Better Safe than Sorry

Preventing Pesticide Drift in California

A Policy Brief by Latino Issues Forum and Redefining Progress

August 2004

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Latino Issues Forum

Established in 1987, Latino Issues Forum is a state-wide non-profit public policy and advocacy institute dedicated to advancing new and innovative public policy solutions for a better, more equitable and prosperous society in California.

LIF's primary focus is on the broader issues of access to technology, telecommunications, health care, sustainable development, energy and the environment, as well as civic participation. LIF has established its own unique form and style of educational forums that have proven to be effective at framing complex issues in terms the public can digest. LIF also serves as a clearinghouse to assist and provide the news media with accurate information and sources in the Latino community for fair and effective coverage of issues. To accomplish our mission of empowering Latinos to participate more fully and effectively in public policy issues, we provide the following: policy research and analysis, coalition building, community education, media resources and advocacy.

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Californians for Pesticide Reform

Californians for Pesticide Reform (CPR) is a coalition of over 175 public interest organizations committed to protecting public health and the environment from pesticide proliferation. CPR's mission is to:

- educate Californians about environmental and health risks posed by pesticides;
- eliminate the use of the most dangerous pesticides in California and reduce overall pesticide use;
- promote sustainable pest control solutions for our farms, communities, forests, homes and yards; and
- hold government agencies accountable for protecting public health and Californians' right to know about pesticide use and exposure.

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Redefining Progress

Redefining Progress (RP) is a non-profit organization that works with a broad array of partners to shift the economy and public policy towards sustainability. RP does this in three ways:

- RP measures the real state of our economy, our environment, and social justice with tools like the Genuine Progress Indicator and the Ecological Footprint.
- We design policies to shift behavior in these three domains (economy, environment, and equity) towards sustainability.
- We promote and create new frameworks to replace the ones that are taking us away from long-term social, economic, and environmental health.

RP collaborates with partners because sustainability requires the broad engagement of individuals, organizations, and institutions.

Redefining Progress works with partners to change technology, influence the choices individuals make, and resolve pressing social and environmental issues. RP also adds to our partners' efforts by pursuing systemic change in underlying economic, political, and social mechanisms. RP is based in Oakland, California, and has an office in Washington, D.C.

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"...Residents...were enveloped in a cloud of pesticides...the area was evacuated and roads were closed...their vision blurred and they gasped for air. Their noses and throats burned...neighbors vomited on the spot."[1]

Such was the nightmare scene that took place in the small town of Lamont, near Bakersfield, California, on October 3 and 4, 2003. At least 140 residents suffered acute pesticide poisoning as a result of pesticide drift from nearby fields. Poisoning victims, including children, suffered headaches, coughing, dizziness, nausea, burning eyes and vomiting. Terror and confusion swept over the town as local authorities were unable to respond appropriately, due in large part to language barriers and a lack of an emergency response system specific to pesticides.

Pesticide drift is a particularly dangerous and frequent occurrence in California's agricultural fields and adjacent communities. Drift is defined as any airborne movement of pesticides off the target site,[2] including droplets, dust, volatilized or vaporized pesticides, and pesticide-contaminated soil particles. In California between 1998 and 2000, approximately half of all reported pesticide poisonings related to agricultural use occurred as a result of drift.[3] There are several well-documented cases of pesticide drift poisonings involving entire neighborhoods and communities in the Central Valley, where the bulk of the state's agriculture lies.[4] Most of these communities are low-income, largely Latino communities already facing substantial amounts of contamination, including air and water pollution. In addition to the emergency pesticide drift incidents, air pollution from pesticide use and subsequent contamination of groundwater as pesticides are carried through the water cycle pose long-term health threats to all Central Valley residents, and particularly low-income Latinos.

The purpose of this policy brief is to bring attention to the persistent health and economic problems caused by pesticide drift to rural agricultural communities, and to offer recommendations for reducing the incidence of harm from pesticide drift that currently affects hundreds, if not thousands, of people each year in California.[5] Acute and chronic exposures to pesticides saddle individual families and state emergency response agencies with unnecessary burdens, many of which are financial. In the longer term, the health effects of drift are persistent problems; numerous studies have shown that levels of long-term pesticide exposure from drift in the Central Valley are high enough to cause serious health effects. Because we have control over which pesticides we use and how we apply them, all of the health effects of drift, in the long and short term, are preventable through better independent review of chemicals, the phase-out of the most toxic and drift-prone chemicals, and prohibition of drift-prone application methods. Additionally, the establishment of a revolving fund to reimburse pesticide poisoning victims, community clinics, and counties for the costs of medical care can help mitigate the devastating

Spray drift from pesticide applications is the most visible form of drift, but invisible post-application drift often exceeds "acceptable" levels.

effects of pesticide use on the predominantly low-income Latino population of the Central Valley.

Pesticides present a grave risk to human health, as ingestion of and contact with pesticides can cause a wide range of serious illnesses. Approximately 900 pesticide ingredients are currently in use in our state, with an estimated 200 million pounds applied annually to Central Valley farms alone.[6] Of this total amount, approximately one-third of the pesticides applied are known to be particularly toxic to humans, whether as acute or chronic toxins, or both.[7] Acute toxicity refers to the immediate effects caused by pesticides, which include irritation of the eyes, nose, throat, and skin. Acute pesticide poisoning can also cause nausea, vomiting and diarrhea. Chronic health effects are a result of continued, long-term exposure to pesticides, even at low doses. People suffering from chronic pesticide poisoning may experience neurological and reproductive damage, endocrine disruption, cancer, and even death.

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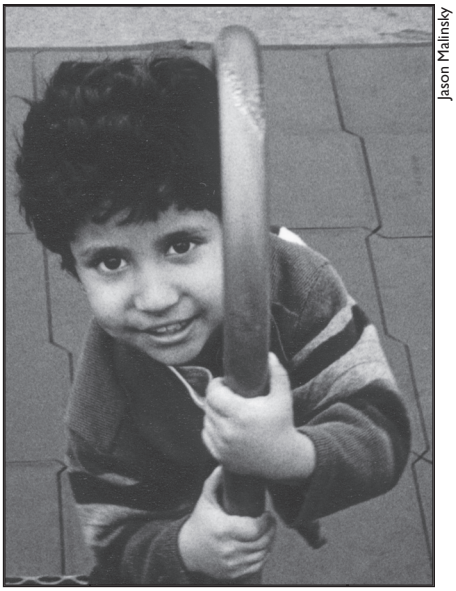
The problem of pesticide drift highlights the many challenges to the system of *managing* risk and harm, rather than *preventing* it. The Department of Pesticide Regulation (DPR), the state agency currently charged with pesticide control states that the regulation of pesticides "…does not focus solely on assessing toxicity but also on managing risk by controlling exposure,"[8] generally through label directions and other use restrictions. Pesticide drift accidents such as the Lamont incident of 2003 demonstrate that regulation focused on use restrictions fail to protect human health. The challenge before us is to think about pesticide regulation in a totally different way, where we are not simply controlling pesticide exposure, but rather preventing exposure altogether, and in cases of exposure, shifting the burden of pesticides away from individual families and emergency response or public health agencies. This shift will require moving away from a risk management system towards a more precautionary approach.


Jason Malinsky

Children who live on a farm have increased risk of some cancers.

Recommendations for preventing drift-related pesticide accidents

Recommendation #1:

a. The state should establish a clear timeline for the phaseout of six drift-prone highly toxic pesticides: methyl bromide, MITC (several pesticides generate MITC), Telone, diazinon, chlorpyrifos, molinate; and

b. A panel of independent experts and community representatives, including farmworker representatives, should be convened to recommend less-toxic alternatives to the six pesticides being phased out.

The existing regulatory strategies for controlling exposure[9] to pesticides impose large costs on people outside of the decision to use pesticides. A state panel on pesticide phaseout would bring these stakeholders into the decision-making process. The only way to protect people from continued pesticide poisoning is to establish clear timelines towards a ban on the most harmful drift-prone pesticides in California, and farmworker families must have a voice in that decision.

There is substantial scientific data confirming the harmful human and environmental impacts caused by the six pesticides listed above.[10] Now is the time to act to prevent further drift-related poisonings being caused by this set of pesticides, currently widely used in California. As a national leader and innovator with regards to environmental protections, California must pave the way towards the phaseout of pesticides and the adoption of less-toxic alternatives. Importantly, alternatives

must be accompanied by incentives and subsidies for farmers to transition to less-toxic alternatives as they phase out the six target pesticides. Concurrent with a phaseout, preventive measures can be taken in the interim, such as creating large buffer zones and reducing density of pesticide use by imposing maximum amounts of use per township or other geographic area.

Recommendation #2:

Prevent drift poisonings and the harmful effects of over-applying pesticides by prohibiting aerial, shank, sprinkler, and airblast applications of pesticides, methods that are especially drift-prone.

Volatile pesticides account for 45% of all pesticide application in California, and the EPA restricts its regulation of drift to that which occurs during or immediately following pesticide application. As a result, only 5–20% of drift is regulated. In reality, only that 5–20% of drift *can* be regulated. The rest of drift is subject to natural forces such as temperature and wind, and have significant negative impacts on overall air quality in the Central Valley. In fact, air quality problems are significantly contributing to rising rates of asthma in the Central Valley, which is one of the most urgent health issues currently facing California's Latino community.[11] When faced with a situation in which 80–95% of a serious public health threat cannot be controlled, the best solution is to phase out that threat.

Aerial, shank, and sprinkler application methods require over-application of pesticides. The pesticides that don't land on crops have significant human health and ecosystem effects. After volatile pesticides are sprayed, they evaporate over the course of hours or days. When aerial pesticides are sprayed, dusts, droplets and vapors circulate widely. How far they travel is subject to weather patterns. The United States Geological Survey and Department of Agriculture reported in December of 2000 that 86% of frogs in Lake Tahoe and over half of frogs in Yosemite were found to have chlorpyrifos and diazinon, two volatile pesticides, in their blood while only 9% of frogs in the Coast Range, in the opposite direction of wind patterns, were found to have the same contaminants in their blood.[12] Moreover, children living within 200 feet of apple orchards were found to have four times as much pesticides in their urine as children living more than 200 feet from fields, likely because of pesticide drift.[13]

Half (51%) of all reported agricultural pesticide poisonings of farmworkers were caused by drift between 1998 and 2000.[14] Of 222 worker injuries reported as a result of soil applications of pesticides, 195, or 97% were attributed to fumigants. Forty-two percent of reported drift poisonings were found to result from entirely legal operations in California between 1998 and 2000.[15] Several of the largest pesticide poisonings in the last four years have involved fumigants.[16]

Now is the time to act to prevent further drift-related poisonings being caused by this set of pesticides, currently widely used in California.

Finally, it is important to note that background pesticide levels due to drift contribute to significant amounts of air pollution. Pesticide active ingredients applied in California account for more than four times the entire Toxic Release Inventory of other chemicals in the state.[17] Pesticides significantly degrade air quality in heavy agricultural regions of the state, such as the Central Valley. Notorious for having terribly air quality, the Central Valley must deal with the additional effects of airborne pesticides that only worsen air quality in such areas.

Recommendation #3:

Shift the burden of pesticide violations away from impacted communities by increasing pesticide violations fines and using them to create a revolving fund for victims of pesticide poisonings.

Pesticides fines should be managed so that the fine amounts are adequate to cover the costs of emergency response to pesticide exposures. To shift the burden of pesticide safety, fines levied on application violations must be big enough to cover the costs of pesticide emergencies, from county response to individual care. Most fines are levied by the Department of Pesticide Regulation and do not directly reimburse individual families or counties the costs of responding to pesticide emergencies.[18] The few cases in which there were alternative outside settlements show that fines returned to counties and community members can be a significant aid.

The immediate effects of pesticide emergencies are born by those least able to pay. Sixty-one percent of farmworker families live below the poverty line, and only one third have access to health insurance.[19] In

Lamont, on October 3 and 4, 2003, many affected residents were low-income Latinos, who were unable to afford healthcare.[20] In addition to posing hardships to individual families, pesticide drift incidents significantly increase costs to county emergency response agencies.

On July 8, 2002, drift from a fumigant application of metam sodium led to the filing of 250 illness reports with the Department of Pesticide Regulation (DPR). In an out of court settlement, Western Farm Service, the pesticide applicator, paid a fine of $50,000 to the Department of Pesticide Regulation (that will be used to support general activities) and reimbursed the Kern County Agricultural Commissioner $10,000 for the costs of investigating the incident.[21] Though the fine is a significant gesture, there is no provision for reimbursing affected residents in the settlement.

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Higher Fines Alleviate Burdens to Communities

On November 13, 1999, metam sodium breakdown vapors drifted into Earlimart, a small town in Tulare County. One hundred fifty residents were evacuated and 24 were hospitalized. Many did not evacuate or did not receive treatment, and the community suffers ongoing health effects from the incident. The community and the United Farm Workers union together pushed the Department of Pesticide Regulation to fine Wilbur Ellis, the pesticide application company $75,000, and place another $75,000 into two trust funds to pay victims' medical bills. Emergency medical bills were paid after five months, and ongoing care costs were paid to 28 victims after fourteen months (CPR, *Fields of Poison 2002,* p. 12). Teresa DeAnda, the community activist who spearheaded the fight for adequate fines in response to the poisoning, wrote in a newsletter one year later, "Some believe this $150,000 is a slap on the wrist to a company with profits in excess of $100 million a year, and whose net worth is over $2 billion. Nonetheless, we are extremely glad the Tulare County Agriculture Commissioner saw fit to allow the California Department of Pesticide Regulation handle the investigation and issue the fine."

Source: Teresa DeAnda, "Our Community/Nuestra Comunidad," November–December 2000.

In July 1999, 25 workers in Kings County were exposed to chlorpyrifos from an adjacent cotton field that had been sprayed by a plane and drifted into the field where they were working and into a van several of the workers came to work in. The Kings County Agricultural commissioner fined the labor contractor $700 for each of the nine workers who were not taken to a doctor and $450 for not training workers or posting a pesticide safety notice. Though the fines might have been significant in comparison to the medical costs associated with treatment of the workers, none of the fine money was returned to the victims of the poisonings to ease the burden of illness.

Placing adequate fines into a revolving fund is a necessary step in shifting the burden of pesticide poisonings.

Recommendation #4:

Account for the total costs of pesticide use and regulation by increasing the mill fee periodically, and restoring the duty of pesticide risk assessment to the Office of Environmental Health Hazard Assessment.

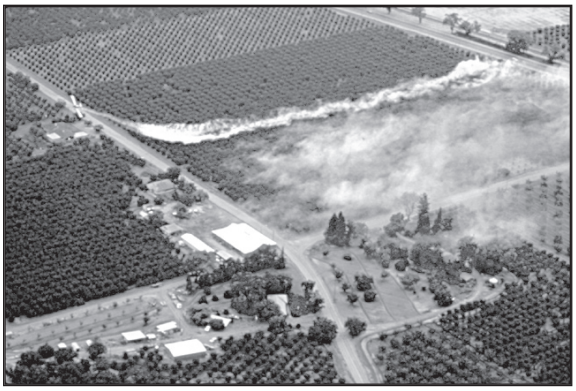
The true costs of pesticide use must be factored into decisions about whether or not to use pesticides. Currently, risk assessment is the established method for analyzing and evaluating the health risks associated with pesticides and other chemicals. Although far from perfect, pesticide risk assessments provide policy-makers with the basis for regulating pesticides. Pesticide manufacturers, distributors, and applicators must be responsible for the true costs of pesticide use, including independent review to test products for safety, better county emergency response plans, and physician training on pesticides. Therefore, it is critical to increase the mill fee every few years to account for the total costs of pesticide use and to ensure that pesticide risk assessments are adequately funded. The Office of Environmental Health Hazard Assessment (OEHHA) historically has done an excellent job of independent review of pesticides, and should be the home of the risk assessment process within a good regulatory framework.

It is important for risk assessments to be conducted in an unbiased, objective manner. The Department of Pesticide Regulation (DPR) states that "…if manufacturers cannot demonstrate that their products can be used safely to protect workers, consumers and their children, and others who may be exposed to pesticides, [it] will not allow the pesticide to be used in

California."[22] However, DPR depends on a projected $9 million in revenue from the registration of pesticides (official approval of chemicals for use in California), each year.[23] The Department of Pesticide Regulation has very little risk assessment capability of its own and instead depends on industry's toxicology studies to make determinations as to whether a pesticide is safe. The many accidents and exposures that have resulted from our current regulatory scheme raise very serious questions about the objectivity of the toxicity data. In addition, completion of risk assessments is severely backlogged,[24] and DPR's risk assessments have been criticized by the Toxic Air Contaminant Act's Scientific Review Panel[25] and a subcommittee of the National Research Council[26] for deficiencies in exposure assessments.

The Office of Environmental Health Hazard Assessment has demonstrated that it can produce scientific data on pesticides that is not motivated by economic interests. As part of the risk assessment process, the Office of Environmental Health Hazard Assessment should also continually review the true costs of pesticide use.

As stated by the California Medical Association, the ultimate goal of pesticide policy should be to prevent pesticide exposure through better research and pre-emptive safety measures, rather than control its effects.[27] We urge policymakers to move towards the practice of analyzing the various ways to *avoid* pesticide exposure in the first place. In the meantime, the mill fee must be large enough to account for the true costs of current levels of pesticide use.



Aerial pesticide applications frequently result in drift of spray droplets onto neighboring streets and property.

The Need for Better-Trained Doctors and County Response

In the recent poisonings of the community of Lamont, community members reported that 911 services were slow to respond, there were language barriers, and the response team, firefighters, were unprepared to deal with an environmental health emergency—they were not properly trained to understand the gravity of the emergencies, in which over 140 people were acutely poisoned. An extensive study of 47 farmworker women in the Central Valley found that 41 of the 47 reported experiencing an acute poisoning incident on the job, and 26 received medical attention. Of the 26 women treated, only eight were asked for the name of the pesticide to which they were exposed, and only four cases were reported to County Agricultural Commissioners to be officially recorded as poisoning incidents. One of the costs of pesticide use is developing more effective medical response to the public health crisis of pesticide drift.

Source: Bakersfield Californian, *Two Lamont pesticide drifts uncover need for better response training,* 9 November 2003; and PANNA, Lideres Campesinas, *Farmworker Women and Pesticides in California's Central Valley.*

Conclusion

Our policy recommendations were developed in consultation with family farmers, farmworkers, environmental health and pesticide advocates, and other experts who suggested that the best approach to pesticide policy was to prevent the incidence of pesticide illness through the phaseout of the most dangerous chemicals and application methods. They agreed that such a phaseout process must be informed by community stakeholders, and that during the phaseout process, we need to shift the burdens of pesticide use away from farmworker families and public health agencies to pesticide applicators through fees and fines that account for the true costs of pesticide use.

In summary, our first two recommendations are measures to prevent future harm when we have evidence that significant harm does result from the application of drift-prone pesticides:

Recommendation #1:

a. The state should establish a clear timeline for the phaseout of six drift-prone highly toxic pesticides: methyl bromide, MITC (several pesticides generate MITC), Telone, diazinon, chlorpyrifos, molinate; and

b. A panel of independent experts and community representatives, including farmworker representatives, should be convened to recommend less-toxic alternatives to the six pesticides being phased out.

Recommendation #2:

Prevent drift poisonings and the harmful effects of over-applying pesticides by prohibiting aerial, shank, sprinkler, and airblast applications of pesticides, methods that are especially drift-prone.

Our second two recommendations call for a shift of the burden of pesticide use:

Recommendation #3:

Shift the burden of pesticide violations away from impacted communities by increasing pesticide violations fines and using them to create a revolving fund for victims of pesticide poisonings.

Recommendation #4:

Account for the total costs of pesticide use and regulation by increasing the mill fee regularly, and restoring the duty of pesticide risk assessment to the Office of Environmental Health Hazard Assessment.

Notes

1 Hsu, Eric, Residents at risk: Two Lamont pesticide drifts uncover the need for better response training. 9 November 2003, *The Bakersfield Californian.*

2 PAN, Drift Occurs During and After Pesticide Applications, www.panna.org/resources/gpc.

3 PAN, *Secondhand Pesticides: Airborne Pesticide Drift in California*, 2003. Pg. 8. Between 1998 and 2000, there were approximately 1899 reported pesticide poisonings related to agricultural use. Of these, 681, or 50.6%, were drift cases. PAN, CRLAF, UFW, *Fields of Poison 2002: California Farmworkers and Pesticides.* 2002. Pg. 17, 29.

4 PAN, CRLAF, UFW, *Fields of Poison 2002: California Farmworkers and Pesticides.* 2002.

5 From 1992 to 2001, the California Illness Surveillance Program (CISP) logged 4,296 cases of pesticide illness that were determined to be "definitely, probably, or possibly related" to pesticide drift exposure. This number does not include pesticide drift exposure incidents that are not reported to the Department of Pesticide Regulation (DPR), which oversees the CISP. Source: Ca. Department of Pesticide Regulation, Worker Health and Safety Branch.

6 LIF, Promoting Quality, Equity, and Latino Leadership in California Water Policy, 2003. Pg. 25-26.

7 PAN, *Hooked on Poison: Pesticide Use in California, 1991-1998.* Pg. 7.

8 DPR, *Regulating Pesticides: Who, Why, and How?*, www.cdpr.ca.gov.

9 Ibid.

10 PAN, *Secondhand Pesticides: Airborne Pesticide Drift in California,* 2003.

11 LIF, *Taking Action: Confronting the Health, Social and Environmental Factors Associated with Asthma in the Latino Community*, January 2001.

12 EWG, *Every Breath You Take: Airborne Pesticides in the San Joaquin Valley*, 2001.

13 PANNA, CRLAF, PEC, *Second-Hand Pesticides,* 2003.

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15 PAN, CRLAF, UFW, *Fields of Poison 2002: California Farmworkers and Pesticides.* 2002.

16 PAN, CRLAF, UFW, *Fields of Poison 2002: California Farmworkers and Pesticides.* 2002, Pg. 11-12.

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19 PAN, CRLAF, UFW, *Fields of Poison 2002: California Farmworkers and Pesticides.* 2002.

20 Hsu, Eric, Residents at risk: Two Lamont pesticide drifts uncover the need for better response training. 9 November 2003, *The Fresno Bee.* Lamont's population is over 88% Latino, with the median household income at $25,578. Source: Census 2000.

21 Hunn, David, Pesticide drift yields sanctions. *The Bakersfield Californian* 5 January 2004.

22 DPR, *Regulating Pesticides: Who, Why, and How?*, www.cdpr.ca.gov.

23 DPR, *About Increased Pesticide Regulatory Fees*, http://www.cdpr.ca.gov/docs/budgets/novemberfees.pdf, February 2004.

24 DPR. Active Ingredients in High-Priority Grouping; Risk Assessments Not Yet Initiated (as of January 2004), available at http://www.cdpr.ca.gov/docs/risk/highpri.pdf. This list includes 43 pesticides.

25 January 12, 2001 Scientific Review Panel meeting transcript, available at http://arbis.arb.ca/gov/srp/SRP.HTM.

26 Methyl Bromide Risk Characterization in California (2000). Commission on Life Sciences of National Research Council. Report of Subcommittee for Review of Risk Assessment of Methyl Bromide, available at http://www.nap.edu/books/0309070872/html/.

27 *California Medical Association Resolution 114-00, Agricultural Pesticide Drift*. www.sfbaypsr.org/work_cma5.html, February 2004.