pesticides from their skin, and provide protective clothing for workers who apply pesticides.¹³ In addition, employers must not spray pesticides on people or send their workers into the field before the period of danger indicated on the pesticide's label has passed.¹⁴

A fifty-two-year-old worker, interviewed in Weld County, reported that he was sprayed by an airplane in 2000 and developed a rash all over his body.

Most exposures are due to drift or contact with pesticide residues on plants rather than direct sprayings.

¹⁰ Trouble on the Farm: Growing Up With Pesticides in Agricultural Communities, published by the Natural Resources Defense Council (October 1998).

¹¹ Pesticide Poisoning is under-diagnosed by medical providers, who often have little training in occupational health and in pesticide-related illnesses. J. Roult Reigart, M.D., *et al.*, Recognition and Management of Pesticide Poisoning, Published by the United States Environmental Protection Agency 2 (1999).

¹² Farm workers suffer high rates of cancer, birth defects and other health problems caused by pesticides. Fields of Poison: California's Farmworkers and Pesticides 17, 19 (1999). See also Draft Implementation Plan: Pesticides and National Strategies for Health Care Providers, a report by the Environmental Protection Agency, the United States Department of Agriculture, the Department of Health and Human Services, the U.S. Department of Labor and the National Environmental Education and Training Foundation 21 (2000).

¹³ 40 C.F.R. §§ 156, 170.

¹⁴ 40 C.F.R. §§ 156, 170.

Employer violations of federal laws contribute to the high number of pesticide poisonings. Although federal law requires that employers educate field workers about the dangers of pesticides,¹⁵ fifty-nine percent of the surveyed farm workers reported that they never had received training. While employers are required to inform their workers when a field has been treated with pesticides, thirty-eight percent of the workers stated that they had never been warned, either orally or in writing.

Government enforcement of pesticide laws in Colorado fields was nearly non-existent until 2001. U.S. Environmental Protection Agency inspection reports show that in 2001, inspectors found that ninety-five percent of the inspected growers were in violation of pesticide safety laws.¹⁶ Violations ranged from failure to warn workers of pesticide use to failure to provide hand-washing water so that workers could remove toxic pesticide residue from their skin.¹⁷

'When my little brother was nine years old, he was walking near a field and became dizzy from the pesticides. He had to go to the hospital.'

-- a thirty-three-year-old farm worker in Greeley, Colorado

¹⁵ 40 C.F.R. § 170.130(a)(3)(i).

¹⁶ The Casillas Pesticide Action Project obtained the inspection reports through a Freedom of Information Act request filed with the United States Environmental Protection Agency. Copies of the reports are on file with the author.

¹⁷ *Id.*

Most of the farm workers reported symptoms of pesticide poisoning.

Common symptoms of pesticide poisoning include skin irritation, headaches, vision problems, inflamed eyes, dizziness, weakness, excessive sweating, nausea, vomiting, difficulty breathing, irritation of the nose or throat and stomachaches.¹⁸ Nearly half of the surveyed farm workers reported that, after working in the fields, they experienced several of these symptoms. Forty-nine percent reported that they experienced skin irritation or a rash. Forty-nine percent reportedly experienced headaches. Forty-nine percent stated they had experienced red, inflamed eyes. Forty-seven percent reported experiencing irritation of the nose or throat.

Forty-nine percent of the farm workers reported skin irritation or a rash.

Forty-seven percent experienced irritation of the nose or throat.

The farm workers reported other symptoms at extremely high rates as well. Thirty-two percent reported experiencing vision problems. Thirty-two percent reportedly had experienced stomachaches. Twenty-six percent reported dizziness or weakness. Twenty-two percent of the workers surveyed reported difficulty breathing after working.

Twenty-two percent of the workers reported difficulty breathing.

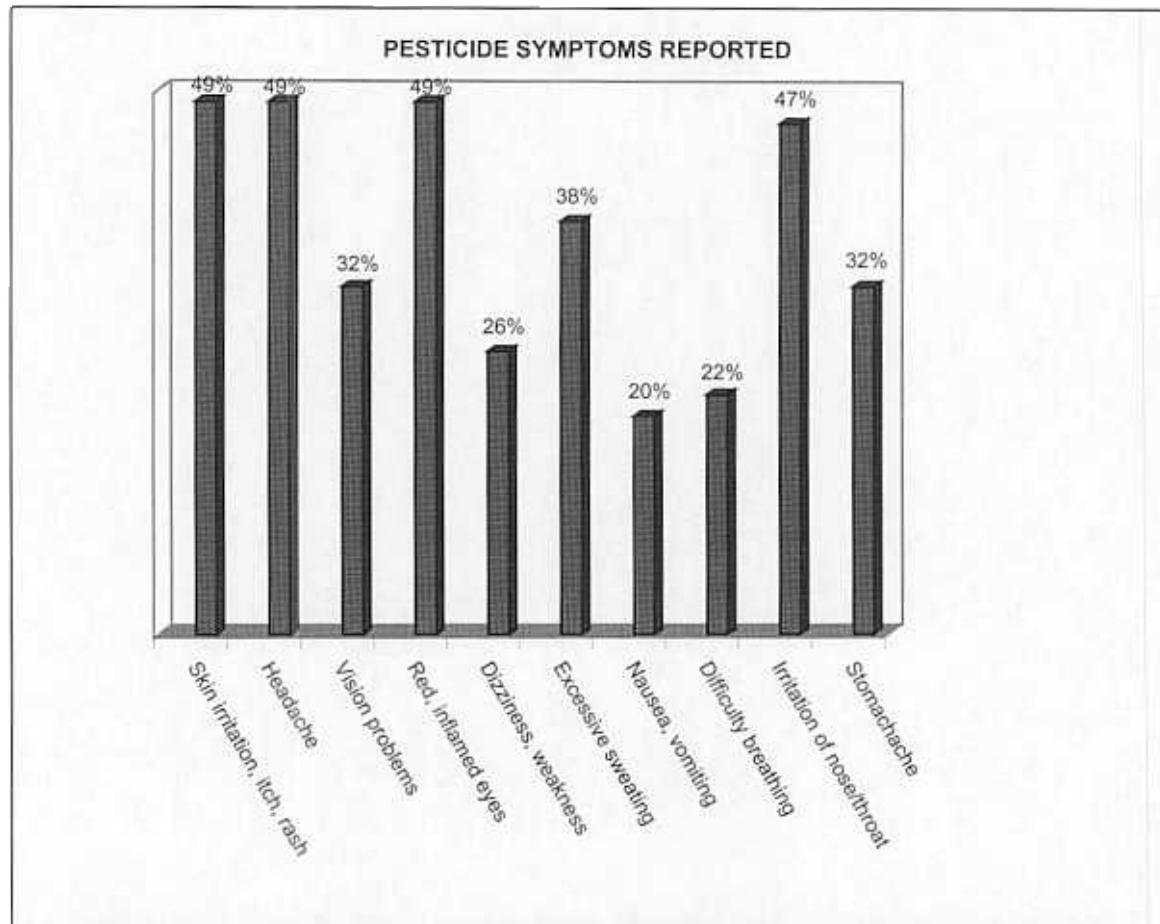
Even the lowest numbers are startling. Imagine these statistics in an office setting with ten workers. Poison is being used in the office, and it causes the workers to be sick some of the time. Five of the ten have experienced skin irritation or a rash while in the office. Five have experienced headaches, and five have experienced red or inflamed eyes. Three have experienced vision problems. Three report dizziness or weakness, and four report

excessive sweating. Two have experienced nausea or vomiting and two have experienced difficulty breathing. Five have experienced irritation of the nose or throat, and three have experienced a stomachache. These hypothetical office illnesses are proportionate to the rate at which Colorado farm workers reported symptoms of pesticide exposure.

An onion worker reported that she couldn't sleep at night because she coughed and had difficulty breathing.

¹⁸ Gina M. Solomon, M.D., M.P.H., *Trouble on the Farm: Growing Up with Pesticides in Agricultural Communities*, Report by the Natural Resources Defense Council, Chapter 1 (1998) (available at <http://www.nrdc.org/health/kids/farm/farminx.asp>); J. Routt Reigart, M.D., *et al.*, *Recognition and Management of Pesticide Poisoning*, Published by the United States Environmental Protection Agency 19 (1999) (available at <http://www.epa.gov/pesticides/safety/healthcare>).

Tragically, the majority of the surveyed farm workers had experienced one or more of these symptoms. It is unknown how many farm workers will experience long-term health effects due to frequent pesticide exposure. Pesticide exposure is associated with cancer, sterility, miscarriages, birth defects and developmental disabilities.¹⁹



Forty-nine percent of the surveyed farm workers reported experiencing skin irritation, itchy skin or a rash after working. Forty-nine percent reportedly experienced headaches, and forty-nine percent experienced red or inflamed eyes. The surveyed workers experienced other symptoms as indicated in the chart.

¹⁹ Fields of Poison: California's Farmworkers and Pesticides 17, 19 (1999); *Trouble on the Farm: Growing Up With Pesticides in Agricultural Communities*, Chapter 1, Chronic Impacts (October 1998). See also Aaron Blair et al., *Cancer among migrant and seasonal farmworkers: an epidemiologic review and research agenda*, *Am J Ind Med* 1993, 24:753-66; Aaron Blair et al., *Pesticides and cancer*, *Occup Med* 1997, 12:269-89; HI Morrison et al., *Herbicides and cancer*, *J Natl Cancer Inst* 1992, 84: 1866-74; NT Fear et al., *Childhood cancer and paternal employment in agriculture: the role of pesticides*, *Br J Cancer* 1998, 77:825-9; *Pesticides: Improvements Needed to Ensure the Safety of Farmworkers and Their Children* 10 (GAO/RCED-00-40 March 2000); J. Routt Reigart, M.D., et al., *Recognition and Management of Pesticide Poisoning*, Published by the United States Environmental Protection Agency 221 (1999); *Protect Yourself from Pesticides – Guide for Agricultural Workers*, Published by the United States Environmental Protection Agency, EPA 735-B-93-002 24 (1993).

Most of the farm workers stated they had never received pesticide training.

Federal law requires that employers provide pesticide training for their farm workers.²⁰ However, the survey found that most of the farm workers reportedly had never received pesticide training. Fifty-nine percent of the surveyed workers stated they had received no training in pesticides, and therefore did not understand the potential health effects of pesticide exposure and appropriate safety precautions.

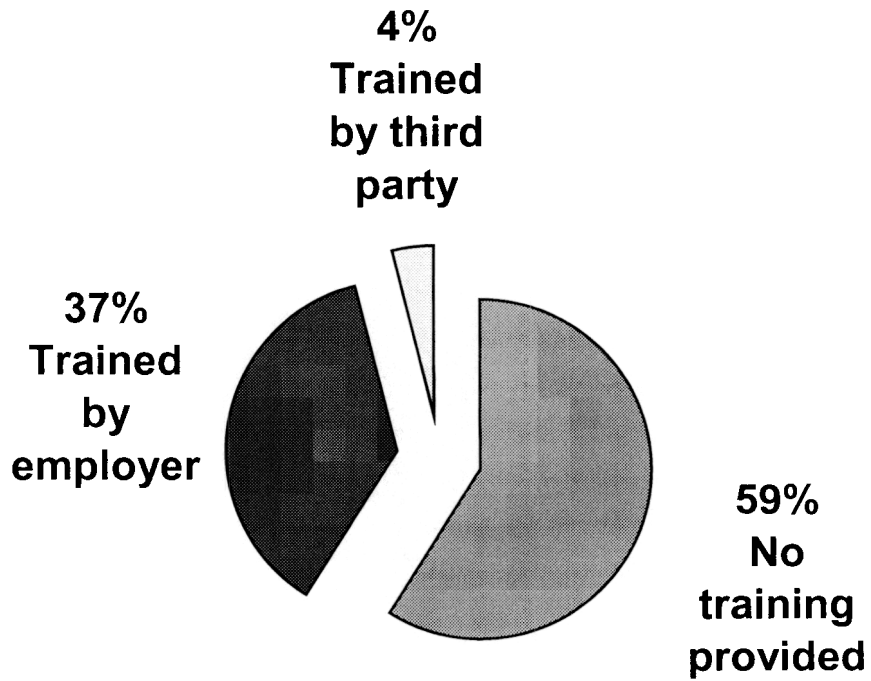
Of those who were trained, ninety percent were trained by their employers rather than by professional trainers such as the Department of Agriculture, the Extension Service or the Environmental Protection Agency. The survey indicated that when workers received training from the employers, the training at times was of questionable quality. One worker reported that his training consisted of being told not to eat the produce he was harvesting.

Fifty-nine percent of the farm workers reportedly had never received pesticide training, which is required by federal law.

Although employers may legally provide the training, they have an incentive not to reveal to their employees the potential long-term health effects of pesticide exposure, such as cancer, sterility or birth defects in offspring. Because of the employer's inherent self-interest, employer-provided training is likely to be less accurate and thorough than training provided by government employees. Even more alarming, the majority of the surveyed farm workers reportedly had not been provided *any* training, either by an employer or by a professional trainer.

Three of the surveyed workers believed that it is safe to enter a field immediately after pesticides are applied.

²⁰ 40 C.F.R. § 170.130(a)(3)(i).



Fifty-two of the eighty-eight surveyed workers reported that they had never received pesticide training. Most of those who received training were trained by an employer rather than by a professional trainer. Employer-provided training reportedly varied greatly in quality.

More farm workers reported they would take safety precautions if employers provided required sanitation facilities.

Pesticides enter the body through the skin, eyes, nose and mouth.²¹ Farm workers should protect themselves from pesticides by covering their skin with protective clothing. They should also wash their hands before eating, smoking or using the restroom. They should bathe and change clothes immediately after working, and take other precautions.²²

Most of the surveyed farm workers stated that they took safety precautions when possible. For example, the vast majority stated that they wore long sleeved shirts and a cap or bandanna to cover their heads. A lower percentage said they wore gloves.

Fewer farm workers reported taking on-the-job safety precautions. Farm workers increase their pesticide exposure if they eat, smoke or use the restroom without first washing pesticide residue from their hands. Nonetheless, fewer than half reported taking these precautions.

When hand-washing water was available, ninety-six percent of the farm workers stated they used it.

During the workday, forty-eight percent of the workers reported that they failed to wash their hands before eating. Forty-eight percent stated that they failed to wash their hands *before* using the toilet. Of those who smoked, seventy percent reportedly failed to wash their hands before smoking.

These numbers are startlingly high, but the survey shows that most farm workers did take these safety measures when facilities were available. For example, when hand-washing water was available, ninety-six percent of the farm

workers reported that they washed their hands before eating and before using the toilet. Forty-one percent of the farm workers reported that they did not always have access to

Forty-one percent of the farm workers reported that they did not have access to hand-washing water.

They were unable to wash pesticide residue from their hands. When a direct pesticide spraying occurs, these workers reportedly have no emergency water source for decontamination.

²¹ *Protect Yourself from Pesticides – Guide for Agricultural Workers*, Published by the United States Environmental Protection Agency, EPA 735-B-93-002 18 (1993).

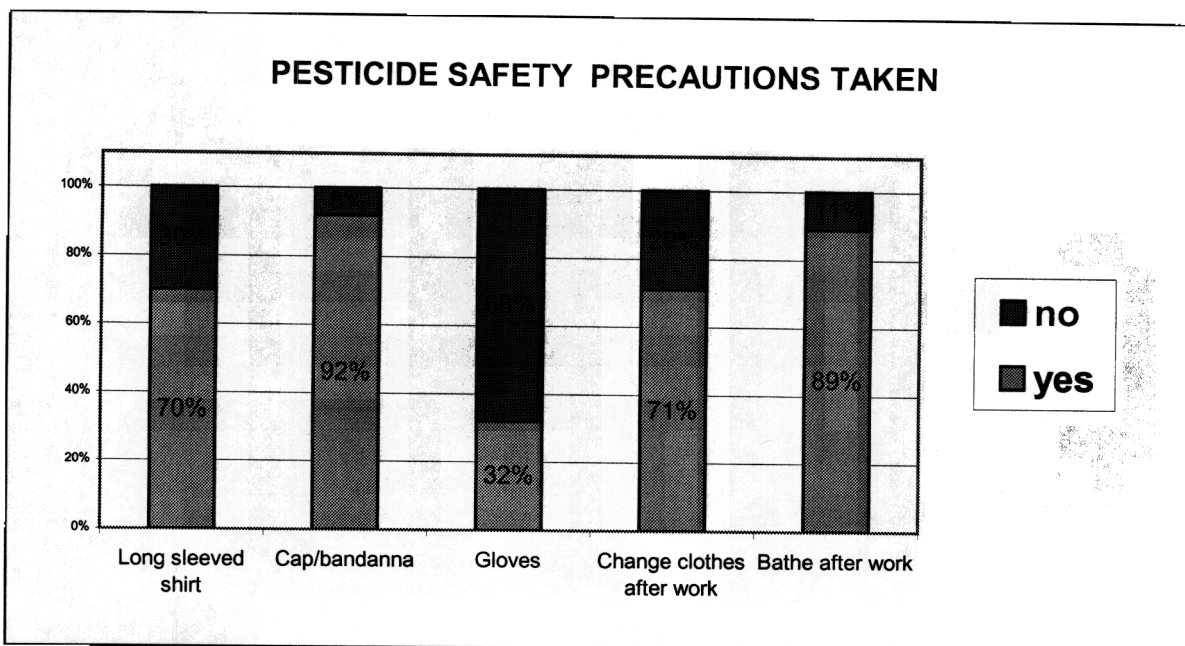
²² *Id.* at 12, 13, 42.

hand-washing water while they were working. Thirty-six percent stated that they lacked access to toilets.

The survey shows that farm workers are far more likely to engage in proper hygiene when facilities are available, but because facilities were frequently unavailable to the surveyed workers, only slightly more than half reported that they engaged in proper hand-washing. If employers made hand-washing facilities consistently available, as the law requires,²³ farm workers would use them more frequently and far fewer workers would be exposed to pesticides.

Hand-washing water is very important for farm workers' daily hygiene and safety. It is also crucial and potentially life saving when a severe exposure occurs, such as a direct spraying. Federal law requires that employers provide hand-washing water for their farm workers.²⁴

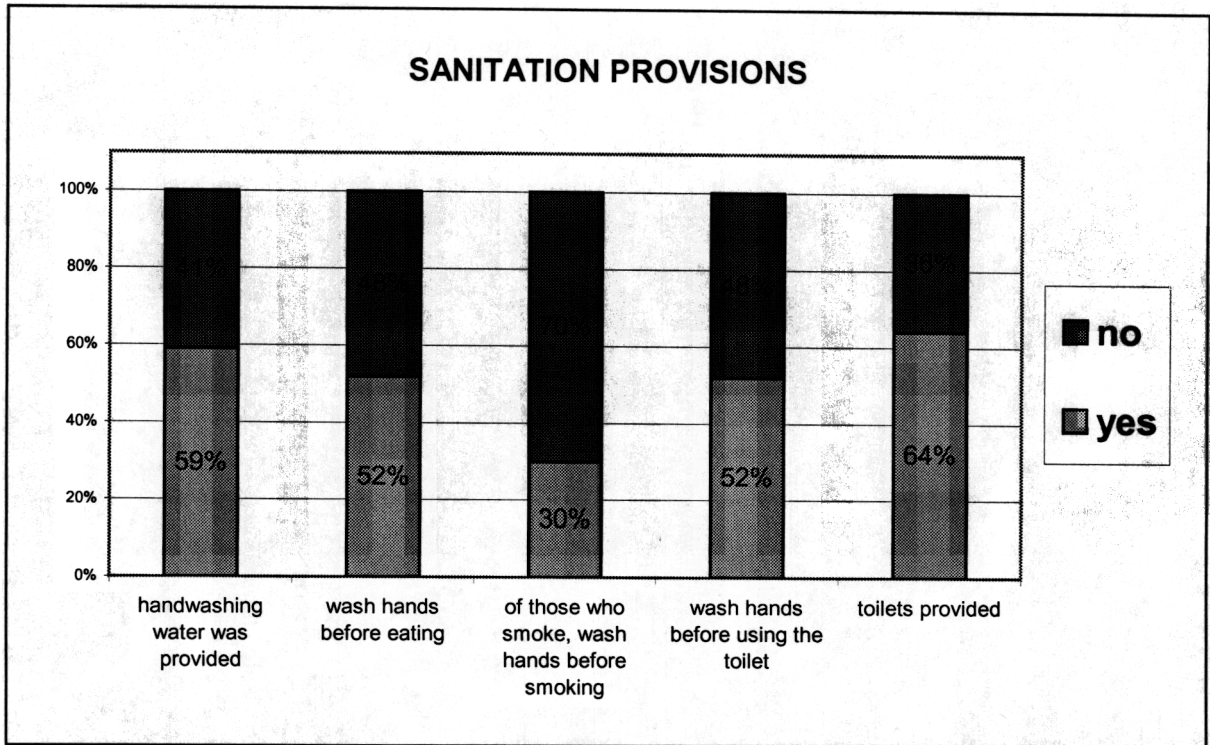
When facilities are not available, farm workers reported that they take less effective safety measures. One worker reported that he simply covers his mouth when pesticides are applied. Another said he avoids eating fruit or vegetables from the field.



Most of the surveyed farm workers wore long-sleeved shirts and a cap or bandanna to protect their skin from pesticides. Most bathed and changed clothes immediately after work. But in the fields, where hand-washing water was unavailable for forty-one percent of the surveyed workers, they were less able to take safety precautions. Forty-eight percent did not wash their hands before eating or using the toilet. These numbers likely would improve if facilities were more consistently provided.

²³ 40 C.F.R. § 170.151.

²⁴ 40 C.F.R. § 170.151.



When hand-washing water was provided, ninety-six percent of the farm workers reported that they washed their hands before eating and before using the toilet.

Government enforcement of pesticide laws is poor, and shows an alarmingly low compliance rate.

The U.S. Environmental Protection Agency is charged with inspecting Colorado fields for pesticide violations. Until the summer of 2001, the EPA did not routinely inspect fields for safety violations applying to farm workers, or interview field workers. During 2001, Colorado farm workers who experienced symptoms of pesticide exposure began requesting EPA inspections. The EPA conducted a total of twenty-two pesticide inspections of this type in Colorado during 2001. CPAP obtained the inspection reports through a Freedom of Information Act request filed with the EPA. Copies of the reports are on file with the author.

In 2001, the EPA found that ninety-one percent of the growers it inspected in Colorado were in violation of pesticide laws.

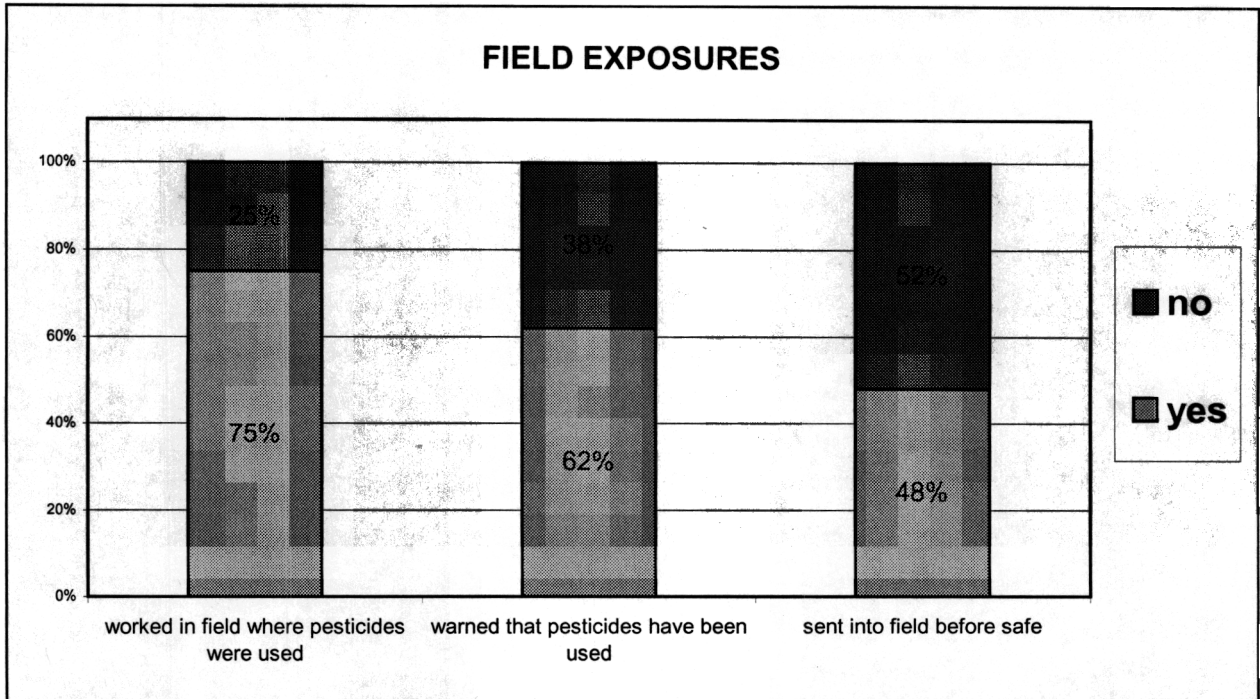
The EPA found that twenty of the twenty-two inspected employers were violating pesticide laws. Only two growers were in compliance with the law. The EPA found a total of 86 pesticide violations.

Specifically, the EPA found that seventy-seven percent of the growers failed to post a list of pesticides that they had applied within the past thirty days. Sixty-eight percent failed to provide pesticide training for their workers. Fifty percent failed to provide information about what to do in case of a pesticide emergency. Thirty-six percent did not provide soap or hand-washing water. Other violations included failure to provide towels, failure to maintain contact with pesticide applicators and failure to provide a change of clothing for pesticide handlers. One company provided training but the trainer was unlicensed. Other violations included failure to provide information and training for pesticide handlers, failure to provide protective clothing for handlers, and lack of an emergency assistance plan.

One worker said that, after spraying pesticides, his supervisor always waited thirty minutes before sending the workers back into the field.

Most pesticides require that workers stay away from the field for at least twelve hours.

The EPA sent warning letters to the twenty growers who were in violation of the law. The EPA did not issue any fines or other penalties for these violations.



Seventy-five percent of the surveyed farm workers believed that they had worked in fields where pesticides were used. Thirty-eight percent of the workers reported that they had never been warned that pesticides had been used. Forty-eight percent believed that they had been sent into a field before it was safe to enter.

Conclusion and recommendations

Colorado farm workers face life-threatening conditions when they go to work, in large part due to lax pesticide enforcement. Dangerous conditions and lack of compliance also persist because many farm workers are unable to complain, due to a fear of retaliation. Enforcement agencies, farm worker advocates, farm workers, growers, consumers, and the public must work to eliminate illegal pesticide exposures in Colorado. Pesticide safety laws are not merely regulatory requirements. They are life and death issues, as José Casillas' family learned.

Reducing the harm that pesticides cause to Colorado farm workers requires several steps. Growers should address these issues. The necessary steps include:

Employers should comply with pesticide safety laws. They need to provide hand-washing facilities for their workers. They also need to provide workers with pesticide training and proper protective equipment. If it would be more feasible economically, growers might form cooperatives to make these steps more affordable. They must warn workers of pesticide use, and refrain from spraying workers or sending workers into the field while pesticides are still fresh on the plants. When there is an exposure, growers must provide immediate transportation to a medical facility.

2. Agricultural employers should provide adequate locker room, shower, and laundry facilities, so that farm workers don't have to bring contaminated clothing home.
3. Farm workers should be able to request and receive safe working conditions without fearing retaliation.
4. Communities should provide affordable, accessible day care so that children of farm worker families do not have to spend their days entertaining themselves on the edges of fields. This may be more feasible if grower cooperatives are formed.
5. Growers who use pesticides should be careful not to use them next to houses.
6. Farm workers should have access to adequate housing, not farm labor camps surrounded by fields. When housing is located next to fields, spray inevitably drifts from the fields into the housing area where children play.
7. The public should report suspected pesticide violations to the Environmental Protection Agency at 1-800-227-8917.
8. Employers should be held accountable for pesticide-caused injuries
9. The Environmental Protection Agency must increase both immediate and long-term enforcement efforts. Until there is a real threat that the EPA will conduct

inspections and impose fines and other sanctions, violations will continue. Such fines would be a small price for growers to pay, compared with the higher price paid by farm workers whose health is jeopardized by illegal pesticide contamination and poisonings.