

To: Michael Wood, Administrator, Oregon OSHA  
From: Northwest Forest Worker Center, Beyond Toxics, PCUN-Pineros y Campesinos Unidos del Noroeste and NOWIA Unete-Center for Farm Worker Advocacy  
Date: 3/14/2018

## **Testimony on Division 4/W – WPS, OAR 437-004-6405/6406**

The Northwest Forest Worker Center, Beyond Toxics, PCUN-Pineros y Campesinos Unidos del Noroeste and NOWIA Unete-Center for Farm Worker Advocacy are pleased to offer the following comments on OR OSHA's proposed Worker Protection Standard. Taken together, our organizations represent as many as 12,000 stakeholders and interested parties.

**The Northwest Forest Worker Center** is a non-profit organization founded in Oregon in 1997 and currently with offices in Medford, OR, and Albany, CA. In pursuing its mission of promoting forest stewardship that is respectful of all workers, harvesters and the land, NFWC trains forest workers in preventing job-related injuries and illnesses (including pesticide poisoning) and educates workers, policy makers, government officials and the public about forest worker and harvester issues.

**Beyond Toxics** is a statewide non-profit chartered in the State of Oregon formed in 2000 working to protect and enhance human and environmental health. We use environmental justice engagement and community-based environmental grassroots organizing to ensure environmental protection and health for all communities. With offices in both Lane and Jackson counties and with over four thousand members, we empower communities to enact lasting solutions to environmental health threats.

Based in Woodburn, Oregon, the center of Oregon's agricultural industry, **PCUN-Pineros y Campesinos Unidos del Noroeste** (Northwest Treeplanters and Farmworkers United), is Oregon's farmworkers union and largest Latino organization in the state. Founded in 1985 by 80 farmworkers, PCUN has since registered more than 6,000 members, 98% of which are Mexican and Central American immigrants to work on a wide variety of organizing projects.

**NOWIA Unete, Center for Farm Worker Advocacy** is a movement of farm workers and immigrants that strives to empower and enrich the lives of both groups through education, cultural presentations, advocacy, representation in issues that affect their lives. UNETE, based in the Rogue Valley of Southern Oregon, works for farm worker representation in legislative actions such as worker protections from pesticides, minimum wage requirements and the right to file grievances related to labor violations.

### **Introduction**

Oregon OSHA is proposing to adopt OAR 437-004-6405/6406, an update to Oregon Administrative Rules (OARs) for specific requirements for employers in Oregon. As part of the adoption of rules, Oregon OSHA is required to accept public comments into the record and to give serious consideration to public comment as part of their final adoption of the rule. In a democracy, public comment is the bedrock of public participation and government policy. No

rule is a *fait accompli*, a foregone conclusion decided before affected stakeholders and interested parties have the opportunity to give meaningful input to influence the final process, not merely accept a pre-decided edict. The proposed rule is just that, a proposal, and remains subject to modification in order to reflect the needs of the most impacted stakeholders. In this case the people most impacted by this rule are those whose health and wellbeing depend on strong worker protection laws.

### **Historical Context**

In 1986, the United Farm Workers shared a documentary, [The Wrath of Grapes](#), chronicling the impact of pesticide exposure on farm workers. We submit this documentary into the public record as evidence for OR-OSHA's proposed adoption of OAR 437-004-6405/6406. We ask the Director and staff of OR-OSHA to view this 32-year old documentary as part of their deliberations. Please consider that farm workers have been demanding protections from pesticide drift and residues for decades. The stories farm workers have brought to the current OR-OSHA public hearings, both oral testimony in Woodburn and Medford and written testimony, are no different than the problems documented in [The Wrath of Grapes](#).

Annually, approximately 1,810 to 2,950 preventable pesticide exposure incidents occur on agricultural establishments as compared to 10,000 to 20,000 before the initial WPS implementation.<sup>1</sup> Despite the increased safety in agricultural pesticide use, occupational health incident data show that preventable pesticide illnesses continue to occur.<sup>2</sup> Nearly two million agricultural workers are potentially exposed to pesticides.<sup>3</sup> Health effects of pesticide exposure include acute symptoms, ranging from mild skin irritation to seizures, and chronic effects, such as cancer, neurological problems, and respiratory illness.<sup>4</sup> Pesticide exposures have caused death.<sup>5</sup> Workers may be exposed to pesticides via contact with treated plants, surface residue, air, or water.<sup>6</sup> Additionally, spray drift and take-home exposure can negatively impact family members, including children and others,<sup>7</sup> even with low-level exposure over a period of time.<sup>8</sup>

OR-OSHA has the responsibility, and the opportunity, to adopt rules that would minimize pesticide drift and residues in labor housing, where farm workers and their families live, sleep, eat and play. The proposal for an Application Exclusion Zone (AEZ) making it legal to have "occupants of an enclosed agricultural structure within the AEZ" have to shelter in place or be forced to evacuate for 15 minutes is not protective enough. Farm workers and their families need a true no-spray barrier that creates a safe distance between living areas and pesticide sprays. The Endangered Species Act and the Clean Water Act require significantly large pesticide buffers (60-300ft.) to protect natural resources. Farm workers don't benefit from the ESA or the CWA; they must look to the Worker Protection Standard as the only regulation protecting farm workers.

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<sup>1</sup> Agricultural Worker Protection Standard Revisions Final Rule, 80 Fed. Reg. (Nov. 2, 2015) *supra* note 1, at 67502 [hereinafter NFRM].

<sup>2</sup> NFRM, *supra* note 1, at 67502.

<sup>3</sup> Economic Analysis, *supra* note 2, at 8.

<sup>4</sup> Economic Analysis, *supra* note 2, at 3-4.

<sup>5</sup> Economic Analysis, *supra* note 2, at 122.

<sup>6</sup> Economic Analysis, *supra* note 2, at 2.

<sup>7</sup> NFRM, *supra* note 1, at 67502.

<sup>8</sup> Economic Analysis, *supra* note 2, at 4.

Farm workers are valuable employees deserving humane treatment, safe working conditions and respect. Their living spaces must be protected. This is the most effective and efficient means to achieve OR-OSHA's stated goal of "preventing contamination of employee housing."

Farm workers should, at a minimum, be given protections already supplied by Oregon law which establishes an aerial spray buffer zone adjacent to dwellings and schools. *See* ORS 527.672. The proposed WPS rules undermine existing statutory protections for aerial sprays (similarly airblast sprays) in the case of farm worker housing. OR-OSHA must not sanction and create conditions of unequal and unjust treatment for vulnerable populations.

### **High Risk of Exposure to Pesticides from Drift**

Drift of pesticides to off-target sites is a significant problem in farm and forest applications. Research suggests that drift is the most common cause of exposure to pesticides by agricultural workers, and pesticides drift 300 feet or more from application sites.

A study led by the Centers for Disease Control's Division of Surveillance, Hazard Evaluations and Field Studies found drift to be the principal cause of pesticide exposure in the cases examined. The investigators evaluated data on acute pesticide injuries from 1998 to 2005 from NIOSH's Sentinel Event Notification System for Occupational Risks-Pesticides (SENSOR-Pesticides) and the California Department of Pesticide Regulation's surveillance program. In the ten states (including California) that participated in the SENSOR-Pesticides program during the time period under study there were 1,942 separate pesticide exposure events. The greatest contributing factor to exposure events was off-target drift which accounted for 63% of the cases. The second most common factors were early reentry into treated fields and use in conflict with label instructions which each accounted for 17% of the cases. The study also found that farmworkers had an incidence rate of exposure to pesticides that was 39 times higher than the incidence rate for workers in all other industries combined.<sup>9</sup>

Another study examined acute pesticide illnesses associated with pesticide drift in 11 states from 1998 to 2006. Of the 2,945 cases identified, 47% were workplace exposures, and 63.4% of those exposures occurred at distances greater than 300 feet from the application site. The study included data collected from the state of Oregon. Pesticide drift accounted for 37-68% of pesticide related illness among U.S agricultural workers. Pesticide drift included pesticide spray, mist, fumes, contaminated dust, volatiles and odors that moved away from the application site during or after the application.<sup>10</sup>

More recent research at the University of Washington measured drift from tower sprayers and air blast sprayers treating fruit orchards and found pesticides drifted 170 feet from both types of sprayers. It is possible that the pesticides drifted even further, but the investigators only measured 170 feet from the application sites.<sup>11</sup>

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<sup>9</sup> Geoffrey M. Calvert et al., "Acute Pesticide Poisoning among Agricultural Workers in the United States, 1998-2005," *Am J Ind Med*, vol. 51, no. 12, 2008, pp. 883-98.

<sup>10</sup> Soo-Jeong Lee et al., "Acute pesticide illnesses associated with off-target pesticide drift from agricultural applications: 11 states, 1998-2006," *Environmental Health Perspectives*, vol. 119, no. 8, August, 2011, pages 1162-1169.

<sup>11</sup> Eddie Kasner, "Pesticide Technologies and Drift Reduction," Presentation at the Research Review of the Pacific Northwest Agricultural Safety and Health Center, October 23, 2017.

Data collected in 2014 by the California Department of Pesticide Regulations found that drift accounted for 487 incidents, or 39% of all reported pesticide exposure cases.<sup>12</sup> Oregon OSHA determined that sprays near farm labor housing could occur as much as 24 times in a season, March-August. If 39% of these resulted in pesticide drift, it is possible that workers could be harmed by drift as much as 9 times in a work season.

Drift may be “illegal according to the label” but it is not rare. While some may argue that pesticide drift is a rare occurrence, evidence suggests that currently available incidence rates are low because of underreporting.<sup>13</sup> Underreporting of workplace injuries and illnesses of all kinds is a well-documented problem. Estimates of underreporting range as high as several hundred percent.<sup>14</sup> Studies of workers filing worker’s compensation claims show that 50% to 75% of eligible workers do not file claims.<sup>15</sup> For acute pesticide related illnesses among farmworkers it is estimated that as many as 88% of those cases are not reported to public health authorities. This underreporting is due to the many barriers to reporting that workers, employers, medical providers and state agencies face. Workers fear retaliation for reporting work-related injuries and illnesses. If they are undocumented, they may fear deportation. If they are working on foreign temporary labor visas (H-2A or H-2B) they may fear not being asked to come back and work again. Employers may not report work-related injuries and illnesses suffered by their employees because they do not want their workers’ compensation premiums to rise or they do not want to invite the scrutiny of OSHA. Medical providers may not report pesticide related illnesses because of misdiagnosis (due to unfamiliarity with pesticide-related illnesses as well as poor communication with non-English speaking patients), overworked staff, or lack of understanding of reporting requirements. State agencies may face staff shortages and/or insufficient resources in their pesticide surveillance activities.<sup>16</sup> In addition, states accept, investigate and enforce pesticide drift complaints in many different ways, and their databases for recording complaints and enforcement action vary.<sup>17</sup>

Collectively, these studies indicate that 1) drift is the most common cause of occupational exposure to pesticides among farmworkers, 2) pesticides drift well over 170 feet from application sites, often twice that distance or more, and 3) pesticide drift occurs much more frequently than available data suggest.

We object that OSHA is proposing a compliance alternative known as a “shelter in place” option, whereby pesticides applications can occur closer to homes, bathrooms, kitchens and laundry areas than the 100 ft. Application Exclusion Zone. Sheltering in place does not address the risk of pesticide drift and residue impacting people living in labor housing. The most effective

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<sup>12</sup> “Summary of Illness/Injury Incidents Reported in California as Potentially Related to Pesticide Exposure, 2014.” Accessed on 2/24/2018 at [http://www.cdpr.ca.gov/docs/whs/pisp/2014/2014total\\_illness\\_county.pdf](http://www.cdpr.ca.gov/docs/whs/pisp/2014/2014total_illness_county.pdf)

<sup>13</sup> Geoffrey M. Calvert et al., “Acute Pesticide Poisoning among Agricultural Workers in the United States, 1998–2005,” *Am J Ind Med*, vol. 51, no. 12, 2008, pp. 883-98.

<sup>14</sup> <sup>11</sup> Lenore Azaroff, Charles Levenstein, and David Wegman, “Occupational Injury and Illness Surveillance: Conceptual Filters Explain Underreporting,” *American Journal of Public Health*, vol. 92, no. 9, 2002, pp. 1421-1429.

<sup>15</sup> K.D. Rosenman et al., “Why Most Workers With Occupational Repetitive Trauma do not File for Workers’ Compensation,” *Journal of Occupational & Environmental Medicine*, vol. 42, no. 1, 2000, pp. 25; Harry S. Shannon and Graham S. Lowe, “How Many Injured Workers Do Not File Claims for Workers’ Compensation Benefits?,” *Am J Ind Med*, vol. 42, 2002, pp. 467–473.

<sup>16</sup> Joanne Bonnar Prado et al., “Acute Pesticide-Related Illness Among Farmworkers: Barriers to Reporting to Public Health Authorities,” *Journal of Agromedicine*, vol. 22, no. 4, 2017, pp. 395-405.

<sup>17</sup> Association of American Pesticide Control Officers, “2005 Pesticide Drift Enforcement Survey Report.”

method of reducing drift incidents is to separate pesticide sprays from people by a meaningful distance. On March 13, 2018 twenty-eight US Senators sent a letter to the US EPA expressing a concern we share – that avoiding pesticide spraying close to workers and their families (bystanders) is “one of the most meaningful safeguard against pesticide exposures.”

*EPA does not account for workers or bystanders being sprayed with pesticides when it conducts risk assessments or registration decisions because it "assumes" that these exposures do not happen. Yet [by eliminating the AEZ] it is taking steps to undo one of the most meaningful safeguards against such exposures.<sup>18</sup>*

*--US Senator Tom Udall and 27 other Senators including Oregon's Senators Wyden and Merkley*

### **Drift Results in Human Health Risks**

Pesticide drift continues to account for acute and chronic illnesses in the farm worker population. In 2017, four high profile cases of California farm workers acutely sickened by drift exposure confirm the volatile chemical characteristics of pesticides. Ranging from fumigation to aerial sprays, nearly 100 workers were made ill.

- 5/5/2017: Thirty-seven workers sickened by fumes from chlorpyrifos and from sulfur. Five needed medical attention. Drift traveled over a half mile from spray site to where the workers were located.
- 6/22/2017: Six raspberries harvesters were sickened by drift from multiple pesticides and were taken to the hospital in Watsonville
- 6/29/2017: Eighteen celery pickers were hospitalized after exposure to pesticide drift.
- 8/2/2017: Thirteen workers were sickened and required decontamination from exposure to chlorpyrifos drift.

These cases illustrate that illness from drift exposure is a constant risk for farm workers, even more so when they both work and live in the fields or orchards.

The 2011 study published by NIOSH and the Centers for Disease Control found that agricultural workers and residents in agricultural regions had the highest rate of pesticide poisoning from drift exposure.<sup>19</sup> The study also found that the incidence of drift-related pesticide poisoning was higher among female and younger agricultural workers. Women accounted for 45% of the workers injured by pesticides in the study. It is likely that the majority of these women were of reproductive age (ages 18-45), hence they could be pregnant or nursing infants, which would increase the risk for prenatal or postnatal exposures. The authors of the study hypothesized that woman and younger workers could be more susceptible to pesticide toxicity, and thus more

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<sup>18</sup> Accessed 3/13/2018 at <https://www.tomudall.senate.gov/news/press-releases/28-senators-to-epa-dont-weaken-rules-protecting-workers-and-children-from-toxic-pesticides>

<sup>19</sup> Ibid., Soo Jeong Lee et al.,

likely to report illness or seek medical attention. Pesticide drift included pesticide spray, mist, fumes, contaminated dust, volatiles and odors that moved away from the application site during or after the application. Fumigants and chlorpyrifos accounted for the vast majority of illness cases. Eight-two percent of the fumigant drift cases occurred greater than .25 miles away from the application site, suggesting that “that the new buffer zone requirements (of 300 ft.), independent of other measures to increase safety, may not be sufficient to prevent drift exposure.”

The symptoms of acute incidents (nausea and vomiting, eye irritation, headache, rashes, etc.) are easier to recognize and verify than chronic health. OR-OSHA must protect farm workers against both types of harms. Examples of known chronic effects are cancers, birth defects, reproductive harm, neurological and developmental toxicity, immunotoxicity, and disruption of the endocrine system. *The Agency must not ignore the medical literature showing a strong correlation between chronic pesticide exposure and chronic diseases.* There is a vast collection of published studies concluding that pesticides can cause damage that may not manifest until later in life. Diseases such as cancer, diabetes, heart disease and asthma can impact not only the worker, but the family depending on that person’s income. These few selected studies highlight proof of chronic but debilitating diseases associated by pesticide exposure:

- A 2009 study in the journal *Blood* indicated that pesticide applicators using restricted use pesticides had an excess risk of **multiple myeloma**.<sup>20</sup>
- A study published in *Mutagenesis* in 2013, concluded that exposure to pesticides can trigger **genotoxic and mutagenic processes** through different pathways. The purpose of study was to assess the effects of human exposure to complex mixtures of pesticides. It was observed that DNA damage is significantly increased in exposed individuals compared to the unexposed group. DNA damage could be a consequence of the ability of the complex mixtures to cause oxidative damage. These data indicated that persistent genetic instability associated with DNA damage in agricultural workers after long-term exposure to a low-level to pesticide mixtures may be critical for the development of adverse health effects such as cancer.<sup>21</sup>
- In 2018, the *Journal of Environmental Health Preventative Medicine* reported that, in line with previous epidemiological and animal studies, the occurrence of diabetes among farmers was associated with pesticide exposure. This study confirms previous findings of the link between diabetes and some agricultural pesticides and sought to identify the particular pesticides most likely to pose a risk of diabetes in the community.<sup>22</sup>

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<sup>20</sup> Landgren, O., et al., “Pesticide exposure and risk of monoclonal gammopathy of undetermined significance in the Agricultural Health Study.” *Blood*, Vol. 11, no. 25, 2009.

<sup>21</sup> Benedetti, D., et al., “DNA damage and epigenetic alteration in soybean farmers exposed to complex mixture of pesticides.” *Mutagenesis*. Vol. 13, 2017.

<sup>22</sup> Juntarawijit, C. and Juntarawijit, Y., Association between diabetes and pesticides: a case-control study among Thai farmers. *Journal of Environmental Health Preventative Medicine*. Vol. 23, 2018.

Furthermore, the combined actions of pesticides also need to be addressed in the risk assessment process because mixtures of these substances may cause higher toxic effects than those from the single compounds. For example,

- A 2004 study in Toxicology and Applied Pharmacology determined that five common pesticides had an accumulating effect that was not observed for the individual pesticides. In combination, these pesticides suppressed androgen, a male hormone.<sup>23</sup>

These health impacts may be subtle and expressed over a long period of time, nevertheless OR-OSHA has the regulatory authority and responsibility to require extra precautions to protect workers from prolonged, low-level exposures. *Thus, OR-OSHA's proposal to allow conditions for workers to be "occupants of an enclosed agricultural structure (labor housing) within the AEZ" is unacceptable.* A no-spray buffer zones around labor housing is a critical component to minimizing chronic, low-level exposures for workers and their families.

### **Fiscal Analysis**

The tendency to monetize the cost of work safety leads to preventable pesticide exposure incidents via asymmetric information-sharing and externalities.<sup>24</sup> When information and workplace improvements are asymmetrically provided (due to costs rejected by employers), the people who most need knowledge and protections regarding pesticide exposure do not receive it, thus incurring risk; externalities result when the people making pesticide use decisions do not bear the negative effects of those decisions but pass those costs onto others.<sup>25</sup>

Evolving knowledge of pesticide risk and environmental justice points to a need for revised regulations,<sup>26</sup> which are most effective when they reflect current knowledge.<sup>27</sup> Agricultural workers endure negative fiscal impacts because they are especially vulnerable to pesticide risks due to factors such as language barriers, poverty, and lack of access to healthcare.<sup>28</sup>

We agree with OR-OSHA that significant benefits will be accrued from increased worker productivity, boosted morale, reduced absenteeism and worker compensation claims, and improved employer-worker trust from consistent and accurate communications about pesticide risks. However, there has not been sufficient analysis of the fiscal benefits gained by reducing the risk of pesticide drift and residue exposure. These may well offset the very minimal costs of increased worker training, building bulletin boards and posting notifications, giving verbal notification and providing totes.

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<sup>23</sup> Birkhoj M, et a., "The combined antiandrogenic effects of five commonly used pesticides." *Toxicol. Appl. Pharmacol.* 2004.

<sup>24</sup> Economic Analysis, *supra* note 2, at 5.

<sup>25</sup> Economic Analysis, *supra* note 2, at 6.

<sup>26</sup> Economic Analysis, *supra* note 2, at 6.

<sup>27</sup> Economic Analysis, *supra* note 2, at 6.

<sup>28</sup> NFRM, *supra* note 1, at 67502; Economic Analysis, *supra* note 2, at 6-7.

## **Oregon can do more: Protections for Farm Workers in OR-OSHA's Rules**

**Recommendation on the AEZ:** Our organizations hereby testify that the AEZ proposal by OR-OSHA, which allows “occupants of an enclosed agricultural structure within the AEZ” (otherwise known as “sheltering in place”) or evacuating 150 ft. from the source of the spray is not protective enough where it applies to labor camps and farm worker housing. We strongly urge Oregon OSHA to require a protective no-spray buffer zone around the perimeter of the agricultural labor complex. We recommend 300 ft., however at a minimum, the no-spray area around farm worker housing should be no less than 150 ft. to reduce the risk of inhalation of airborne vapors and dermal absorption and to reduce the deposition of pesticide residues on grass, play equipment, cooking areas, etc. The AEZ for workers in the field must be no less than 150 ft. and no shorter in duration than 15 minutes to reduce risk of inhalation of airborne vapors and dermal absorption from particles on plant surfaces. We recommend a no-spray buffer zone of 25 ft. for pesticide sprays not applied aurally or through an air blast sprayer and sprayed from a height of greater than 12 inches from the planting medium and when using a spray quality of medium or larger.

The proposed WPS rules must not undermine existing statutory protections (ORS 527.672) in the case of farm worker housing to avoid creating conditions of unequal and unjust treatment for vulnerable populations. A no-spray buffer will improve worker safety and, in part, achieve OR-OSHA's stated goal of “preventing contamination of employee housing.”

**Recommendation on Posting and Notification:** We support the requirement of postings and notifications when spray operations will take place. When farm workers know the time, place and active ingredients of a spray operation, they can better inform their families who live onsite to take reasonable precautions. OSHA must require postings and notifications including the name of the product applied, the date, the location and the amount applied. This helps farm workers make informed decisions about their safety. We also support a verbal warning. Requiring posting in concurrence with verbal notifications can guarantee that the information effectively reaches workers and their families. However, we recognize that by adopting a meaningful and effective no-spray buffer zone around labor housing areas, employers could use posted notifications and forego the costs of verbal notification.

**Recommendation for Covered Totes:** OSHA is proposing to have a closeable storage area for shoes/boots to prevent tracking of pesticides into the structures where people live or reside. We also agree and support this component of the rule because workers often bring pesticides into their homes in the form of residues on their tools, clothes shoes and skin, and inadvertently expose their families to pesticides. The provisions of a closable storage area can help increase awareness of the dangers of pesticides to farm workers and reduce the possibility of tracking residues indoors.



**Recommendation for Worker Trainings:** In order to strengthen aspects of the rule OSHA is proposing, notifications, postings and pesticide trainings should be offered in the language farm workers understand and use to communicate.

In closing, we recognize OSHA is providing some additional strengths in the Worker Protection Standards and appreciate their efforts to protect Oregon farm workers. However, the science supports our recommendations to adopt no-spray buffer zones to increase protections from pesticide drift and residue. Oregon OSHA knows, and EPA and state agency documentation have verified, that illegal pesticide drift occurs with regular frequency, that pesticides are dangerous when inhaled or absorbed, and that children and women are more vulnerable to harm and poor health outcomes from pesticide exposure.

Please be a leader and ensure that Oregon's farm and forestry workers are treated with decency, respect and full protection from hazardous substances on the job.

Sincerely,

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