

# FROM THE GROUND UP

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## Pesticides: A Danger to Farmworkers and the Environment

### Pesticide Statistics

Compiled by Laxmi Haynes, SAF  
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- Number of pesticides presently on the market that were registered before being tested to determine if they caused cancer, birth defects or wildlife toxicity: **400**
- Amount of time it takes to ban a pesticide in the U.S. using present procedures: **10 years**
- Percentage of the total U.S. population supplied with drinking water from groundwater: **50%**
- Percentage of all U.S. counties containing groundwater susceptible to contamination from agricultural pesticides and fertilizers: **46%**
- Number of people in the U.S. routinely drinking water contaminated with carcinogenic herbicides: **14 million**
- Percentage of municipal water treatment facilities lacking equipment to remove these chemicals from the drinking water: **90%**
- Occupational group that suffers the highest rate of chemical-related illness in the U.S.: **farmworkers**
- Pesticide-related illnesses among farmworkers in the U.S. each year: **approximately 300,000**
- Number of people in the U.S. who die each year from cancer related to pesticides: **10,400**

Source:

### Pesticides from the Air: Dangers to Farmworker Families

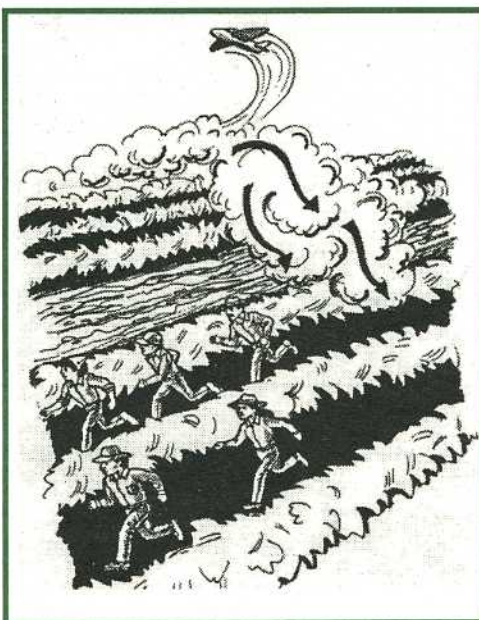
by Fawn Pattison, Executive Director, Agricultural Resources Center  
919-967-1886,

Most farmworkers live quite close to the fields where they work, often staying in homes or camps on the farm property where they are working. It has been widely documented that farmworker families are exposed to dangerous pesticides in the home because pesticides can be brought in on work clothes and shoes, and even on skin and hair. Children can also be exposed when they play in or near the fields where parents are working, as well as through contaminated drinking water.

Farmworker families also suffer exposure from pesticide drift. Drift happens when clouds of pesticides sprayed onto the fields move from their intended target onto neighboring homes, crops, roads, businesses, churches, and schools. Toxic pesticides can and do drift right onto the homes and surrounding yards where food is prepared, laundry is hung to dry, and where children play.

One of the most serious causes of pesticide drift is aerial spraying. Many of us have seen the vapor trails as airplanes or helicopters spray farm crops like cotton, wheat, corn or rice with pesticides. Because aerial spraying uses such large quantities of pesticides, and often from a great height, drift is a serious side effect. It has been estimated that less than 0.1% of pesticides ever reach the pest they were intended for.<sup>1</sup> More than 40% of the pesticide sprayed aurally will migrate off-site as drift.<sup>2</sup>

Here in North Carolina, aerial spraying is used extensively on cotton, tobacco, pine plantations (for paper), and along utility rights-of-way to keep vegetation off power lines in mountainous areas. That means farmworkers and others who live near these crops are at risk every time pesticides are applied. *Continued on page 2*



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*"Run From Drift" image from the EPA  
Farmworker Safety Manual*

**SAF** is a 501(c)(3) non-profit organization whose mission is to bring students and farmworkers together to learn about each other's lives, share resources and skills, improve conditions for farmworkers, and build diverse coalitions working for social change.

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**Action Alerts**

Send an email with the word "subscribe" to <farmworkers-request@duke.edu> to receive SAF's weekly Action Alerts about legislation affecting farmworkers, organizing campaigns, campus events, and job opportunities.

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Laxmi Haynes

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**Pesticides from the Air, continued from page 1**

For those who live near crops where pesticides are applied aerially, drift is a major concern. Scientific studies on this issue are usually intended to assist with technical and policy recommendations on how best to minimize pesticide drift. While the law has not kept up with this body of data, the results it presents are fairly uniform. Whenever pesticides are applied aerially, they are expected to drift. In certain weather conditions, drift can be greatly exacerbated. Other factors such as equipment and spray height can affect how far pesticides will drift from the application site. Most studies that examine pesticide drift test areas ranging from 50 to 800 meters (164 to 2,625 feet) from the site of application – and some level of pesticide residue is generally found, even at the greatest distance.

A series of studies on how the height of a pesticide application affects drift found that for a release height of one meter (3.3 feet), the peak of the deposition occurs approximately 15 meters downwind – that's 49 feet from the target. The same study found that for a release height of ten meters (33 feet), the peak of the deposition does not occur until 50 meters downwind – that means that the largest amount of pesticide is being dropped 164 feet downwind from the application site under normal conditions.<sup>3</sup> Weather conditions such as stability can increase the amount of pesticide drift by as much as 10-fold.<sup>4</sup> On many farms, one can see farmworkers and other tenants living just a few yards from the crops being sprayed.

The US Environmental Protection Agency, which is charged with the duty of regulating pesticides in the U.S., does not make specific recommendations related to drift from aerial spray. Federal regulations simply state that all efforts should be made to prevent pesticide drift from coming into contact with people, livestock, crops, wildlife, and other sensitive areas. It is up to the states to specify how that should be done.

Each state has its own formula for dealing with drift from aerial spraying. Some states, such as Mississippi, New Hampshire, California, Colorado, Connecticut, and others require pre-notification before aerial spraying begins. Many states, including North Carolina, require buffer zones that keep aerial sprayers at a distance from the neighbors. NC regulations currently require a 300-foot buffer zone around schools, churches, hospitals and businesses. They also require a 100-foot buffer zone around homes. This buffer does not cover the entire property – just the 100 feet surrounding the house. Any amount of pesticide drift is allowed outside that 100-foot boundary. 100 feet hardly seems enough, when (according to the data mentioned above) drift can be expected as far as 2,600 feet from the application site under normal conditions. Unfortunately, North Carolina's regulations are fairly typical of other agricultural states – and they are currently being threatened by a NC Department of Agriculture proposal to eliminate buffer zones altogether.

Most advocates who work with farmworkers are well aware of the dangers that pesticides can pose: labored breathing, headaches, rash, eye and skin irritation, wheezing, faintness, and in extreme cases, even death. These are all symptoms of acute exposure, often the result of one dose that is too high. For farmworker children, the danger usually comes from prolonged exposure to pesticides, also known as chronic exposure. Over time, someone who is exposed regularly to pesticides, even in very small doses, can experience serious health problems. These problems can include fatigue, neurological disorder, depression, increased chemical sensitivity, cough, lymphoma, and some forms of cancer. For children, regular exposure to pesticides can seriously damage cognitive skills and even lead to lower IQ. Pregnant women are especially at risk for birth defects and reproductive disorders.

*Continued on page 3*

## ¡La Familia! A Program to Prevent Pesticide Exposure Among NC Farmworker Families

by Alicia Doran, Field Project Coordinator, ITF Intern 1998, adoran@wfubmc.edu

For more information, contact Dr. Thomas Arcury 336-716-4347

Farmworker families are often exposed to pesticides and other environmental pollutants in the places where they work and live. It is difficult for farmworkers to reduce their environmental exposures because they have little control over their work and living situations. Farmworker exposure is therefore an issue of environmental justice as well as an issue of occupational health. The ¡La Familia! Project, a collaborative effort of the North Carolina Farmworkers Project and Wake Forest University School of Medicine, is working to develop a culturally appropriate health education program to help reduce the exposure of farmworker families to pesticides. This five-year research project is supported by a grant from the National Institute of Environmental Health Sciences, and includes farmworker families in western North Carolina and southern Virginia who work in mountain agriculture, including Christmas trees, tobacco, and ornamental plants.

During ¡La Familia!'s first year, we completed in-depth interviews with farmworker mothers to learn about their experiences and beliefs about pesticide exposure to their families. We also collected dust samples from the homes and urine samples from farmworker children and adults to attempt to assess pesticide exposure and absorption levels. We are now in the process of reporting the results of these samples to the study participants. This analysis focuses on three main areas: (1) the household and agricultural pesticides that were found in their homes; (2) the manner in which these pesticides may have entered their homes; and (3) some simple ways that they can reduce their exposure to pesticides in the future. We hope that this knowledge will encourage families to take steps within their homes to reduce their exposure to pesticides in the future.

During the next year, we will use insights from these interviews to develop a culturally sensitive and educationally appropriate Lay Health Advisor program to teach members of the farmworker community about pesticide safety. We hope that by using this method, we will empower women and families to take control of their own health as it relates to pesticide safety issues.

### Pesticides from the Air, continued from page 2

A recent study of the children in the Yaqui valley of Sonora, Mexico revealed some of the slow-working symptoms of pesticides in children. The Yaqui valley is an agricultural area with a very homogeneous population. People down in the valley, as well as people in the surrounding foothills, have similar genetic backgrounds and diets. While the valley population uses pesticides on their crops, those in the foothills do not. Therefore children in the foothills are exposed to pesticides in far lower quantities than their neighbors in the valley.

The scientists asked 4 and 5 year-olds to jump up and down as long as possible, catch balls, drop raisins into bottle caps, perform memory drills, and draw pictures of people. Valley children demonstrated significantly less stamina, eye-hand coordination, 30-minute recall, and drawing ability than preschoolers from the foothills communities (see image).<sup>5</sup> The Yaqui Valley study clearly shows some of the correlations between pesticide exposure and neurological damage in children. Studies of children in the U.S. have found that almost all children, farmworker and non-farmworker, have significant levels of pesticides in their blood.

Pesticide drift from aerial application is a significant source of unnecessary pesticide exposure for farmworker families. The aerial application of pesticides endangers farmworkers not only in the fields, but in homes as well.

#### SOURCES

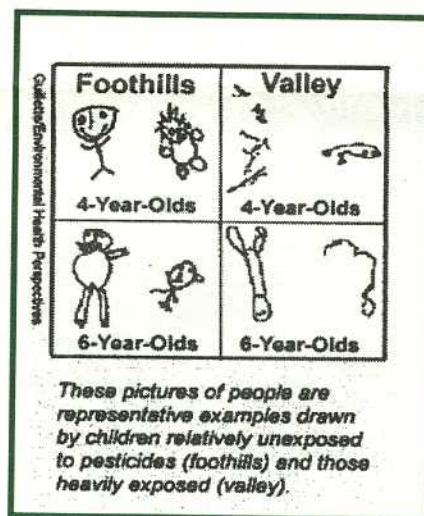
<sup>1</sup> David Pimentel and others. 1991. "Environmental and Economic Impact of Reducing U.S. Agricultural Pesticide Use," *Handbook of Pest Management in Agriculture Vol. I* (Boca Raton, FL: CRC Press, 1991), pgs. 679-718.

<sup>2</sup> US Congress. Office of Technology Assessment. 1990. *Beneath the bottom line: Agricultural approaches to reduce agrochemical contamination of groundwater*. Washington, DC: US Govt. Printing Office.

<sup>3</sup> Ian Craig, Nicholas Woods and Gary Dorr. 1998. "A simple guide to predicting aircraft spray drift." *Crop Protection* vol. 17, no. 6:475-482.

<sup>4</sup> Sandra L. Bird, David M. Esterly, and Steven G. Perry. 1996. "Off-target deposition of pesticides from agricultural aerial spray applications." *Journal of Environmental Quality* 25:1095-1104.

<sup>5</sup> Elizabeth A. Guillet, Maria Mercedes Meza, Maria Guadalupe Aquilar, Alma Delia Soto, and Idalia Enequina Garcia. 1998. "An Anthropological Approach to the Evaluation of Preschool Children Exposed to Pesticides in Mexico." *Environmental Health Perspectives* 106:347-353.



### Action Alert!

Write the NC Pesticide Board and tell them that aerial sprayers should not have the right to deposit pesticides on other people's homes, schools or businesses.

Write to:  
M. Scott Whitford, Chair  
NC Pesticide Board  
PO Box 27647  
Raleigh, NC 27611

