

An Environmental Injustice

*North Carolina farmworkers
exposed to pesticides need
proper training and adequate
protections to cope with
a serious health hazard.*

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Farmworkers are an integral part of the North Carolina agricultural economy. Without their hand labor, the production of apples, berries, Christmas trees, cucumbers, sweet potatoes, and tobacco would be severely limited. Although essential to the industry, they work for low wages in one of the most hazardous industries in the United States. Pesticides, which include insecticides, herbicides, and fungicides, are an omnipresent and dangerous ingredient of contemporary commercial agriculture.

Because farmworkers are regularly subjected to the hazards of pesticide exposure, have little control over their workplace exposure to pesticides, and receive a wage disproportionately low for their risk, farmworker pesticide exposure has been recognized as an environmental justice issue.

Environmental justice is the right to a safe, healthy, productive, and sustainable environment for all. Environmental justice refers to the conditions in which such a right can be freely exercised so that an individual's or group's identities, needs, and dignities are preserved, fulfilled, and respected in a way that provides for self-actualization and personal and community empowerment.

The environmental justice movement dates from the Warren County, NC, PCB disposal site protests of 1978. Warren County, with a largely African-American population, was slated to be the location of a PCB disposal site. The resulting community protest received national attention. The widespread nature of environmental injustice was further documented by Charles Lee's 1987 report for the United Church of Christ's Commission for Racial Justice, "Toxic Wastes and Race in the United States" (Commission for Racial Justice, United Church of Christ 1987). Throughout the 1980s and early 1990s, the work of Robert Bullard, in such volumes as *Dumping in Dixie* (1994), and several activist organizations continued to draw attention to the need for environmental justice.

Over the past four years, we have conducted research on farmworker pesticide exposure in North Carolina to document farmworker perspectives on the safety training they receive, the field sanitation conditions they experience, and the degree of control they feel they have in maintaining

pesticide workplace safety. We describe our findings and make recommendations for creating a safe and just work environment for farmworkers in North Carolina.

Pesticides and Governmental Regulations

An estimated 4.2 million migrant and seasonal farmworkers and their dependents are employed in at least 42 of the 50 states. These workers are overwhelmingly Latino, with most coming from Mexico. North Carolina ranks fifth nationally in number of farmworkers. Recent estimates place the number of migrant workers and dependents in the state at 140,000, with twice as many seasonal farmworkers.

Farmworkers and their families constitute a medically underserved population at substantially greater risk than the general population for numerous environmental and occupational health problems, as well as health problems typically associated with poverty. Their jobs do not provide health insurance, thus limiting their access to health care. While several federally funded clinics exist for North Carolina's farmworker families, these can in no way serve all of the state's seasonal and migrant farmworkers and dependents.

Most pesticide exposure for farmworkers occurs as exposure to residues, small amounts of chemicals that remain on plants and equipment. While there has been little research about the immediate (e.g., as rashes) and long term (e.g., as cancer, neurological disorders, reproductive problems) effects of residue and low-level exposure in farmworkers, evidence from farmers and others exposed leads environmental health experts to express great concern about occupational exposure to chemicals.

This concern extends to farmworker families. Because children are small and growing rapidly, exposure to small amounts of pesticides places them at considerable risk for both acute and chronic effects

of the chemicals. Their exposure can begin *in utero* and later result from crop spraying near housing and play areas, and from parents who unknowingly bring pesticide residues home on skin and clothing.

Farmworkers have little economic and political power to limit their pesticide exposure. In North Carolina, they have few political organizations, as well as little workplace or political power. They are not unionized, although the Farm Labor Organizing Committee (FLOC) is organizing in the state.

A fairly new and small grassroots farmworker organization, the North Carolina Farmworkers' Project in Benson, provides educational and referral services in the surrounding counties. However, efforts to help farmworkers are often thwarted by their fear of losing a job for simply attending a meeting or seeking information.

Those who lack the documentation for their legal entry and work in the United States fear deportation if they become involved in any community activity. A growing number of farmworkers come as contract laborers on H2A visas, which ensures a short stay in the United States and makes them dependent on the farmer who employs them.

The US Environmental Protection Agency has established the Worker Protection Standards (WPS), which require pesticide training and the use of personal protective equipment for farmworkers and all other persons potentially exposed to agricultural chemicals. Any worker who enters an area treated with a pesticide during the previous 30 days or subject to a restricted-entry interval must receive worker-safety training. This training must cover specified topics related to pesticide exposure, and be in a language understood by the farmworker. North Carolina, like other states, has established basic field sanitation and housing requirements for those who employ farmworkers. However, there has been no evaluation as to how effectively the WPS regulations have been implemented, and there is limited inspection for the sanitation requirements.

The PACE Project

With a grant from the National Institute of Environmental Health Sciences, we have studied North Carolina farmworkers' experience with pesticide safety training and agricultural chemicals for the past four years. This study, PACE (Preventing Agricultural Chemical Exposure), brought together expertise from a variety of disciplines.

PACE used several methods to learn from farmworkers, including 270 structured interviews com-

Data described in this paper are presented in greater detail in the following publications:

Arcury, Thomas A, Sara A. Quandt, Colin K. Austin, John Preisser, and Louis F. Cabrera. Implementation of US-EPA's Worker Protection Standard Training for Agricultural Laborers: An Evaluation Using North Carolina Data. *Public Health Reports*, 114: 459-468, 1999.

Quandt SA, Arcury TA, Austin CK, Saavedra RM. Farmworker and farmer perceptions of farmworker agricultural chemical exposure in North Carolina. *Human Organization* 57: 359-368 (1998).

Austin CK, Arcury TA, Quandt SA, Preisser J, Saavedra RM, Cabrera LF. Training farmworkers about pesticide safety: Issues of control. *Journal of Healthcare for the Poor and Underserved*, forthcoming (2000).

pleted with Latino workers in the summer of 1998, individual in-depth interviews (27), and 7 focus groups with a total of 44 farmworkers. In addition, PACE used a community-participation format to provide input from farmers and from farmworkers on an ongoing basis.

Lack of Safety Training

A minority of the workers we interviewed had ever received training (35 percent) or had received training in the current year (26 percent). Training for half of these workers lasted 30 minutes or less, an exceedingly short time to adequately cover the WPS required content.

For most workers, training involved the use of a video, and the video they were shown was supplemented with a verbal presentation. However, fewer than half of the workers felt that they could ask questions about the information they received. Approximately two-thirds of the trained workers received printed materials. Only about half of the workers reported that their training included information about the WPS, their employers' responsibilities for safety, or their legal rights.

More than half of the farmworkers interviewed stated that they never use any method to protect themselves from exposure to pesticides or other agricultural chemicals. About one quarter reported that they always tried to protect themselves from exposure. Those who had been trained in the current year were significantly more likely to report always trying to protect against exposure, while untrained workers reported never trying to reduce exposure.

Lack of Sanitation Facilities

State requirements for "field sanitation" mandate that toilet facilities, water for drinking, and water for washing be available for farmworkers in the fields where they are working. Over half of the workers reported that they never had a field toilet available to them. While most of the workers reported that they always have drinking water available, fewer than two-fifths of the workers report that water for hand washing is always available.

When they do have water in the fields, most report that the same water is used for drinking and washing. Having drinking and washing water separate is important because the drinking water is usually iced. Some workers indicated that they were afraid to wash their hot hands with ice water as this would cause other illnesses, especially arthritis. While virtually all of the farmworkers reported hav-

ing a shower to use at the end of the day, hand washing during the day is essential to remove pesticide residues.

Lack of Control

Most farmworkers (65 percent) believed that they had little or no control over harmful exposure to pesticides, a belief that appears not to be influenced by receiving safety training. This lack of control is reflected in the belief that no way exists to protect oneself from pesticides and in not taking any protective actions to avoid exposure while working. A diverse range of opinions and comments about control emerge as farmworkers tell of their experiences in North Carolina.

"We can't communicate..." The inability to speak the language of the employer frustrates many farmworkers. They cannot understand pesticide safety training and warnings from their supervisors. For example, a worker said, "... because many of us do not know the language, we don't speak English, and they do not understand our language, which is Spanish. We cannot communicate. We can't tell them the problems we feel, to the boss, or the contractor."

Farmworkers are reluctant to express concerns about proper use of pesticides and safety even if they are able to make themselves understood. The reaction of the employer may be hostile or at least threatening, and workers worry about losing employment. They know that they can easily be replaced. One farmworker told us, "And if you ask the farmer about his spraying equipment, you lose your job or no telling what they might do. They might beat the hell out of you, so people just don't know what to do. So they are scared to ask the foreman what to do. They'll never ask him what to do."

"Protective equipment is a problem..." Training videos recommend that farmworkers use such protective clothing as gloves, coveralls, hats, long-sleeved shirts, and long pants. To afford protection, clothing should be clean every day. Many farmworkers do not own protective clothing or do not have laundry facilities to wash clothes more than once a week. One worker said, "They do not want to spend to buy (protective clothing) — for example, just like that contractor, he is the one who has to give clothes to the worker, so that they have work clothes, gloves, and all of that for the well being of the workers, but a contractor is not going to give that. I know they won't"

North Carolina needs to identify barriers to safe working conditions and develop specific strategies to respond to these barriers.

Even if available, protective clothing may not be practical. Gloves are cumbersome for some tasks, such as priming tobacco, and farmworkers must balance the risk of pesticide exposure with heat stress. The statement of this worker indicates how he copes. "And man, when it's 90 degrees in North Carolina where wind ain't blowing, and you cropping tobacco, you know, if it's 90 degrees, inside that tobacco field is 100 degrees, you know, 105. I have to take my shirt off, you know, so I don't worry about it half the time. I know the health hazard. Most of the time people just don't — they not educated or anything, they don't worry about it."

"*Hurry, hurry, hurry....*" The intense pressure of field production translates into perceived threats about firing workers if they are too slow. Because farmworkers are poor and need the wages, they submit to unsafe work conditions and may continue to work while experiencing acute symptoms of exposure. For example, in a group interview one worker noted, "... sometimes the contractor or the boss wants us to fill three or four barns, that's where we put the tobacco, and he says, 'hurry, hurry, (that worker) is no good because he is too slow,' and with the gloves we would be slow. And the boss will say, 'I don't want him,' and we think, he might fire us because we are slow. What we always do is try to hurry, hurry to do everything, and not just me, but everyone has gone through this. I have seen it in some fields, with some people that were slow, they were fired."

Another farmworker told this story: "I had one bad experience in the pepper fields, I started throwing up and I was very dizzy, I didn't leave work, that is I couldn't leave the field to rest. We were threatened by the boss. He says that if you don't work enough they will give you a warning, and after three warnings they let you go, and then, because of our needs, or whatever reason...I just sat there and then continued to work."

For H2A workers this threat of firing is particularly effective. H2A workers are in North Carolina as part of an employment visa system that allows foreign nationals to work in agriculture in the United States on a temporary basis. Because of their visa limitations, they are not allowed to pursue work with

other employers and are required to return to their home country if they lose their job. "But they don't care. They just say: 'Come on, hurry, hurry or I send you to Mexico.' They just threaten us and that's what we don't agree with."

"*Farmers don't care....*" While it seems logical that both employees and employers would benefit from increased work safety in the fields, farmworkers perceive an ambivalence in farmers. "They don't care. They don't care. They really don't care. Only thing they care about is that crop."

Farmworkers do not see any benefit to the grower from increased work safety. "Most of them just want you out there in the fields. They don't want you to take off and all that. That'll be a day's work missed if we sit around watching videos and stuff." Or, "Growers and crew leaders. They ain't — you understand? They ain't gonna want to post [information on pesticides] up cause they know, hey, farmworkers ain't gonna want to go to work. If they start getting educated. See that's — that's the whole thing. They don't want to educate the farmworkers. They want to keep them in the dark."

These farmworkers recognize that employers operate under time pressures and that training is not considered to be cost effective.

Steps Toward Environmental Justice

The exposure of farmworkers to pesticides in the workplace is an environmental injustice. Direct and residue exposure to pesticides among workers can have immediate and long-term effects on their health and that of their families, and farmworkers are relatively powerless to prevent exposure. Although federal and state regulations have been established to improve protection from pesticide exposure, little has been done to evaluate the enforcement or effectiveness of these regulations.

Our data indicate that a minority of farmworkers receive pesticide safety training and that field sanitation facilities are not provided at many work sites. Farmworkers feel that they do not have control over their work situations to ask for additional training or field sanitation facilities, or to follow the safety rules.

Recommendations

Farmworkers need more information to help them work safely, and to reduce the acute and long-term effects of pesticide exposure. While establishing regulations that require the training of farmworkers is important, mechanisms to better inform their employers about the importance of this training are needed.

In North Carolina, information about potential farmworker exposure and the need to provide training for them is just one issue in the two-hour workshop that private pesticide applicators must attend every three years to renew their certification. **This is insufficient.** Methods to systematically evaluate the implementation of these regulations must also be employed.

Finally, the content of the required training must be reviewed to determine whether it is appropriate and adequate for the needs of these workers.

Our data show that simply training farmworkers is not enough. If farmworkers are trained to work safely but are placed in a situation in which the resources needed to work safely are not available, then the information they are given is wasted. This is especially the case when farmworkers feel they have no control over their own workplace safety. Ways must be found to empower workers to take actions that improve their pesticide safety in the workplace.

Health-care providers and policymakers need to know what kind of training can affect perceptions of control. Evaluating training in this light will require further consideration of the social and political environment of agriculture, and of the perspective and experiences of contemporary farm laborers.

As a model, community-based research such as the PACE project offers the possibility of identifying the root issues for farmworkers and formulating effective strategies. Because community-based research seeks to integrate knowledge and action and openly involves communities in social change efforts, it may be particularly applicable to measuring and responding to issues of control.

Another key challenge is involving agricultural employers. Interviews with farmers indicate that many of them are not intentionally placing their employees at risk. Rather, they do not believe that a problem exists. Farmers themselves are working in the fields and are not aware of the problems of chronic exposure and the danger of having repeated contact with pesticide residue. The hurried environment of the workplace reflects the stress that farmers themselves experience as participants in industrial

agriculture. Nevertheless, farmers need to understand the importance of training their employees about pesticide safety, and they must want to provide this training to their employees.

Considerations for the Future

These results raise important considerations for health-care providers, workers' advocates, and public health policy makers who work with farmworker populations. Health educators should recognize that farmworkers perceive some methods of protection to be irrelevant. When educators list the required equipment and procedures, they need to also understand daily work conditions.

Issues of control need to be considered by health providers when treating farmworkers and advising them about pesticide safety. Farmworkers perceive many personal prevention strategies to be outside of their control.

As one participant stated, "So, I'm telling you we live with constant threats and it's all different from the video we saw. They said, you have to wait a certain number of hours (to re-enter a pesticide-treated field), but here in the field it's very different."

Effectively educating workers about health hazards should not stop with simply providing information. The barriers to safe working conditions need to be identified and specific strategies and tools to respond to them, developed.

Health education and training can be designed to take into account the barriers to control that farmworkers face in their work environment. Programs that aim to reduce pesticide exposure need to respond to issues of communication, equipment availability, and employer support and involvement.

While health providers may not be able to enforce the legal requirements identified in educational materials, noncompliance should be recognized. Training can include discussion of these barriers and the development of ideas from the farmworkers themselves about how best to respond to their own local conditions. □

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