

A NEW CROP OF CONCERNS

Congress Investigates Pesticide Safety

A March 2000 report by the General Accounting Office (GAO) titled *Pesticides: Improvements Needed to Ensure the Safety of Farmworkers and their Children* concludes that farmworkers may not be adequately protected against the risk of pesticide poisoning, despite existing legislation to offer such protection. The report also marks a step toward clarifying questions around the issue of research needed on children's exposure to pesticides.

In issuing the report, the GAO completed an analysis requested in 1998 by Representatives Tom Lantos (D-California), Henry Waxman (D-California), and Bernard Sanders (I-Vermont), long-time proponents of farmworker safety. The report comes at a time when questions about children's vulnerability to pesticide-related health risks are mounting in response to President Bill Clinton's 1997 executive order charging federal agencies to give high priority to addressing environmental health and safety risks to children. In addition, occupa-

tional health concerns have turned once again to the estimated 2.5 million farmworkers employed in U.S. agriculture.

The Story behind the Report

For some scientists, the GAO analysis comes as a wake-up call. "To think that in the year 2000—eight years after promulgation of the Worker Protection Standard [WPS] and five years after its implementation—the idea that there's no clear system for implementing these rules is very disappointing," says Richard Fenske, deputy

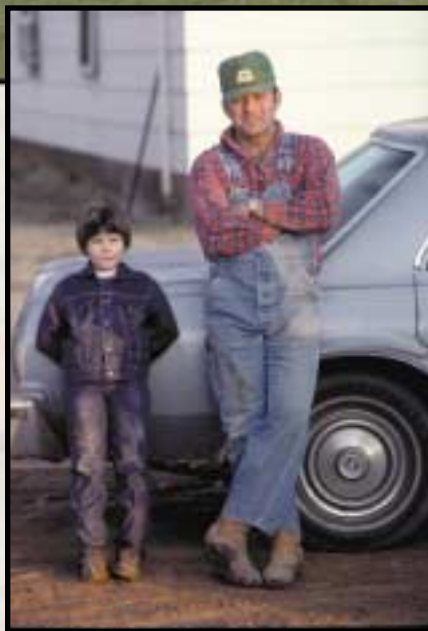
director of the Center for Child Environmental Health Risks Research at the University of Washington in Seattle, commenting on the report. (Fenske has conducted numerous studies on the effects of pesticides on children.) The WPS, promulgated by the U.S. Environmental Protection Agency (EPA) in 1992, is a regulation aimed at reducing the risk of pesticide illnesses and injuries among farmworkers and pesticide handlers. The standard stipulates better information for workers and inspections to work sites to ensure that facilities

use protective clothing, equipment, and practices. Two key elements of the standard involve training workers in pesticide safety and compliance with the restricted entry interval—the minimum time between pesticide application and the point when workers may reenter treated areas.

In 1996, the death rate among agricultural workers nationwide from all job-related causes was more than five times the average for all industries (an estimated 20.9 per 100,000 agricultural workers versus 3.9 per 100,000 in all other industries), according to the report *Accident Facts 1996* by the private National Safety Council, an international public service organization. The council reports that agricultural workers are subject to longer hours and more direct physical and chemical risks—for example, by working directly with heavy equipment and pesticides—than many other workers.

Agriculture is also the only sector of the U.S. economy in which children as young as 12 years old can work legally. This exception stems from the historic role of family farming in America; U.S. farms are often small family enterprises, and by helping with farm chores, children make important contributions to the farms' viability. But amid growing concerns about child labor internationally, it may be time to reexamine that exception, according to Fenske. "People are asking, 'Why is agriculture the great exception, when we know it can be a hazardous occupation?'" he says.

The Food Quality Protection Act



Seeds of discontent? Farmworkers and their children can still face risks from pesticide exposures despite protective regulation.

(FQPA) of 1996 marked a major change in how pesticides are regulated. It recognized that pesticides can have combined effects distinct from the health effects of each chemical in isolation, and it required assessment of that combined exposure for health risks. The FQPA also recognized that children may react to pesticides differently than adults do, and suggested a wider safety margin—generally up to 10 times wider—for children. This margin, added to the threshold at which data show a pesticide to have adverse health effects, is designed to ensure better health protection for children. The law also stipulated that multiple routes of exposure, including nondietary routes, must be considered in

setting tolerances (the amount of residue legally allowed in food), and that pesticides that act via similar mechanisms of toxicity must be considered as having cumulative health impacts.

To implement the law, the EPA has started the huge task of reassessing thousands of pesticide uses to set new tolerances. According to Anne Lindsay, director of the EPA's Field and External Affairs Division, the agency has already reassessed over a third of the tolerances according to the FQPA standards.

A Need for Monitoring

Against this backdrop, the GAO report charges that enforcement of the WPS for all farmworkers is patchy and unsystematic. In other words, says Chuck Barchok, an assistant director at GAO and one of the report's authors, many cases of farmworkers' pesticide-related illnesses go unreported, leaving health workers with an inadequate basis for tracking patterns, and making it difficult for the EPA to fine-tune pesticide standards. According to Lindsay, this lack of reporting may be due to farmworkers feeling fearful of retaliation from employers for reporting pesticide-related illnesses, which can raise worker's compensation premiums. It may also be due to a lack of recognition of pesticide-related symptoms by both workers and health care professionals.

The number of pesticide-related illnesses appears significant. In 1999, the GAO report says, the EPA combined the

resources of four databases to calculate a nationwide estimate of cases of physician-diagnosed pesticide illnesses and injuries. Drawing on the American Association of Poison Control Centers database, the National Pesticide Telecommunications Network, the California Pesticide Illness Surveillance Program, and data supplied by registrants under the Federal Insecticide, Fungicide, and Rodenticide Act, the EPA estimated there are 10,000–20,000 such cases per year. According to the report, the EPA believes this estimate represents serious underreporting. “We know that significant underreporting occurs,” says Lindsay. “This is especially a problem because early pesticide intoxication can mimic other diseases, and we know that many clinicians may not be diagnosing these cases.”

For better monitoring of pesticide illnesses, the GAO report calls for standardized reporting systems for pesticide illnesses in all states. One candidate program, funded by the EPA and the National Institute for Occupational Safety and Health (NIOSH), is known as SENSOR (Sentinel Event Notification System for Occupational Risk).

ers a GAO recommendation for expanding SENSOR premature, saying that he hasn't seen a good report on the program by an independent researcher. But he agrees that evaluating SENSOR's experience is a good idea, and Lindsay notes that her office is publishing such a report in 2001.

The GAO report also finds that worker protection inspections vary widely. Under cooperative agreements with the EPA, state agencies conduct inspections as mandated by the WPS. They inspect to see, for example, that safety equipment is used in spraying, that signs describing pesticide safety are posted in plain view, and that sprayed areas are closed to farm activities for the required intervals. To assess the enforcement of the WPS among the regions, the GAO interviewed officials in the EPA's Offices of Enforcement and Compliance Assurance and the 10 EPA regional offices. GAO staff also accompanied officials with the Virginia Department of Agriculture and Consumer Services on two worker protection field inspections.

One problem they found was a lack of consistency in what an inspection consists

would entail perhaps a visit to worker facilities and fields, and multiple questions to workers. Barchok says that the EPA should specify violations by categories such as worker protection training violations and improper labeling of pesticide containers. In order to be a useful analytical tool, inspections need to yield more information on the nature of WPS violations reported. The report recommends that the EPA standardize implementation of the WPS by clarifying the role of site inspections, standardizing inspection methods, and setting target numbers of inspections for states. The EPA should also provide more analysis of inspection data and followup actions to identify trends in pesticide poisoning cases, the report says. Increased uniformity of inspections may provide a more reliable gauge of the level of compliance with the WPS.

Children at Risk?

The second key finding of the GAO report is that much remains unknown about the risks faced by children in agriculture. The report stresses that children under age 12 may be particularly vulnera-



This program has been implemented in five states with NIOSH funding. SENSOR-supported offices in each state investigate reports of acute illness or injury from pesticide exposure, and can give advice on decontamination and how to prevent future exposure. The offices collect information about suspected pesticide poisonings in order to identify patterns of problems with a specific pesticide or work practice. When a pattern is found, they work with other organizations or industries to develop educational materials and other prevention strategies. The offices also share data with NIOSH and the EPA to identify problems that might not be evident at the state level. Fenske consid-

of across the 10 EPA regions. The GAO authors state that “EPA's regions have been inconsistent (1) in whether they set goals for the number of worker protection inspections states should conduct, (2) in defining what constitutes a worker protection inspection, and (3) in the extent to which they oversee and monitor the states' implementation and enforcement [of the law].”

“When states report back they've done 10 inspections, we need to know what that '10' meant,” says Barchok, noting that some states count a completed inspection if one question is asked about worker protection during a site visit. Other states only count more comprehensive inspections, which

ble to pesticide poisoning, and the GAO urges the EPA to protect children under 12 years old, who could be exposed either by accompanying their parents into the fields or by pesticide residues on food or items in their home environment. Specific steps range from warning farmworker parents of pesticides' adverse effects to placing clearer labeling regarding children's health on pesticide packaging.

The report notes that children are more vulnerable to pesticide dangers than adults for three main reasons: their tissues absorb chemicals more readily and excrete some more slowly, they have more hand-to-mouth contact, and they may not wear the

same protective clothes such as long sleeves and work boots. Furthermore, illnesses of child workers under 12 are unlikely to be reported because those workers are illegal. (As evidence that younger children are employed, the GAO report includes a photo of young children working in an onion field.)

The GAO report says there has been little research in the past into the chronic effects of pesticides on children, but cites three ongoing federally supported efforts that aim to improve the scientific understanding of how pesticides affect children. The first is a study at the children's health center at the University of Washington that examines children's pesticide exposure in the farm environment and points toward the environmental health risks of pesticides for the public at large [see *EHP* 108:515–520 (2000)]. The second is an ongoing study by researchers at the University of California at Berkeley of pesticide exposures and their effects on roughly 500 pregnant women and their children. The epidemiologic study assessed women's exposure to pesticides during pregnancy and is following the children

Fenske suggests that the report's main contribution to improving children's protection may come in helping to clarify the categories of children for monitoring. For Fenske, three categories make sense: legal workers, aged 12–17; illegal workers under 12 (mainly 6–11); and children of farm families, aged 1–5. The second category is perhaps the hardest to study, he says, because workers and employers are wary of researchers or others who resemble officials.

The report also adds fuel to the debate about child labor internationally. "We look at other countries and say, 'Why are children producing our toys?'" Fenske observes. "Then we look here and say, 'Wait a minute—children are producing our food.'" As the number of family farms declines and consumer pressure grows for more pesticide-free foods, agriculture's historic exemption to the minimum worker age may be reexamined.

The Response to the Report

In responding to the GAO report, Marcia Mulkey, director of the EPA's Office of Pesticide Programs, acknowledges that

children living near or working in agriculture. The Field and External Affairs Division aims to submit its assessment of current methodologies to the EPA's Children's Health Advisory Committee by the end of 2000.

Margaret Speich, senior director for communications with the American Crop Protection Association (ACPA), a non-profit industry organization, contends that the pesticide industry supports strong enforcement of pesticide laws, regulations, and pesticide labels to protect farmworkers and their families. She writes in a statement that a major industry-sponsored study of farm family exposure to pesticides is under way, with Fenske serving on its advisory committee.

Speich also holds that label precautions and the WPS are working, citing a 15 February 2000 news release from the California Department of Pesticide Regulation that reported a two-year downturn in reports of pesticide illness in that state for 1997 and 1998. According to Speich, the ACPA believes that farmworkers' pesticide exposure problems appear to

of those pregnancies for two years afterward, monitoring them for any developmental problems. A third effort is a large study of agricultural health by the National Cancer Institute, along with the NIEHS and the EPA. The researchers turned to pesticide recertification classes—a regular requirement for workers who apply pesticides—to recruit 70,000 participants for a three-year period. "It's unprecedented [in scale] for the field of environmental health," says Fenske. The study will examine many health outcomes relating to pesticide intoxication, and it will help in understanding pesticide exposure more broadly. Results will be available in about two years.

data on farmworkers and their children are limited, inconsistent, and inconclusive. She also agrees on the need to improve information on monitoring and enforcement. To put farm risks in context, Mulkey says the EPA is also examining whether some of the activities it has already investigated, like playing on a treated lawn, are analogous to exposures farm children may receive. Lindsay echoes Mulkey's generally positive review. Besides providing a good survey of pesticides and worker protection, Lindsay remarks, the report underscores for the EPA the need to assess whether current methodologies for risk assessment protect

be due in large part to problems with enforcement of practices such as the restricted entry interval.

Still, difficulties in protecting farm workers are unlikely to completely disappear, and further regulation seems likely. If the GAO report prompts the EPA to protect nonworking farm children better, people like Fenske will be pleased. But the report's impact could be much broader: it could help bring about a systematic way of tracking how pesticides affect all the people who work most closely with our food, before it gets to us.

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