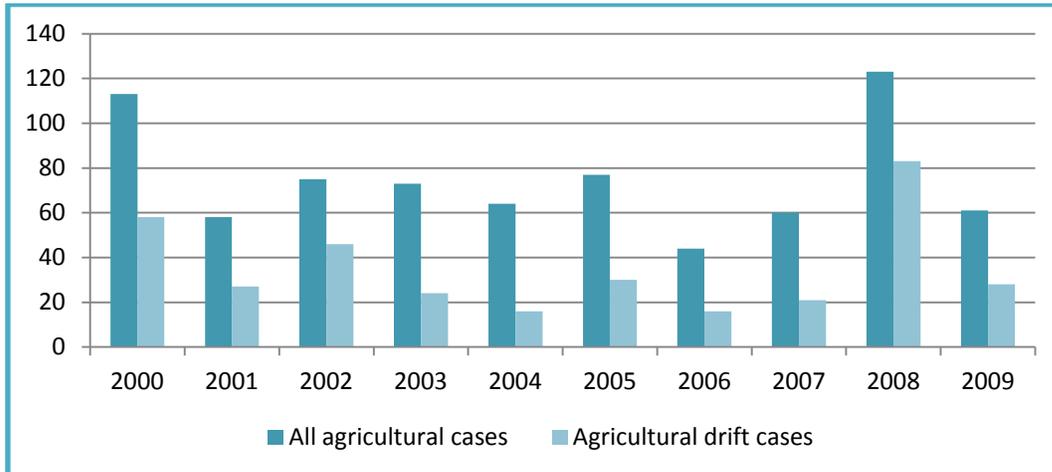


Washington State Data on Illness Related to Agricultural Pesticide Drift

July 2012



1. 10-year analysis of pesticide-related illness cases* associated with agricultural use of pesticides



*Cases (people) with injury or illness investigated by DOH and determined to be definitely, probably, or possibly (DPP) due to pesticide exposure.

2. Events* and DPP Cases** Involving Agricultural Pesticide Drift, 2000-2009

Year	Events	DPP Cases*
2000	19	58
2001	11	27
2002	26	46
2003	14	24
2004	13	16
2005	13	30
2006	12	16
2007	13	21
2008	13	83
2009	16	28
Total	150	349

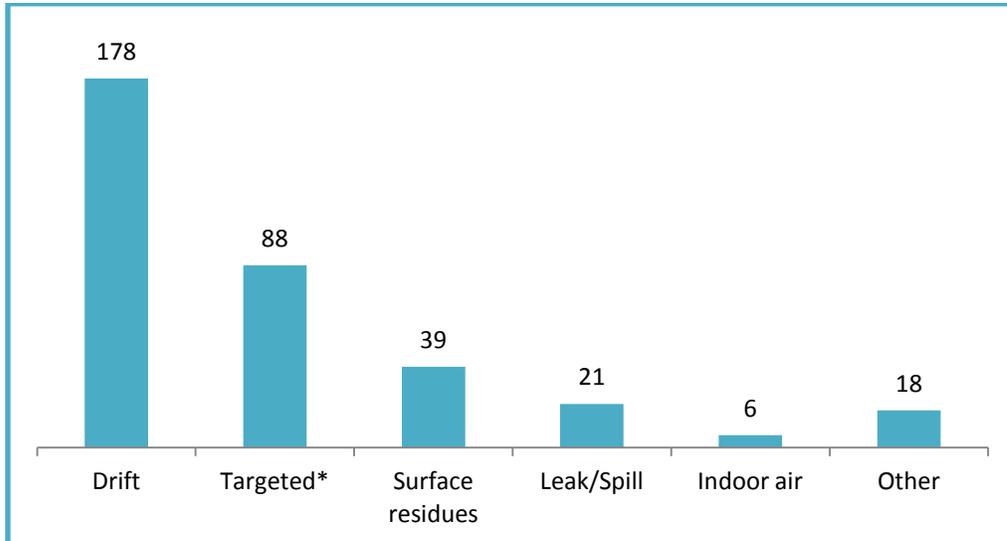
*Incidents that caused one or

more people to be exposed to pesticides

**Cases of injury or illness reported to DOH and determined to be definitely, probably, or possibly (DPP) due to pesticide exposure.

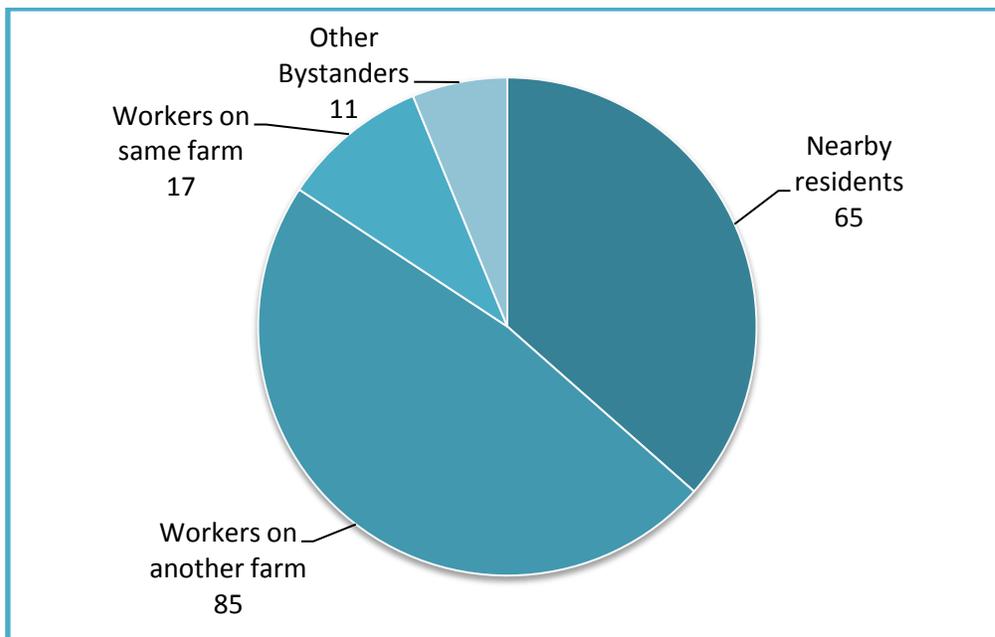
5-year Analysis of Pesticide Related Illness Associated with Agricultural Pesticide Drift. Department of Health Cases, 2005-2009

3. Drift is the leading cause of agricultural pesticide-related illness, DPP cases, 2005-2009

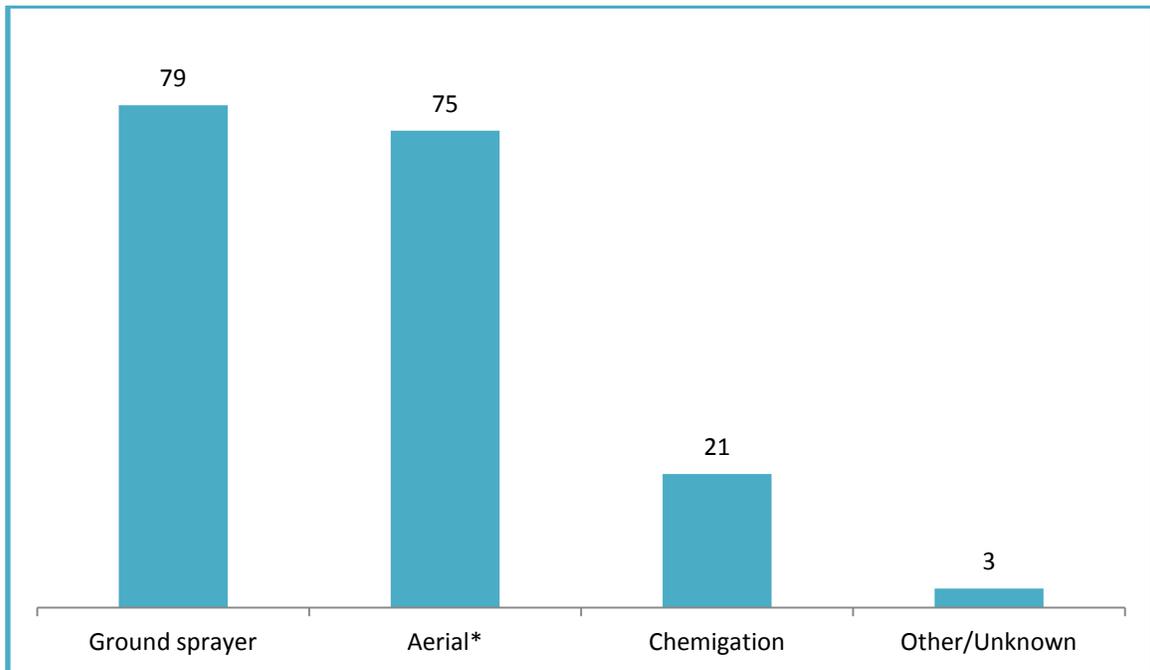


**Targeted = accidental direct exposure to sprays or dusts during application, usually to the person applying the pesticide.*

4. Who is impacted by agricultural pesticide drift? DPP cases, 2005-2009



5. Type of application equipment associated with agricultural pesticide drift, DPP cases 2005-2009



**There were 46 cases associated with one event in 2008.*



Picture of orchard air blast sprayer applying an early season spray

Pesticide Drift and Reported Illness Among Agricultural Workers Department of Health Exploration of Possible Contributing Factors (supported by grant from NIOSH)

In a six-year period (2003-2008), 80 incidents involving 191 people were investigated by the department and considered to be plausibly related to agricultural pesticide drift.

- More than half of incidents involved drift to bystanders or workers outside agriculture.
- 34 incidents involved agricultural workers (103 ill workers) and were included in the study analysis.

Possible Contributing Factors

Pressurized application equipment

All 34 incidents involved pressurized application equipment. 5 incidents involved aerial applications; 29 were ground sprayers.

- Orchard air blast sprayer produces high pressure fan-shaped spray, prone to drift.

Insecticides

70 percent (26/34) incidents involved insecticide exposures; three-quarters of these involved a cholinesterase inhibiting insecticide.

Tree fruit orchards

Two-thirds were applications to tree fruit orchards (apples, cherries, and pears)

- Aerial applications were to alfalfa (2), mint, wheat, and a tree fruit orchard
- Ground sprayers were in orchards (23), vineyards (2), nursery (2), hops, and corn.

Windy conditions

Were evident in at least 4 incidents.

Proximity of workers to spray equipment

In most of the drift incidents the workers were nearby and could see or hear the sprayer.

- In 15/34 incidents the reported distance between the worker and the sprayer was less than 50 meters or the worker was in the block/field being treated.
- In another 15 incidents, workers were in an adjacent block/field or at the edge of the block.

When asked why workers were close to sprayers or in the same spray block, we often heard that they were **not notified** about the sprayer and were **not sure they were permitted to leave** their work when the drift reached them. Some also thought they were a safe distance from the sprayer. In five incidents, the applicator saw the workers but thought he was a safe distance from them. In ten incidents, the sprayer worked for a neighboring farm. Adjacent farms are not required to notify each other when treating their perimeter fields.

Priorities for Prevention

- Reduce toxicity of pesticides used (especially in tree fruit)
- Adopt use of less drift-prone technology
- Develop guidance on safe distance between sprayers and workers.
- Improve communication between farms, and between sprayers and work crews on same farm.
- Focus prevention education on tree fruit workers (apples, pears, cherries).

Agricultural Pesticide Drift Event Summaries

Events Which Resulted in Human Illness

2005-2009



Event	Event Narrative	Number People	Severity	Outcome	Equipment Type
090131	<p>A 19-year-old male working in an apple orchard reported drift from an aerial application to an adjacent bean field. The worker could see the pilot as he sprayed and he and most of the other 12 workers noted an odor. None of the workers reported feeling the pesticide. He developed eye irritation. They worked several more hours and went home to shower and change clothes. The employer sent them to the health clinic as a safety precaution later that day. Clinic staff was unaware that the exposure occurred over nine hours earlier and the workers had already showered and changed clothes. They referred the workers to the hospital, where the fire department and hospital staff decontaminated them. Several workers reported eye irritation after the decontamination procedure. DOH referred the case to the WA State Department of Agriculture (WSDA) for investigation. Vegetation samples taken from the work area were non-detectable for the pesticide applied. None of the other 12 workers reported health effects from the application to the adjacent field.</p> <p>Insecticide: Dimethoate</p>	1	Low/Mild	Possible	Aerial Application
090117	<p>A 36-year-old female was tending her horses in their pasture on the morning of July 11, 2009, when an herbicide application occurred in the field adjacent to her property. Wind was reported to be blowing in her direction at about 10 mph, and she describes seeing a cloud of mist and dust coming towards her from the tractor- pulled boom. She felt moisture on her skin and smelled the product. She reports experiencing immediate onset of neurological and respiratory symptoms, and GI discomfort, which resided about a day later. Onset of an additional G.I. symptom occurred 3 days after exposure. About 12 hours after exposure, she describes experiencing dermal symptoms, like a bad sunburn on exposed skin, which resolved. She sought health care 9 days after exposure, due to a continuing sensation of numbness in her extremities. DOH reported the case to WSDA.</p> <p>Herbicide: Imazamox</p>	1	Low/Mild	Probable	Ground sprayer
090107	<p>Six hop workers were allegedly drifted upon by an aerial applicator spraying a nearby corn field. Workers reported they smelled, tasted or felt the spray mist from the aerial application. They continued working and did not decontaminate. Most developed neurological and gastrointestinal symptoms. Foliage samples and one clothing sample were collected by the Yakama Indian Nation Pesticide Program and analyzed by WSDA. Hop foliage was positive for residues. The one clothing sample was not.</p> <p>Insecticide: Lambda-cyhalothrin</p>	4	Low/Mild (4)	Probable (4)	Aerial Application
		2 Insufficient Information			

Agricultural Pesticide Drift Event Summaries

Events Which Resulted in Human Illness

2005-2009



Event	Event Narrative	Number People	Severity	Outcome	Equipment Type
090094	<p>Three farm workers reported feeling and smelling pesticide spray from a nearby aerial application. The workers were asked to prune in a cherry orchard. Their supervisor forgot that the orchard was going to be sprayed by the aerial applicator. The workers developed some neurological and gastrointestinal symptoms. They went home, took a shower, and sought medical attention. None of the workers had objective signs of pesticide exposure. They were back at work the next day. They did not want to refer this drift incident to other agencies. The orchard was not posted before the workers entered the field.</p> <p>Insecticide: Malathion</p>	3	Low/Mild (3)	Possible (3)	Aerial Application
090092	<p>A 33-year-old male applying herbicide in a cherry orchard received drift from an air blast sprayer operating in same orchard. The case thought the other sprayer was further away, but when he realized it was close it was too late to move. The air blast sprayer was reportedly 50 feet away when he felt the drift on his face and eyes. His eyes began to burn immediately and sought medical attention the same day. The field was not posted that it was to be sprayed.</p> <p>Fungicide: Myclobutanil Insecticide: Carbaryl</p>	1	Low/Mild	Definite	Ground sprayer
090089	<p>A 30-year-old cherry pruner developed ocular, gastrointestinal, neurological and respiratory symptoms after smelling an aerial application to an adjacent cherry orchard. He reported spray mist on his jacket. His supervisor also smelled the spray. He moved away from the sprayer but developed symptoms shortly after his exposure. He showered on site and was seen at the ER three hours later. None of the other members of a six person crew reported symptoms.</p> <p>Insecticide: Malathion</p>	1	Low/Mild	Probable	Aerial Application
090077	<p>A 31-year-old farmworker smelled and felt spray drift on his skin as he thinned apples. He experienced dermal effects and sought healthcare treatment. The adjacent cherry orchard was being sprayed at the time.</p> <p>Fungicide: Triflumizole Insecticide: Spinosad</p>	1	Low/Mild	Probable	Ground sprayer
090051	<p>A family of four developed upper respiratory, neurological and some gastrointestinal symptoms after an application of lime-sulfur to an adjacent orchard. They reported seeing the spray mist drift toward their property and could smell and taste it. None of the family members sought medical treatment. Two out of three WSDA samples from the residence tested positive for residues of sulfur.</p> <p>Insecticide/fungicide: Calcium polysulfide</p>	1	Low/Mild	Possible	Ground sprayer

Agricultural Pesticide Drift Event Summaries

Events Which Resulted in Human Illness

2005-2009



Event	Event Narrative	Number People	Severity	Outcome	Equipment Type
080246	<p>Three residents (ages 50, 49, and 24) living adjacent to a crop circle, complained of eye, respiratory and/or gastrointestinal symptoms when the circle was fumigated. The fumigant was applied through a central pivot irrigation system prior to planting potatoes. Initial report of a strong odor coming from the field corresponded with inversion weather conditions and the irrigation pivot passing close to the house. The home was located in an area of intensive application which may have contributed to reported pungent odor for three days and symptoms. Eight fields, located 1.25 miles or less from their home, were treated with either metam sodium or metam potassium during the five day period. One resident sought medical care on the fifth day for symptoms that developed after working in her garden for two hours. Garden was one half mile downwind of two ongoing applications of metam sodium. WSDA co-investigated and found positive evidence of drift on the residential property.</p> <p>Fumigant: Metam-sodium</p>	2	Low/Mild (2)	Probable (2)	Chemigation
		1 Insufficient Info			
080236	<p>On Friday, October 17, a strong odor consistent with fumigant vapors was reported in a residential area adjacent to a treated field. DOH was able to collect information on 16 of the 19 people who lived there. The 16 people included five children aged 17 days to six years old, four children aged 12-18 years old, and seven individuals aged 19-65 years old. All 16 reported eye irritation. Tearing, headache, nausea, abdominal cramping, coughing, shortness of breath, and burning in the nose and throat were also reported. Twelve of the 16 sought health care for symptoms. In addition, two visitors and an emergency responder reported exposure and irritant symptoms but did not seek health care. This incident occurred during application of a soil fumigant, through the central pivot irrigation system, on a 150 acre crop circle across the road. It appeared that temperature inversion on the afternoon of October 17 contributed to the off-site movement of vapors into the nearby homes. Strong smell in the residential area also coincided with the pivot passing the affected houses. The residents did not see any posted sign or receive notification that the adjacent field was being fumigated. Residents called the police and both the Sherriff's office and fire department responded. Emergency responders did not shut down the application or notify WSDA of the case incident. WSDA and DOH learned about the incident Monday, October 20 and began immediate co-investigation. WSDA sampling found positive environmental evidence that the fumigant had moved off-site.</p> <p>Fumigant: Metam-sodium</p>	3	Low/Mild (2) Moderate (1)	Definite (3)	Chemigation
		16	Low/Mild (15) Moderate (1)	Probable (16)	

Agricultural Pesticide Drift Event Summaries

Events Which Resulted in Human Illness

2005-2009



Event	Event Narrative	Number People	Severity	Outcome	Equipment Type
080207	<p>Forty-seven of fifty-four apple harvesters, aged 18 to 61, sought medical care after reporting drift from an aerial herbicide application to an adjacent alfalfa field. The incident occurred while many of the workers were eating lunch at the edge of the orchard. Some reported feeling the spray; others only smelled it. Workers reported primarily headache, eye and upper respiratory irritation, and dermal and gastrointestinal symptoms. One worker was asymptomatic. Work was stopped and employees (18 females, 29 males) were sent to clinics in three nearby communities. WSDA investigated and detected residue of the herbicide applied on one of four clothing samples collected. Residues were also found for an insecticide applied to the apple orchard some time earlier for which the REI had been met. Residues of two other pesticides were also detected on clothes of workers for which the origin was unknown.</p> <p>Herbicide: Clethodim Insecticide: Endosulfan Insecticide/miticide: Bifenazate</p>	3	Low/Mild (3)	Definite (3)	Aerial Application
		5	Low/Mild (5)	Probable (5)	
		38	Low/Mild (38)	Possible (38)	
		1 Insufficient Information			
080173	<p>A 31-year-old male crop advisor developed neurological, gastrointestinal and respiratory symptoms after exposure to an aerial application in an adjacent mint field. He reported feeling and breathing the spray. He was transported to the ER via ambulance within two hours after the exposure. WSDA tests were positive for residues of one of the pesticides in the tank mix. He responded well to pesticide specific treatment at the ER. He had not been notified that mint was going to be sprayed.</p> <p>Fungicide: Pyraclostrobin Insecticide: Acephate Insecticide: Bifenazate</p>	1	Moderate	Definite	Aerial Application
080165	<p>A 36-year-old female vineyard worker developed an itchy rash on her hands when she left work. She had seen an air blast sprayer applying pesticides to pears on the same farm that day, approximately 100-150 meters from where she worked. The day was very windy. Her rash dissipated after missing eight days of work, but returned the first day back. She sought medical care.</p> <p>Insecticide: Azinphos-methyl Insecticide: Abamectin</p>	1	Moderate	Probable	Ground sprayer
080164	<p>45-year-old female farm worker developed allergic dermal symptoms shortly after working in an onion field. The field had been treated four days prior with Lannate and the REI was met. An aerial application to a neighboring farm was observed 500 feet from the work crew on the day of her symptom onset. The crew was moved away from the aerial application when they smelled pesticide. She sought health care the same day and symptoms resolved shortly after treatment at the ER. She was the only worker out of 11 that reported symptoms.</p> <p>Insecticide: Methomyl Insecticide: Methyl parathion Insecticide: Dimethoate</p>	1	Low/Mild	Probable	Aerial Application

Agricultural Pesticide Drift Event Summaries

Events Which Resulted in Human Illness

2005-2009



Event	Event Narrative	Number People	Severity	Outcome	Equipment Type
080161	A 35-year-old female vineyard worker cutting grass reported she had gastrointestinal and neurological symptoms after pesticide drift exposure from an adjacent orchard. She indicated she smelled the spray and also felt the spray. She was taken by local EMS from her home to the hospital about two hours later. There is dispute on how far the worker was from the application. Insecticide: Azinphos-methyl	1	Moderate	Possible	Ground sprayer
080149	Two males, ages 23 and 43, were tying hops when exposed to drift from an application to adjacent apple orchard, not operated by their employer. Both could smell the spray and shortly thereafter experienced symptoms. They reported the incident to their supervisor who took them immediately to a health care provider. Insecticide: Acetamiprid	2	Low/Mild	Possible	Ground sprayer
080093	A 19-year-old female and 25-year-old male developed mild systemic symptoms after smelling pesticide odor from application near where they were working. Both went to the ER the same day. When reported to crew supervisor the crew of seven people were moved to another field away from the application. No others reported an illness. Fungicide: Triflumizole Insecticide: Azinphos-methyl	2	Low/Mild (2)	Possible (2)	Ground sprayer
080080	Five adult workers were planting cherry trees when they felt and/or smelled pesticide from an application to a neighboring cherry orchard 30-35 ft. away. Workers reported dermal and systemic symptoms, some of which persisted over a week. All eventually sought medical assessment. WSDA investigated and samples of worker clothing and foliage were positive for pesticides involved. Fungicide: Quinoxifen Insecticide: Azinphos-methyl	5	Low/Mild (5)	Probable (5)	Ground sprayer
080059	An adult female was in her yard and smelled pesticide drifting from neighbors cherry orchard. She could see that the applicator was completely covered in PPE. She developed nausea, headache, but did not seek health care. WSDA investigated the applicator and found license had expired and application records were incomplete. No samples were collected. Fungicide: Fenarimol Insecticide: Spinosad	1	Low/Mild	Possible	Ground sprayer
080056	A 64-year-old male went outside to hose off his yard when he felt mist and noted a mild odor from adjacent orchard application. He showered afterward and developed upper respiratory irritation. He did not seek medical attention. WSDA investigated. Insecticide: Methoxyfenozide Insecticide: Carbaryl Other: Cytokinin	1	Low/Mild	Probable	Ground sprayer

Agricultural Pesticide Drift Event Summaries

Events Which Resulted in Human Illness

2005-2009



Event	Event Narrative	Number People	Severity	Outcome	Equipment Type
080024	<p>A 39-year-old female drove past apple orchards being sprayed and experienced acute respiratory and neurological health effects. She turned around to go to the hospital and reports being sprayed again as she passed the orchard. She went to the emergency room. Some, but not all of the symptoms were consistent with the exposure described. WSDA investigated and found her vehicle positive for residues of the toxicity Class I insecticide being applied.</p> <p>Insecticide: Deltamethrin</p>	1	Low/Mild	Probable	Ground sprayer
070278	<p>A 54-year-old male walked from his car to his home, he smelled pesticide and saw his neighbor spraying herbicide with a tractor and boom approximately 400 ft. away. As an asthmatic he was concerned for himself and family. WSDA was contacted and provided pesticide information on what was sprayed, but did not investigate as resident wanted to communicate with applicator. Resident developed upper respiratory irritation, but did not seek medical care.</p> <p>Herbicide: 2,4-D Herbicide: Dicamba Herbicide: Aminopyralid</p>	1	Low/Mild	Possible	Ground sprayer
070202	<p>A 65-year-old female smelled pesticide during her morning walk near an orchard application. She reported onset of mild respiratory and systemic symptoms within 5-10 minutes of exposure. She did not seek health care. Symptoms resolved by end of day. WSDA samples were positive for drift in her yard.</p> <p>Insecticide: Azinphos-methyl</p>	1	Low/Mild	Probable	Ground sprayer
070201	<p>A 52-year-old female reported respiratory and ocular symptoms after sleeping with windows open across the street from an 18 acre herbicide application. She reports her residence approximately 100 feet from nearest point of application. On the 3rd day post application she reported the concern to the Department of Ecology. Paramedics were referred to her home by Ecology. Her symptoms subsided at that point. WSDA referred the case to DOH, but didn't take samples.</p> <p>Herbicide: Glyphosate</p>	1	Low/Mild	Possible	Ground sprayer
070141	<p>A 49-year-old male was mowing with a tractor in an apple orchard when he was exposed to insecticide from a ground sprayer 15' away. Neither worker was aware of the other prior to drift. Patient informed his supervisor and was taken to clinic and treated for skin and eye irritation. He requested to return to work the next day.</p> <p>Insecticide: Phosmet</p>	1	Low/Mild	Probable	Ground sprayer

Agricultural Pesticide Drift Event Summaries

Events Which Resulted in Human Illness

2005-2009



Event	Event Narrative	Number People	Severity	Outcome	Equipment Type
070131	<p>A 69-year-old male and 59-year-old female reported feeling and smelling drift from an orchard sprayer while working in their home yard. A 43-year-old female neighbor and her husband also reported smelling drift from same application. All four people reported neurological and respiratory symptoms the same day. Three sought medical care. WSDA investigated and tested foliage from the yard of one of the households. Samples were positive for thiamethoxam and applicator was cited for drift. Yard foliage was also positive for residues of azinphos methyl which had been applied in the same orchard 4 days prior to this incident. DOH investigation found that while pesticide exposure likely contributed to the initial symptoms reported, it did not fully explain all symptoms, especially persistent symptoms.</p> <p>Insecticide: Thiamethoxam</p>	2	Low/Mild (2)	Probable (2)	Ground sprayer
		1	Low/Mild (1)	Possible (1)	
070125	<p>A 78-year-old male reported symptoms from pesticide drift from a neighboring cherry orchard. He experienced gastrointestinal, respiratory and dermal symptoms. He did not seek medical care. WSDA samples showed evidence of pesticide residues at the site of exposure.</p> <p>Insecticide/ fungicide: Sulfur Insecticide: Chlorpyrifos Other: Butanoic acid, Glutamic acid</p>	1	Moderate	Probable	Ground sprayer
070112	<p>A road construction crew was exposed by aerial application to a wheat field, adjacent to their work site. Seven crew members report seeing the plane make passes overhead, release the product and state that they could smell the product as it drifted on to them. The seven workers describe very similar symptom patterns, including chemical taste in mouth, gastrointestinal, neurological and dermal symptoms. Due to their desire to continue working and their semi-isolated location, as well as concern about cost of treatment, none of these workers sought health care at the time. They were able to wash hands and face approximately 2 hours after exposure, and continued working. Symptoms lasted from 3 hours to 4 days after exposure. WSDA lab analysis detected residues on clothing, and the exterior and interior of machinery used, and wind gusts of 10 or more mph have been measured in the area at the time. Note: WSDA fined applicator \$2,000. Labor and Industries WISHA inspector was called in and consulted with the air service company involved.</p> <p>Herbicide: Clodinafop-propargyl Herbicide: Prosulfuron Herbicide: MCPA</p>	5	Probable (5)	Low/Mild (5)	Aerial Application
		1	Possible (1)	Low/Mild (1)	
		1 Insufficient Information			
070105	<p>A 23-year-old female was working with 20-25 others tying up grapes and reported she could smell the application being made to adjacent grape unit. She sought medical care the same day for respiratory symptoms. No one else reported any illness.</p> <p>Fungicide: Fenarimol</p>	1	Low/Mild	Possible	Ground sprayer

Agricultural Pesticide Drift Event Summaries

Events Which Resulted in Human Illness

2005-2009



Event	Event Narrative	Number People	Severity	Outcome	Equipment Type
070097	<p>Two adult staff members, ages 47 and 59, reported mild transitory symptoms from an herbicide aerial application to a pasture adjacent to juvenile rehabilitation center where they worked. One individual had just one respiratory symptom. No medical care was sought by either individual. No students at the center reported symptoms. Staff did report they could smell the spray coming through the air conditioning system. WSDA took swab samples from the air conditioner but did not detect measurable levels of the herbicide.</p> <p>Herbicide/algicide: Metsulfuron-methyl</p>	1	Possible (1)	Low/Mild (1)	Aerial Application
		1 Insufficient Information			
070090	<p>A 24-year-old male, along with 20 other employees, was staking newly planted apple trees. He experienced ocular, gastrointestinal and neurological symptoms after smelling application being made to adjacent cherry block. He is only one who reported any symptoms. He sought medical care. Case was investigated by L&I. No spray residues detected on patient's sweater he was wearing.</p> <p>Fungicide: Propiconazole Insecticide/fungicide: Sulfur</p>	1	Possible	Low/Mild	Ground sprayer
070054	<p>A 50-year-old female farm employee was pruning apple trees and developed dermal, ocular, neurological, and respiratory symptoms. An adjacent orchard was being sprayed and she could smell the spray. She went to an ER for medical care three days later.</p> <p>Other/Insect Growth Regulator: Prohexadione calcium</p>	1	Low/Mild	Probable	Ground sprayer
070044	<p>A 22-year-old farmworker felt drift from a pesticide application to apples as he dug a well. An hour later he experienced gastrointestinal pain and didn't eat lunch. He was kept in the hospital overnight for light observation with central nervous system and cardiovascular signs. He was released the next day. Apparently health care personnel were unable to locate employer for pesticide identification while caring for the patient.</p> <p>Insecticide/fungicide: Sulfur</p>	1	Moderate	Probable	Ground sprayer
070031	<p>A 78-year-old female and her 54-year-old daughter were ill after a drift exposure from a ground application to an adjacent pear orchard. Medical care was sought by daughter. WSDA investigated and swab samples taken from patients' property were positive for residues of chemicals applied in orchard.</p> <p>Insecticide: Lambda-cyhalothrin Insecticide: Endosulfan</p>	2	Low/Mild (2)	Probable (2)	Ground sprayer
060200	<p>A ground application was made to an apple orchard adjacent to where two female apple thinners ages 34 and 29 were working. The women developed gastrointestinal and neurological symptoms and sought medical care. They were told to avoid further exposures and to not return that day to work. Four efforts were made to obtain spray records and they were received in April 2007.</p> <p>Insecticide: azinphos-methyl Insecticide: Imidacloprid Other: Bacillus thuringiensis</p>	2	Low/Mild (2)	Possible (2)	Ground sprayer

Agricultural Pesticide Drift Event Summaries

Events Which Resulted in Human Illness

2005-2009



Event	Event Narrative	Number People	Severity	Outcome	Equipment Type
060137	<p>A 21-year-old cherry picker reported ocular symptoms which he thought were related to an application occurring in orchard area 200 feet away. He reported neither feeling nor smelling the application. He sought medical care two days later. Management reports that they had instructed picker to leave the orchard two hours prior to the application and were not aware that the worker reentered the orchard. There were no other reports of illness.</p> <p>Other: Spinosad</p>	1	Low/Mild	Probable	Ground sprayer
060136	<p>A 26-year-old male was drifted upon by an aerial application while on the porch of his house and in his yard. Shortly thereafter he had ocular and respiratory symptoms. No medical care was sought. WSDA investigated and residue samples from complainant's home were positive for chemical applied.</p> <p>Insecticide: Malathion</p>	1	Low/Mild	Probable	Aerial Application
060135	<p>A 48-year-old female and a 47-year-old male reported five days post-application to the EPA that an aerial application had been made in early morning to a pea field adjacent to their property. They reported aerial drift onto their home and both individuals reported symptoms. The windows of the house were open and they could smell the application. A few hours later they mowed the grass and worked in the yard adjacent to the treated field. The woman reported symptoms, which may have also exacerbated under lying conditions, and sought medical care. Combinations of general, neurological, gastrointestinal, ocular and respiratory symptoms were reported, some of which were atypical for the pesticide. WSDA investigated and took action.</p> <p>Insecticide: Dimethoate</p>	1	Moderate	Probable	Aerial Application
		1	Low/Mild	Possible	
060133	<p>A 52-year-old female homeowner was outside and could feel the spray mist from aerial application to adjacent lentil field. She then video taped the application as it was made to the field and drifted over her property. She reported neurological, respiratory, and ocular symptoms. No medical care was sought. WSDA took samples from the homeowner's property that were positive for the product being applied.</p> <p>Insecticide: Dimethoate</p>	1	Low/Mild	Probable	Aerial Application
060069	<p>A 45-year-old female apple thinner at a fruit tree nursery reported smelling an aerial herbicide application to an adjacent wheat field. Within thirty minutes she developed respiratory, neurological, gastrointestinal and other symptoms. She sought medical care within the hour. She returned to work the next day. She told her health provider that the other workers were on break at the time of the incident.</p> <p>Herbicide: Bromoxynil octanoate Herbicide: Carfentrazone-ethyl</p>	1	Low/Mild	Possible	Aerial Application

Agricultural Pesticide Drift Event Summaries

Events Which Resulted in Human Illness

2005-2009



Event	Event Narrative	Number People	Severity	Outcome	Equipment Type
060057	<p>A female age 79 and male age 54 had ocular, respiratory and neurological symptoms after an aerial application occurred close to their home. They did not seek medical treatment. Foliage samples collected by WSDA found no residues on complainant's property and only a trace (unquantifiable) of the active ingredient was found on right of way adjacent to their property.</p> <p>Herbicide/algicide: Quizalofop-ethyl</p>	2	Low/Mild (2)	Possible (2)	Aerial Application
060056	<p>A 62-year-old female bus driver reported pesticide drift came through her open window from an orchard sprayer as she drove down a driveway to deliver children to a day care. The driveway had orchard extending along both sides. She reported neurological and respiratory symptoms. She sought medical care seven days later for lingering respiratory symptoms. No children were ill as windows were closed where children were seated. Driver did not want to report the case to enforcement agencies.</p> <p>Insecticide and other: Carbaryl</p>	1	Low/Mild	Possible	Ground sprayer
060045	<p>A 63-year-old female school bus driver reported neurological and gastrointestinal symptoms after her bus was drifted upon by an orchard sprayer as she drove on a road adjacent to the orchard. Her window was open. She did not seek medical attention. No students on the bus reported symptoms from the incident. She reported spray was heavy enough that she had to turn on her windshield wipers. WSDA investigated but did not take samples as the bus was driven through other orchard areas on two additional days before incident was reported.</p> <p>Insecticide: Carbaryl Other/plant growth regulator: Benzyladenine</p>	1	Low/Mild	Possible	Ground sprayer
060036	<p>A 50-year-old male reported a non-occupational pesticide exposure with respiratory symptoms after being drifted upon by an orchard application while driving his pickup. He reported having windows and vents open at the time and said he could smell the spray but not feel it. He did not seek medical care and the symptoms resolved the next day. WSDA investigated and detected spray residues from swab samples taken from the complainant's truck. WSDA was unable to determine the exact source of the residues as two different orchards were applying the same product on opposite sides of the road at the same time.</p> <p>Fungicide: Triflumizole Insecticide: Buprofezin Insecticide: Acetamiprid Insecticide/acaricide: Formetanate hydrochloride</p>	1	Low/Mild	Probable	Ground sprayer

Agricultural Pesticide Drift Event Summaries

Events Which Resulted in Human Illness

2005-2009



Event	Event Narrative	Number People	Severity	Outcome	Equipment Type
060022	<p>Two female orchard workers ages 19 and 31 developed symptoms after they were drifted upon. They both observed the application being conducted in the adjacent orchard and they could smell it. They could see the cloud from the application moving toward them. One woman had neurological, respiratory, gastrointestinal, and ocular symptoms and sought medical care. The other person had neurological and dermal symptoms and did not seek medical care. Spray records from the adjacent orchard confirmed the application. Workers did not want to the case reported for enforcement.</p> <p>Fungicides: Triflumizole Insecticide/fungicide: Sulfur</p>	2	Low/Mild (2)	Possible (2)	Ground sprayer
060017	<p>A 32-year-old male installing irrigation pipe developed neurological and gastrointestinal symptoms after smelling pesticides from an application to apples nearby on the same farm. He did not report feeling the spray on his skin but did taste it in his mouth. He sought medical care the same day. His employer confirmed the application nearby but did not anticipate that it would have been a drift hazard.</p> <p>Fungicide: Fenarimol Insecticide: Clofentezine Insecticide: Chlorpyrifos</p>	1	Moderate	Possible	Ground sprayer
050221	<p>A 34-year-old male applying fertilizers developed neurological, gastrointestinal and respiratory symptoms after smelling another pesticide application close by. He reported that he did not feel the spray. He was applying three to four rows from the pesticide application. He sought medical care early the next day.</p> <p>Insecticide: Imidacloprid</p>	1	Low/Mild	Possible	Ground sprayer
050239	<p>A 47-year-old male mechanic was drifted upon by an aerial application while fixing/welding a water pump in a potato circle. The following day he sought medical care. Another worker avoided exposure by staying inside of the truck.</p> <p>Insecticide: Spiromesifen</p>	1	Low/Mild	Possible	Aerial application
050292	<p>A 32-year-old orchard irrigator reported he had an ocular exposure as he drove on his motorcycle past an herbicide application in the orchard. He sought medical treatment four days later.</p> <p>Herbicide: Glyphosate, 2,4-D, and Simazine</p>	1	Low/Mild	Definite	Ground sprayer
050180	<p>Two males ages 26 and 29 were about 30 feet from a pesticide application and felt the spray on the right side of their faces and on their right arms. One had dermal symptoms and the other also had ocular, neurological and gastrointestinal symptoms. They provided a piece of clothing to WSDA for testing. They then showered and did not seek medical care. The clothing samples were negative for pesticides.</p> <p>Insecticide: Thiamethoxam Acaricide: Bifenazate</p>	2	Low/Mild (2)	Possible (2)	Ground sprayer

Agricultural Pesticide Drift Event Summaries

Events Which Resulted in Human Illness

2005-2009



Event	Event Narrative	Number People	Severity	Outcome	Equipment Type
050231	<p>A 43-year-old female had neurological and respiratory symptoms after an aerial applicator drifted her property with a tank mix of fungicides. She sought medical care eight days later. The WSDA samples of a tree on the property were positive for one of the fungicides and samples made of the windows were negative. This may have been due to 14 days interim between the application and the sampling. WSDA determined that the application was not in accordance with label directions for agricultural use requirements.</p> <p>Fungicide: Mancozeb Insecticide/fungicide: Sulfur</p>	1	Moderate	Probable	Aerial application
050178	<p>Two farmworkers, a 25-year-old female and a 27-year-old male, were drifted while thinning apples. An unlicensed applicator using an air blaster was applying in an adjoining field. WSDA tests of the employee's clothing were positive for pesticides. They developed GI and neurological symptoms and were seen for medical care that day. They were enrolled in cholinesterase monitoring and the results were not significant. The case was referred to WSDA for evaluation of compliance to pesticide regulation.</p> <p>Insecticide: Azinphos-Methyl Insecticide: Carbaryl</p>	2	Moderate (2)	Probable	Ground sprayer
050226	<p>Two retired females, ages 53 and 63 developed ocular, respiratory and neurological symptoms after they smelled a pesticide application conducted in front of the property. They did not seek medical treatment. WSDA samples from windows and foliage on their property were positive.</p> <p>Insecticide: Novaluron Insecticide: Carbaryl</p>	2	Low/Mild (2)	Probable (2)	Ground sprayer
050129	<p>Fifteen female and male employees, ages 20-72 were drifted by an herbicide while working in and around greenhouses on the campus of a private school. Their supervisor reported that it was quite windy, the drift came from a ground application to an adjacent corn field, and one employee was pregnant. The spray drifted into the greenhouses. The employees could smell the chemicals: 12 had symptoms, one was taken to the hospital for care, three were asymptomatic. WSDA samples from the area and one worker's clothes were positive.</p> <p>Herbicide: Alachlor Herbicide: Atrazine</p>	12	Moderate (1) Low/Mild (10) Low/Mild (1)	Definite (1) Probable (10) Possible (1)	Ground sprayer
050155	<p>A 33-year-old female plant pathologist in her second trimester of pregnancy was drifted while doing a green house inspection of a commercial nursery. Mild eye and respiratory irritation resolved same day. DOH provided toxicological information regarding reproductive hazard of the pesticide. WSDA investigated.</p> <p>Insecticide/miticide: Pyridaben</p>	1	Low/Mild	Probable	Ground sprayer

Agricultural Pesticide Drift Event Summaries

Events Which Resulted in Human Illness

2005-2009



Event	Event Narrative	Number People	Severity	Outcome	Equipment Type
050076	<p>A 31-year-old father, a 31-year-old mother, their 4-year-old daughter and 7 month-old son were drifted by a ground spray application while riding in their car on the road. The family had gastrointestinal, dermal and respiratory symptoms. The 7-month-old infant was taken to the ER with a fever and respiratory symptoms. He was treated again two days later at a clinic for gastrointestinal symptoms. WSDA tests were positive for pesticide residues on the car. WSDA determined that the orchard application was negligent and contrary to label directions.</p> <p>Insecticide: Chlorpyrifos Other: Mineral oil</p>	4	<p>Low/Mild (2)</p> <p>Moderate (2)</p>	Probable (4)	Ground sprayer
050066	<p>A 76-year-old male was drifted with a pesticide while working with animals in his yard. He developed gastrointestinal and neurological symptoms the same day. WSDA samples from his yard were positive for residues of the pesticide being applied in the area.</p> <p>Herbicide/fungicide: Copper hydroxide Insecticide: Chlorpyrifos</p>	1	Moderate	Probable	Ground sprayer

Case Classification for Acute Pesticide-Related Illness or Injury

July 2012



Classification of Investigated Cases

Department of Health uses standardized criteria from the National Institute for Occupational Safety and Health (NIOSH) to categorize investigated cases of illness and injury with respect to how likely the reported symptoms were due to the exposure described.

Classification of Exposure

- Definite:** Objective evidence confirms both the exposure and the illness, and the temporally related illness is consistent with the known toxicology of the pesticide.
- Probable:** Objective evidence of either the exposure or the illness is available, and the temporally related illness is consistent with the known toxicology of the pesticide.
- Possible:** Only subjective evidence of exposure and illness is available, and the temporally related illness is consistent with the known toxicology of the pesticide.
- Suspicious:** Insufficient toxicological information available to determine whether a causal relationship exists between the pesticide exposure and the illness.
- Unlikely:** The relationship between the exposure and illness is not consistent with the known toxicology of the pesticide. Symptoms may be atypical, but cannot be ruled out as unrelated.
- Insufficient Information:** Insufficient documentation was obtained regarding the exposure or illness to determine whether the illness was related to a pesticide exposure.
- Not a case:** A case may have been reported to a state surveillance system due to an alleged exposure, but was asymptomatic; or the illness was related to a condition other than pesticide exposure.

Classification of Medical Severity

Death (Fatal)	Human fatality resulting from exposures to one or more pesticides
Severe (High)	Life threatening illness commonly involving hospitalization to prevent death. Signs and symptoms include but are not limited to, coma, cardiac arrest, renal failure, and/or respiratory depression. The individual sustains substantial loss of time (more than 5 days) from work. This level may include the need for continued health care after exposure, prolonged time off of work, necessary modification of work or normal activities. The individual may sustain permanent functional impairment.
Moderate (Moderate)	This category often involves systemic manifestations. Usually medical treatment is provided. The individual is able to return to normal functioning without any residual disability. Less time is lost from work or normal activities (3-5 days). Effects may be persistent but there is no permanent impairment.
Mild (Low)	This category can involve skin, eye, or respiratory irritation, inflammation or pain. Can include systemic symptoms such as headache, nausea/vomiting, dizziness, muscle weakness, fatigue. Less than 3 days is lost from work or normal activities. Medical treatment is usually supportive treatment of symptoms

For More Information

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