School Pesticide Monitor

A Bi-Monthly Bulletin on Pesticides and Alternatives
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Vol. 16 No. 1, 2016

CA Health Advocates Continue Call for Increased Buffer Zones Near Schools

A coalition of local parents and community health groups from California's Central Valley are calling on the state to set one-mile buffer zones around schools in order to reduce children's exposure to highly toxic pesticides. The request comes after research from the University of California, Los Angeles (UCLA) found widely used fumigant pesticides in central California interact synergistically and increase health risks.

Although California is subject to regressive pesticide preemption laws, county agricultural commissioners have the authority to regulate and enforce pesticide use at the local level. While the state currently sets minimum buffer zones around schools at 500 ft., certain California counties require increased levels of protection around these sensitive sites. However, activists charge that state standards and even locally wider buffer zones are not adequately protecting community health, and comprehensive statewide regulations are needed. In July of 2015, after years of pressure from activists, the California Department of Pesticide Regulation (CDPR) held a series of workshops to gather community input on new rules governing pesticide use near schools.

The stakes are high for families living in the Central Valley. Fumigant pesticides are highly toxic and have a strong propensity to drift far off a target site. UCLA's recent report found that mixtures of fumigant pesticides may increase the possibility of gene mutations and decrease the body's ability to repair damaged DNA. The Fresno Bee reported that a nine year old boy, who lives and goes to school close to an orange grove where pesticides are often applied, tested positive for over

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Scientists Find Pesticide Exposure Decreases Lung Function in Children

Exposure to common agricultural pesticides in early life leads to a measurable decrease in children's lung functioning, according to researchers from the University of California, Berkeley. Organophosphate pesticides, a relatively older generation of crop chemicals still widely used on farms in California, have been associated with a broad range of diseases in both children and adults. This latest study, *Decreased lung function in 7-year-old children with early-life organophosphate exposure,* published in the journal *Thorax*, adds to calls from health and environmental advocates to eliminate these toxic pesticides in agriculture, and move towards safer, sustainable, and organic management practices.

The higher the rate of organophosphate exposure, the smaller a child's lung capacity would be, scientists found. The UC Berkeley study traces exposure by looking at pesticide metabolites in urine five times over the course of childhood (6 months to 5 years). Participants were part of the *Center for the Health Assessment of Mothers and Children of Salinas* (CHAMACOS), a longitudinal birth cohort study investigating the effects of pesticides and other environmental chemicals on the growth, health, and development of children in California's Salinas Valley.

For every 10-fold increase in pesticide metabolites measured in a child's urine, an average of approximately 8% air function within the lungs was lost. "Researchers have described breathing problems in agricultural workers who are exposed to these pesticides, but these new findings are about children who live in an agricultural area where the organophosphates are being used," said study senior author Brenda Eskenazi, PhD, a professor of epidemiology and of maternal and child health. "This is the first evidence suggesting that children exposed to organophosphates have poorer lung function."

Scientists determined these results after adjusting for smoking during pregnancy, season of birth, exposure to particulate matter, breast feeding duration, mold and pets at home, distance of a home to a highway, food insecurity, mother's education, season at which the test was administered, and the child's height and gender, according to the study.

The authors indicate that the effect of pesti-

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Buffer Zones

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50 different chemicals, based on a hair sample provided to researchers. "I was concerned and upset," the boy's mother said to the paper.

While increased buffer zones may provide some reprieve from pesticide trespass, it will not eliminate health concerns for children in the region. Virginia Zaunbrecher, JD, of UCLA's Science and Technology program remarked to *Fresno Bee*, "In general, a buffer zone is going to decrease exposure, but it's not going to eliminate exposure." Beyond Pesticides has long encouraged a minimum two mile buffer zone for agricultural pesticide use around sensitive areas. Also important for communities is an adequate route of communication and notification when pesticide applications will be taking place.

More than a decade ago, six families filed a civil rights complaint with the U.S. Environmental Protection Agency (EPA) that details the dangerous levels of pesticides at Latino public schools throughout California that exposed Latino kids to chemicals linked to cancer, birth defects, neurodevelopmental disorders and other serious health problems. The complaint urged EPA to enforce the Title VI of the *Civil Rights Act*, which prohibits recipients of federal funds from engaging in discriminatory practices. In 2011, as a result of a settlement agreement EPA reached with CDPR, EPA found that CDPR's past renewal of the toxic fumigant methyl bromide discriminated against Latino school children whose schools are located near agriculture fields, conceding that unintentional adverse and disproportionate impact on Latino children resulting from the use of methyl bromide during that period could have occurred. Methyl bromide is still widely used in California to grow strawberries, despite its ban under the *Montreal Protocol.* However, little was done to remedy these exposures and so a lawsuit was filed in 2013 against EPA's continuing failure to protect Latino students. The case was subsequently moved for dismissal in federal court in part due to lack of jurisdiction.

In the county of Kauai, Hawaii, even a modest proposal to implement California's current 500 ft buffer zones around sensitive sites like schools and hospitals was met with intense opposition from agrichemical industry interests. Although a law was passed, it was struck down in the courts, and a state proposal currently faces significant hurdles.

Ultimately, what is needed to truly protect community health is a transition away from toxic pesticides towards agricultural practices which promote pest resilience and decrease the need for toxic chemicals. A wide variety of alternative practices and products are now coming online to assist growers in preventing pest problems before they start. Organic agriculture, which requires farmers to improve soil health and craft an organic system plan to guide pest control decisions, represents a viable path forward for agriculture in California and beyond. As researchers from Washington State University established earlier this month, the transition to organic agriculture is essential to a healthy, sustainable future for people and the planet.

Midwest

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cide exposure is equivalent to that seen when children are exposed to secondhand smoke.

"This study adds exposure to organophosphate pesticides to the growing list of environmental exposures – including air pollution, indoor cook stove smoke and environmental tobacco smoke – that could be harmful to the developing lungs of children," said lead author Rachel Raanan, PhD. "Given they are still used worldwide, we believe our findings deserve further attention."

Of paramount concern are the health implications for children with similar levels of exposure across the country. "If the reduced lung function persists into adulthood, it could leave our participants at greater risk of developing respiratory problems like COPD (chronic obstructive pulmonary disease)," said Dr. Raanan. A separate CHAMACOS study published earlier this year echoed the current findings, showing an association with pesticide exposure and possible asthma in childhood.

Organophosphates are extremely harmful to the nervous system, as they are cholinesterase inhibitors and bind irreversibly to the active site of an enzyme essential for normal nerve impulse transmission. Although organophosphate use is on the decline in the U.S., the U.S. Environmental Protection Agency (EPA) has allowed the continued registration of many of these products. As a result of a lawsuit by environmental groups, the agency recently proposed a rule that would to remove one of the most potent organophosphates, chlorpyrifos, from use in agricultural production. However, EPA is not expected to finalize the rule until December 2016. Health and environmental advocates must remain vigilant of Dow, the pesticides' manufacturer, and its ability to lobby Congress to protect its profits of children's health.

Studies have documented that exposure to even low levels of organophosphates during pregnancy can impair learning, change brain function, and alter thyroid levels of offspring into adulthood. The evidence of hazards to children as a result of organophosphate exposure is robust and highly concerning, even for those that do not live in or around agricultural fields, as these chemicals are frequently detected on food.

The most surefire way consumers can avoid exposure to toxic organophosphates and protect children's health is by supporting organic agriculture. Buying organic not only means that your food is safer, it means that the farmworkers who grow the food we eat and their children are not subject to toxic insult.

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