

Living and Working Safely: Challenges for Migrant and Seasonal Farmworkers

Thomas A. Arcury, Sara A. Quandt

Migrant and seasonal farmworkers are essential to North Carolina agriculture, yet they experience major health risks. This commentary describes the characteristics of North Carolina farmworkers, important hazards they face, and the status of regulatory protections. Finally, it presents a summary of policy needed to protect the health of farmworkers.

Migrant and seasonal farmworkers are essential to the success of agriculture in North Carolina. These farmworkers provide the hand labor needed to plant, cultivate, and harvest many of the state's economically important crops, including tobacco, cucumbers, sweet potatoes, berries, peaches, apples, and Christmas trees. Immigrant farmworkers are also increasingly full-time employees, supporting the production of livestock and poultry, as well as crops. Although essential for agriculture's financial success, farmworkers seldom share in its financial rewards. Rather, they experience significant occupational and environmental exposures, deplorable living conditions, limited safety training, and few supporting regulations [1].

This commentary reviews the characteristics of the farmworkers who work in North Carolina, important farmworker occupational and environmental health risks and outcomes, living conditions that affect farmworker health, and the status of safety training and regulatory protections. Finally, this commentary presents a summary of policy and regulations needed to protect the health of farmworkers.

Farmworkers in North Carolina

Few data document the number of farmworkers employed in North Carolina or describe the characteristics of these farmworkers. The 2007 Census of Agriculture (available at: <http://www.agcensus.usda.gov>) provides some information. In 2007, 12,284 North Carolina farms employed 77,400 workers, with 2413 of these farms employing migrant labor and 9521 farms employing 48,305 employees who worked fewer than 150 days per year. The North Carolina Employment Security Commission estimated that, in 2010, farms in the state employed 35,520 migrant farmworkers, 24,725 seasonal farmworkers, and 8905 farmworkers with H-2A guest worker visas. These numbers are acknowledged to be conservative estimates. In 2009, the Employment

Security Commission reported that 35,000 of the 36,000 migrant farmworkers spoke Spanish.

Information describing the personal characteristics of farmworkers employed in North Carolina is limited to small surveys. These show that the overwhelming majority of farmworkers are Latino, and most were born in Mexico. However, farmworkers have diverse backgrounds, and some African American and Afro-Caribbean farmworkers continue to be employed in the state. Recently, some farms have employed workers from Southeast Asia. Migrant farmworkers are largely unaccompanied men, but some farmworker families migrate, and many seasonal workers live with their families. Although most farmworkers are in their 20s and 30s, a sizable number of farmworkers are under 18, and some are as young as 12 and 13. Farmworkers in their 40s, 50s, and 60s are common. Farmworkers are poor, and many have little formal education. Most farmworkers speak Spanish, with approximately one-quarter speaking an indigenous (American Indian) language.

Occupational Exposures and Health Outcomes

Agriculture is a dangerous industry. Occupational and environmental hazards that confront farmworkers in North Carolina include the physical environment (sun, heat, rain, organic and inorganic dust), wild plants (eg, poison ivy) and animals (eg, snakes), sharp tools, equipment, chemicals, and noise.

Official rates for occupational injuries and illnesses are not available for farmworkers in North Carolina. Few farmworkers have access to workers' compensation. No surveillance system exists for occupational injuries in agriculture. Therefore, farmworker injury and illness data must be gleaned from surveys and clinic reports. Occupational injuries common to farmworkers include cuts and lacerations, eye injuries, musculoskeletal problems, and skin conditions [2]. Hearing loss and respiratory conditions are common to

Electronically published March 14, 2012.

Address correspondence to Dr. Thomas A. Arcury, Department of Family and Community Medicine, Wake Forest School of Medicine, Medical Center Boulevard, Winston-Salem, North Carolina (tarcury@wakehealth.edu).

NC Med J. 2011;72(6):466-470. ©2012 by the North Carolina Institute of Medicine and The Duke Endowment. All rights reserved. 0029-2559/2011/72607.

The North Carolina Gold Star Grower Program

Regina Cullen

Agriculture provides employment and income to more than 20 million people nationwide and to more than 800,000 here in North Carolina. It's an industry that can exact a powerful cost: farm machinery, agricultural chemicals, grain bins, and farm animals all can place those working in agriculture in a danger zone, both in the working environment as well as in living conditions. During 2007, hired farm labor was reported on 482,186 (22%) of the nation's farms and ranches. North Carolina, 1 of 9 states that account for just over half of all workers hired directly by farm operators, has made efforts to highlight agricultural danger zones.

The North Carolina legislature enacted the Migrant Housing Act (MHA) of North Carolina, which took effect in 1990. The MHA consolidated the inspection of migrant housing in the North Carolina Department of Labor (NCDOL) and updated housing inspection standards. In addition to enforcing the Occupational Safety and Health Administration migrant housing regulations—the Temporary Labor Camp Standard (29 CFR 1910.142)—the MHA added fire protection, heating, kitchen sanitation, and hot water requirements. Field sanitation provisions were expanded to apply to all individuals providing migrant housing. Housing owners or operators who provide housing to 1 or more migrant worker must register the housing with NCDOL 45 days before the workers take occupancy. Water and septic systems are required to be inspected by the local county health departments.

For many North Carolina growers, this legislation was not an easy pill to swallow. Before the MHA, growers had been subject to other rules, enforced by other agencies, and did not come under inspection unless they housed more than 10 farmworkers. But for advocates, the MHA did not go far enough.

The North Carolina Gold Star Grower program began in the early 1990s as a response to the inspection process. Some growers complained, "Why are you inspecting me? I meet all the requirements! There are folks down the road that NEED your inspection. I don't! I work hard to keep this house right!" Office staff and inspectors noticed this, as well, commenting, "Some housing is always in great shape. What can we do to acknowledge the growers' efforts?" Inspectors observed that some growers provided housing that exceeded the MHA requirements: installing telephones or providing appliances such as microwave ovens and freezers.

Such discussions led one staffer to remark, "Remember back in school, when we'd get a gold star on our papers?" The Gold Star Grower program began with simple thank you notes, blue cards with a gold star in the corner, sent to those whose housing met all the requirements of the MHA. In 1992, there were 136 Gold Star Growers (13% of those inspected).

NCDOL held the first recognition luncheon in 1994 and

has held them annually ever since. In the beginning, these events took place in various locations throughout the state, including Kernersville, Wilson, Lexington, Farmville, Mount Olive, and Greenville. Hosts included North Carolina State University Cooperative Extension agents: Mark Tucker, in Forsyth County, and Tom Campbell, in Pasquotank County. Commodity groups—cucumber, tobacco, blueberry, Christmas trees—are supporters. Growers who receive 2 consecutive stars are then eligible to conduct their own housing inspections the following year. They must attend the luncheon, continue to register their housing, and have their water and septic systems inspected.

Two-way communication proved beneficial: problems discussed at Gold Star luncheon meetings included farm safety issues. The danger zone expanded from housing issues to the farm field and beyond. In 1998, driving farm equipment on rural roadways was the topic Gold Star Growers considered their "most serious workplace safety problem." Solutions included grant money from the Governor's Highway Safety Program to fund educational programs and to provide all registered growers with slow moving vehicle signs for their farm vehicles. Billboards with tractors and the slogan "Slow Moving" were posted in a number of rural counties, drawing attention to the problem. North Carolina State Cooperative Extension worked with NCDOL to promote Light & Reflect, the safety program developed as a result of this initiative. Other agricultural safety initiatives include workplace safety DVDs, in English and Spanish, filmed on Gold Star farms. Safety topics include pesticide information, heat stress/stroke recognition and prevention, and machine guarding. At present, a housing DVD is in production. Topics include fire prevention, bathroom sanitation, electrical issues, and maintenance. The DVDs, distributed to all growers who register their housing, are used to conduct on-site farm training.

Our belief is that all agriculture-related illnesses, injuries, and fatalities are preventable. The Gold Star Grower program addresses the health and safety of the agricultural workforce by viewing it from multiple perspectives: grower, farmworker, and safety professional. The Gold Star list keeps growing; the program has proven to be an effective initiative for the growers and the state. Permitting growers who have earned the right to self-inspect allows the Agricultural Safety and Health Bureau to focus resources on unregistered camps and on growers who need intervention. NCMJ

Regina Cullen bureau chief, Agricultural Safety and Health Bureau, North Carolina Department of Labor, Raleigh, North Carolina.

Address correspondence to Regina Cullen, NC Department of Labor, 1101 Mail Service Ctr, Raleigh, NC 27699-1101 (regina.cullen@labor.nc.gov).

farmworkers employed in other regions of the country, but little research has been conducted on these effects in North Carolina.

Three hazards are particularly critical for North Carolina

farmworkers. Heat stress is common among farmworkers, because of the state's high temperatures in July and August [3]. These high temperatures are magnified by the physical exertion of farm labor, which often occurs within the enclo-

sure of tight tobacco rows. Few years pass without a death from heat stress in North Carolina.

Nicotine exposure from working with tobacco plants is another important hazard for North Carolina farmworkers. Farmworkers absorb nicotine while working with tobacco, to the point of acute nicotine poisoning; this is referred to as green tobacco sickness, or GTS [4]. One-quarter of farmworkers experience GTS each year. Symptoms of GTS include headache, dizziness, nausea, vomiting, insomnia, and anorexia. GTS is a self-limiting occupational illness, because the body will metabolize nicotine within 24 hours. However, GTS can lead to severe dehydration when combined with the heat in which farmworkers labor. Further, farmworkers must work every day or not receive any income, and those who are particularly susceptible to GTS continue to experience symptoms daily.

Biomarker data document that all North Carolina farmworkers show evidence of recent agricultural pesticide exposure [5]. Luckily, acute pesticide exposure remains rare. However, long-term exposure to small amounts of pesticides has negative health consequences. Data documenting the sequelae of long-term exposure among North Carolina farmworkers are not available, but current research is being conducted to address this issue.

Living Conditions

Farmworkers experience significant exposure to hazards because of their living conditions. Although these hazards are more severe among migrant farmworkers, they also apply to many seasonal farmworkers who live in North Carolina year-round. Travel and transportation is the first of these hazards. The act of crossing the border from Mexico to the United States results in many deaths each year. Many farmworkers do not control the transportation that they use. They must travel in crowded vehicles from region to region, looking for work. They must also travel, on a daily basis, from their residences to work in these vehicles.

Housing is another hazard that farmworkers experience. The housing available to farmworkers, whether in migrant farmworker camps controlled by farmers or contractors or in rural communities, is overwhelmingly substandard. Housing regulations exist for migrant farmworkers but not for seasonal farmworkers. However, enforcement of migrant housing regulations is limited. For example, more than 25% of migrant camps violate regulations for sufficient laundry facility and bedroom space, and 1 in 5 camps has signs of rodent infestation [6]. Farmworker housing exposes workers and their families to toxicants, including lead and pesticides; to allergens, including mold, mildew, and insect and rodent dander; to electrical and structural hazards; and to crowded conditions.

Although farmworkers toil to produce food, they are often food insecure; almost half of farmworker households studied by Quandt and colleagues [7] were found to be food insecure. Food insecurity results from low wages and not having

access to safety net programs, such as food stamps. Food insecurity is more pronounced among farmworkers who have children living with them.

Many farmworkers, seasonal as well as migrant, are separated from their families. Recent US policy on immigration has exacerbated this problem, as many farmworkers are now staying in the United States year-round, rather than risk trying to cross the border each year. Farmworkers are often isolated, living in rural areas with no transportation. They experience discrimination and harassment. They must often work long hours, with little diversion or entertainment. As a result, farmworkers have high rates of anxiety, depression, and other mental health problems [8].

Also related to separation from family and isolation, farmworkers are at increased risk for sexually transmitted diseases, including HIV, because of their use of commercial sex workers and because of men having sex with men [9]. Farmworkers are at increased risk for infectious diseases, such as tuberculosis and hepatitis, because of crowded living conditions.

Finally, when farmworkers get injured or ill, they have limited access to health care [10]. The migrant clinic network is limited to approximately 24 clinics across the state. Many of these have limited hours of operations. Farmworkers seldom have health insurance.

Training and Regulatory Requirements

Although farmworkers experience extensive occupational and environmental hazards and although they endure extremely poor living conditions, policies to protect the occupational health of farmworkers are limited. Agriculture is exempt from many of the occupational health standards of other industries; these exemptions, referred to as "agricultural exceptionalism," were meant to protect family farms but continue to shield industrial agriculture [11].

Current regulations protecting North Carolina farmworkers include those concerning pesticide safety, field sanitation, housing for migrant farmworkers, and minimum wage. The US Environmental Protection Agency's Worker Protection Standard (WPS) requires that those who might be exposed to pesticides receive specific training, that they be provided with information about the pesticides to which they might be exposed, and that they be provided with medical care if they experience an acute pesticide exposure. The Occupational Safety and Health Administration (OSHA) supports regulations prescribing field sanitation requirements for farmworkers. These regulations indicate where and when drinking water and cups, hand washing facilities, and restrooms are to be provided to farmworkers. The North Carolina Migrant Housing Act (MHA), which is more stringent than the OSHA regulations on which it is based, includes regulations for minimum housing requirements for migrant farmworkers (no such regulations are available for seasonal farmworkers). These housing regulations provide minimum standards for bedding, storage space for personal belongings, showers,

toilets, refrigerator space, and laundry facilities. The North Carolina Department of Labor's Wage and Hour Bureau is responsible for ensuring that farmworkers receive at least the minimum hourly rate of pay; farmworkers employed on small farms are exempt from the minimum wage law. Farmworkers with H-2A visas should receive an hourly rate greater than the minimum. However, research in North Carolina and elsewhere shows that farmworkers often are not afforded the protections of the WPS, the OSHA field sanitation requirements, the North Carolina MHA, or the minimum wage rates [6, 12, 13].

Discussion

North Carolina and the nation must become more realistic about the labor needed to support agriculture, and they must become more humane in treating those who work to plant and harvest our fruits, vegetables, and other agricultural products. Because of the history of agricultural exceptionalism, few health and safety regulations are available to protect agricultural workers.

Immigration policy reform is needed. Although immigrant workers are essential to the financial success of agriculture, it is extremely difficult for agricultural employers and workers to conform to current immigration regulations. The H-2A visa program is one avenue for the legal and safe movement of agricultural workers. In North Carolina, migrant farmworkers with H-2A visas who have been recruited by the North Carolina Growers Association are represented by the Farm Labor Organizing Committee. Although research shows that the occupational safety and living conditions of migrant farmworkers with H-2A visas are better than those of migrant farmworkers without H-2A visas [12, 13], investigators also raise serious human rights concerns about the current H-2A visa program [14].

Regulations are needed that require occupational safety training that is linguistically and educationally appropriate for farmworkers [15]. However, safety training is no panacea for the technological and organizational changes needed to make agriculture a safer industry. Appropriate safety regulations that address all areas of agriculture work, including child labor, heat stress, pesticide and other chemical exposures, minimum wage and payment for overtime work, workers' compensation, field sanitation, and housing, are needed. Farmworkers need assurance that they will be protected should they decide to report violations of existing regulations or should they decide to organize. In North Carolina, the Farmworker Advocacy Network (<http://www.ncfan.org/>) has advocated for new legislation that addresses many of these safety regulations. Funding is needed to support the enforcement of current safety regulations. Neither the North Carolina Department of Agriculture and Consumer Services nor the North Carolina Department of Labor has sufficient staff to enforce the current WPS pesticide safety regulations or the current migrant housing and field sanitation regulations.

Adequate health care for all farmworkers is also needed. Few farmworkers in North Carolina have employer-provided health insurance. Workers' compensation is available only to farmworkers with H-2A visas or to those working for someone with 10 or more full-time employees. The North Carolina Farmworker Health Program, Office of Rural Health and Community Care (<http://www.ncfhp.org/>), supports migrant farmworker clinics across the state, as well as other programs. However, the 24 clinic sites supported through this program are insufficient to serve the needs of migrant farmworkers, who labor in most of the state's 100 counties. Further, seasonal farmworkers often are not eligible for these services.

In 1960, the Edward R. Murrow documentary *Harvest of Shame* showed the plight of farmworkers in the United States. This documentary increased awareness in America about the human cost of its food. It also led to policy changes that improved some aspects of farmworker lives. Although improvement in farmworker occupational health and safety continues, public policy is needed to address the conditions that farmworkers, farmers, and all agricultural workers must endure. NCMJ

Thomas A. Arcury, PhD professor, Department of Family and Community Medicine, Center for Worker Health, Program in Community Engagement and Implementation, Wake Forest University Translational Science Institute, Wake Forest School of Medicine, Winston-Salem, North Carolina.

Sara A. Quandt, PhD professor, Department of Epidemiology and Prevention, Division of Public Health Services, Program in Community Engagement and Implementation, Wake Forest University Translational Science Institute, Wake Forest School of Medicine, Winston-Salem, North Carolina.

Acknowledgments

Financial support. National Institute of Environmental Health Sciences (R01-ES008739 and R01-ES012358).

Potential conflicts of interest. T.A.A. and S.A.Q. have no relevant conflicts of interest.

References

1. Arcury TA, Quandt SA, eds. *Latino Farmworkers in the Eastern United States: Health, Safety, and Justice*. New York: Springer; 2009.
2. May JJ. Occupational injuries and illness in farmworkers in the eastern United States. In: Arcury TA, Quandt SA, eds. *Latino Farmworkers in the Eastern United States: Health, Safety, and Justice*. New York: Springer; 2009:71-101.
3. Mirabelli MC, Quandt SA, Crain R, et al. Symptoms of heat illness among Latino farmworkers in North Carolina. *Am J Prev Med*. 2010;39(5):468-471.
4. Arcury TA, Quandt SA, Preisser JS, Bernert JT, Norton D, Wang J. High levels of transdermal nicotine exposure produce green tobacco sickness in Latino farmworkers. *Nicotine Tob Res*. 2003;5(3):315-312.
5. Arcury TA, Grzywacz JG, Talton JW, et al. Repeated pesticide exposure among North Carolina migrant and seasonal farmworkers. *Am J Ind Med*. 2010;53(8):802-813.
6. Vallejos QM, Quandt SA, Grzywacz JG, et al. Migrant farmworkers' housing conditions across an agricultural season in North Carolina. *Am J Ind Med*. 2011;54(7):533-544.
7. Quandt SA, Arcury TA, Early J, Tapia J, Davis JD. Household food security among Latino farmworkers in North Carolina. *Public Health Rep*. 2004;119(6):568-576.
8. Grzywacz JG, Quandt SA, Chen H, et al. Depressive symptoms among Latino farmworkers across the agricultural season: individual and contextual influences. *Cultur Divers Ethnic Minor Psychol*.

- 2010;16(3):335-343.
9. Rhodes SD, Bischoff WE, Burnell JM, et al. HIV and sexually transmitted disease risk among male Hispanic/Latino migrant farmworkers in the southeast: findings from a pilot CBPR study. *Am J Ind Med*. 2010;53(10):976-983.
 10. Arcury TA, Quandt SA. Delivery of health services to migrant and seasonal farmworkers. *Annu Rev Public Health*. 2007;28:345-363.
 11. Wiggins M. Farm labor and the struggle for justice in the eastern United States fields. In: Arcury TA, Quandt SA, eds. *Latino Farmworkers in the Eastern United States: Health, Safety, and Justice*. New York: Springer; 2009: 201-220.
 12. Robinson EN, Nguyen HT, Isom S, et al. Wages, wage violations, and pesticide safety experienced by migrant farmworkers in North Carolina. *New Solut*. 2011;21(2):251-258.
 13. Whalley LE, Grzywacz JG, Quandt SA, et al. Migrant farmworker field and camp safety and sanitation in eastern North Carolina. *J Agromedicine*. 2009;14(4):421-436.
 14. Bauer M. *Close to Slavery: Guestworker Programs in the United States*. Montgomery, AL: Southern Poverty Law Center; 2007.
 15. Arcury TA, Estrada JM, Quandt SA. Overcoming language and literacy barriers in safety and health training of agricultural workers. *J Agromedicine*. 2010;15(3):236-248.



 THE
CANCER
PROJECT

Finally!

*A prescription with side effects
you want.*

Blueberries and red beans, just a few of the many foods rich in antioxidants, are powerful remedies in the fight against cancer. Research shows that fruits, vegetables, and other low-fat vegetarian foods may help prevent cancer and even improve survival rates. A healthy plant-based diet can lower your cholesterol, increase your energy, and help with weight loss and diabetes. Fill this prescription at your local market and don't forget—you have unlimited refills!

**For a free nutrition booklet with cancer fighting recipes,
call toll-free 1-866-906-WELL or visit www.CancerProject.org**