



BEYOND PESTICIDES

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April 30, 2014

Office of Pesticide Programs (OPP)
Regulatory Public Docket (7502P),
Environmental Protection Agency,
1200 Pennsylvania Ave., NW.,
Washington, DC 20460-0001

Re: Consideration of Spray Drift in Pesticide Risk Assessment.

Docket Number: EPA-HQ-OPP-2013-0676

Dear Sir/Madam,

We thank the U.S. Environmental Protection Agency (EPA) for the opportunity to comment on its draft guidance documents regarding pesticide spray drift. We commend the agency on its diligence on working on this very important and sensitive matter. As EPA is aware, pesticide drift affects thousands of individuals, and non-target sites and organisms are directly affected by adjacent or surrounding agricultural fields where pesticide use totals millions of pounds annually. Pesticides used on lawns, golf courses, ornamentals, and trees also drift onto neighboring properties. Both scenarios result in chemical trespass causing involuntary exposures, as well as environmental and economic harm.

Thus far current pesticide label statements have proven inadequate to sufficiently mitigate pesticide drift. In fact, given the widespread use of pesticides and the highly volatile nature of many, pesticide drift is an inevitable consequence of pesticide use. The agency's draft guidance on the evaluation of drift for ecological and human health risk assessments is a good first step to understanding and addressing pesticide drift. The models employed in this endeavor, AgDRIFT and AGDISP can be useful supplemental tools the agency can use to help inform the human and ecological impact of pesticide use. Both are used to help predict spray drift. However, like all computer-based models, AgDRIFT and AGDISP do have several limitations, and should not substitute the generation and analysis of biomonitoring and field data.

As the agency notes, many different factors influence spray drift. To properly assess drift, information on pesticide usage (application rate, frequency, application equipment, etc) needs to be known. This requires the agency collecting and analyzing pesticide use data, which as of late, EPA has not been effectively able to do (or has not shared with the public). Also important is the need for peer-reviewed and scientifically sound human and ecological toxicological endpoints to properly assess exposures and

risk. These must now include low-dose and sublethal exposures and toxicity, especially when it comes to the use and evaluation of systemic pesticides. These are the foundations for successfully understanding and determining pesticide spray drift and the mitigation of risk.

In that regard, we wish to highlight some issues that we believe the agency should take a closer look at before it finalizes its guidance documents, including increased buffer capacity, addressing impacts to organic systems and improving compliance and enforcement. These comments address both the *Guidance on Modeling Offsite Deposition of Pesticides Via Spray Drift for Ecological and Drinking Water Assessments* and the *Residential Exposure Assessment Standard Operating Procedures. Agenda 1: Consideration of Spray Drift:*

Drift Inhalation Exposures: The agency assumes that inhalation can only occur following direct exposure- a scenario that would constitute a violation of the pesticide label. However, post application drift plumes do travel and can be inhaled by individuals within and even outside the buffer area, as well as within their homes. These result in indirect inhalation exposures that have not been accounted for by EPA. Many impacted individuals have complained to our office of smelling lingering noxious odors hours- days after pesticide application that results in headaches, nausea and other acute symptoms. We believe the agency has overlooked how significant and lasting inhalation exposures can be, and must amend its assessment to include indirect post-application inhalation exposures via drift.

Buffer Zones: In the Residential Exposure Assessment, it seems that for EPA's methodology, buffer zone distances vary with a maximum distance of 300 ft from the treated field. In the Ecological and Drinking Water Assessment, the agency indicates that the maximum buffer distance under AgDRIFT is 997 ft for tier I analysis and 2608 ft for tiers II and II. It is unclear if these are in fact the maximum buffer distances EPA can consider for assessing and mitigating pesticide drift. This highlights one major limitation of the AgDRIFT modeling scheme whereby the model can only analyze fixed buffer distances. Table 3. (pp16) of the Ecological and Drinking Water assessment document provides an example of spray drift distances calculated for terrestrial animals, based on current levels of concerns, where EPA acknowledges spray drift may occur at greater than 997 ft. However, it is not clear whether this distance can be quantified with AgDRIFT or other methods or data. Subsequent tables in appendix A and B also show that drift cannot be estimated beyond the model's preprogrammed distance.

Depending on local environmental conditions and application method, drift has been observed to move far greater distances than 997 or 2608 ft (~0.5 mile). Reports documenting drift have observed pesticide residues beyond 300 ft,¹² with some seen at 4 miles.³ Further, the agency notes that it "does not currently have an approved tool to model the impact of various buffer distances..."⁴ Even though the validation of AgDRIFT was aided by many field studies, EPA should not disregard the importance of field data, in lieu of models, to help inform the movement of pesticide residues offsite. While the models can

¹ Kegley, S, Katten, A, Moses, M. 2003. Secondhand Pesticides: Airborne Pesticide Drift in California. Californians for Pesticide Reform.

² Cox, C. Pesticide Drift: Indiscriminately from the skies. *J. Pesticide Reform* 15(1).

³ Murray, J.A. and L.M. Vaughan. 1970. Measuring pesticide drift at distances to four miles. *J. Appl. Meteorol.* 9:79-85.

⁴ USEPA. 2013. *Guidance on Modeling Offsite Deposition of Pesticides Via Spray Drift for Ecological and Drinking Water Assessments.* Pp 10. Office of Pesticide Programs. Washington DC.

estimate potential impact of spray drift at preprogrammed distances, the agency must keep in mind that drift can and does move beyond 2608ft.

Climatic/Topographical Variables: The agency understands that drift can be impacted by local climate conditions (temperature, humidity), as well as local geography. Climate conditions across the U.S. vary widely; for instance, conditions in the Northwest are markedly different than those in the Southwest. EPA indicates that tier II of AgDRIFT allows the user to modify certain geographic and climate variables, but it is unclear how EPA would make a determination on one product's drift potential with such varying and dynamic on-the-ground conditions that can vary diurnally and seasonally. Would pesticide drift (consider a highly soluble substance) differ if moving across a dry surface versus a moist surface (wet vegetation after a rainy day)? Is the agency also considering temperature inversions that often occur in certain locations? How would label statements present such information? AgDRIFT is limited in its ability to account for such differences on the local scale.

Negligible Drift: EPA cannot assume that spray drift is 'negligible' because there is no method to quantify drift from applications like hand held or back pack sprayers, or for granule applications, as stated in the Residential assessment. The absence of data does not constitute an absence of hazard. EPA should instead determine a method to quantify drift from these applications, or remove these uses from registration as their safety cannot be determined under federal statute. Additionally, granule and other solid-state application of pesticide can and do volatilize. Even though these two documents under discussion do not address volatilization (methods have been reviewed in past documents), the agency must soon explain how it will integrate volatilization drift into the overall assessment process.

Special Consideration for Pollinators: Given the public concern over the plight of the nation's insect pollinators, considering recent bee losses, as well as the agency's stated commitment to pollinator protection, the ecological assessment of pesticide drift must give special consideration to assessing how drift impacts pollinators. The use of pesticides, especially those systemic in nature, has been shown to adversely impact bee populations. Contaminated dust resulting from pesticide application and seed sowing not only drift, but residues from drift can remain in the environment for long periods of time. One study found pesticide drift residues on dandelions – a bee attractive plant- adjacent to a treated field.⁵ Evaluating drift's impact on pollinators is also important given that many buffer zone areas that encounter drift may also contain bee-attractive plant species. The agency, as part of its ongoing work and collaboration on pollinator protection efforts, must therefore include in its guidance a special focus on pesticide drift and pollinators.

Lack of Concern for Organic Systems: The agency has included terrestrial plants in its modeling process but has overlooked sensitive and vulnerable crops cultivated under organic conditions. Organic farms are at high risk from pesticide drift, as National Organic Standards only allow up to 5 percent of

⁵ Krupke CH, Hunt GJ, Eitzer BD, Andino G, Given K. 2012. Multiple Routes of Pesticide Exposure for Honey Bees Living Near Agricultural Fields. *PLoS ONE* 7(1): e29268. doi:10.1371/journal.pone.0029268.

prohibited synthetic pesticide residues on organic crops.⁶ Drift encroaching on organic farms can contaminate soil and organic crops that result in farmers being in violation of organic standards and certification, which can take years to rectify. This, of course, causes severe economic hardship on organic farmers.

The prevalence of genetically engineered (GE) crops that allow farmers to indiscriminately apply pesticides that can drift, as well as the impending deregulation of GE crops tolerant to 2,4-D, a herbicide with known problems with drift and damage to sensitive crops,^{7,8} already ensures that organic farms and other specialty crops are at high risk from drift injury.

EPA, in collaboration with the U.S. Department of Agriculture (USDA) which oversees the National Organic Program, should institute and enforce standards adequately protecting organic farms from pesticide drift of applications on adjacent property and should incorporate such standards into the current guidance, or publish separate draft guidance analyzing the impact of spray drift on organic farms.

Currently, the burden falls on organic farmers to establish buffer zones and best management practices to protect their land from exposure to drifting pesticide application from neighboring conventional farms. However, the institution of buffer zones to reduce spray drift should also be the responsibility of conventional farmers, not only to protect vulnerable waterways, but also organic crops.

Farmworker Communities Overlooked: In the residential assessment, no mention was made of farmworker communities that tend to live adjacent to target fields, and within the buffer zones of many agricultural fields. These communities tend to face disproportionate risks from pesticide exposures, especially those resulting from drift. While occupational assessments address worker exposures, they do not address exposures occurring in and outside the home of these worker communities, which also house vulnerable children. Farmworker studies routinely show high exposure risks and disease from pesticide drift in these communities.^{9,10,11} EPA must consider the impact of pesticide drift on this vulnerable population in its guidance.

Pesticide Labels, Notification and Enforcement: While these guidance documents address EPA's methodology for evaluating spray drift, it is still important to again bring to the agency's attention the importance of clear, enforceable pesticide drift label language. As the agency is aware, there are challenges with label compliance and subsequent enforcement. The scenarios utilized by EPA to assess drift in these models are based on label directions and an assumed compliance. However, in the real

⁶ 7 CFR 205.671

⁷ Hales, R. 2010. Herbicide Injury a Problem on Plants. Colorado State University Cooperative Extension.

⁸ Ball, D.A, Parker, R, et al. 2004. Preventing Herbicide Drift and Injury to Grapes. Oregon State University Extension Service

⁹ Das R, Steege A, Baron S, et al. 2001. Pesticide-related illness among migrant farm workers in the United States. *Int J Occup Environ Health*. 7(4):303-12.

¹⁰ Reeves M, Schafer KS. 2003. Greater risks, fewer rights: U.S. farmworkers and pesticides. *Int J Occup Environ Health*. 9(1):30-9.

¹¹ CDC. 2006. Worker illness related to ground application of pesticide--Kern County, California, 2005. *MMWR Morb Mortal Wkly Rep*. 55(17):486-8.

world, non-compliance is very common, yet can be difficult to ascertain once human and environmental damage occurs. In order to help mitigate human exposures, notification requirements must be standardized on labels for all pesticide applications. Public disclosure of pesticides being used, applied, and their potential human and environmental effects must be made available. EPA must coordinate with state authorities to ensure such information is available to the public, especially those living in rural, agricultural areas. Similarly, EPA must do a better job ensuring state officials are trained and diligent in investigating non-compliance and adverse incidents. Without these provisions from the agency, local governments have found it necessary to regulate pesticides at the local level in a way that protects their residents and the surrounding environment. For instance, in response to outcries from local residents on the impact of pesticide drift from nearby agricultural fields, the county of Kauai, Hawaii implemented a buffer zone ordinance that banned the planting of pesticide-dependent crops all together. Other counties in Hawaii are now considering similar legislation, which reveals the widespread shortcoming of EPA to craft and enforce rules that address on-the-ground pesticide spray drift concerns in agricultural areas. Thus, along with improved efforts to assess pesticide drift, notification, improved labels and enforcement must all be integrated into the process of eliminating drift.

Regulating Drift: Since EPA has been tasked with regulating pesticides, it must therefore, also regulate pesticide drift. The agency recognizes that pesticide drift is a serious issue that must be addressed; however since pesticide drift is an inevitable problem in pesticide application, there will be shortcomings when it comes to protecting people and non-target organisms from pesticide drift. The *Federal Insecticide Fungicide and Rodenticide Act (FIFRA)* utilizes an “unreasonable adverse effects” standard. The agency can register a pesticide only if there is reasonable certainty of no adverse effect. A pesticide that causes adverse effect or harm by nature of its use is therefore in violation of FIFRA. Pesticide products that drift, leading to adverse effect in humans and the environment where drift cannot be successfully mitigated are in violation of FIFRA and their registrations must be revoked.

Finally, we would like to again commend the agency for recognizing that pesticide drift is a serious concern for human and environmental health, and that special consideration must be made for its assessment and mitigation. Pesticide drift can cause serious damage to non-target sites, people and wildlife. The use of AgDRIFT, which has been widely accepted as a valued tool for addressing drift, can be integrated into the assessment process as a supplemental tool for risk mitigation; it cannot be used to replace biomonitoring or epidemiological data. However, the agency must simultaneously improve product label statements and enforcement capabilities as without these pesticide drift in the real world will continue to occur and impact sensitive areas and populations. Special consideration must be taken for organic systems, farmworker communities and pollinators- all groups that are severely impacted by drift. Additionally, while EPA notes that these documents would not address drift from volatilization, the agency must integrate volatilization drift into future chemical review. Lastly, the agency must realize that flaws in its risk assessment process habitually continue to allow products that pose “unreasonable adverse effects” to “drift” into the environment. In this regard, we continue to urge the agency to ensure that it has eliminated data gaps, and has received and reviewed all relevant human and ecological toxicological data, including independent peer-reviewed data, before allowing pesticides onto

the market. In the end, pesticide drift entering the environment that harms human and environmental health must be considered unlawful and should not be allowed into the environment.

Sincerely,

A handwritten signature in black ink, appearing to read "Nichelle Harriott". The signature is written in a cursive style with a horizontal line extending to the right from the end of the name.

Nichelle Harriott
Staff Scientist
Beyond Pesticides