



## Farmworker Occupational Health and Safety

According to a 2011 report of the Bureau of Labor Statistics, of the U.S. Department of Labor, agriculture remains one of the most dangerous industries in the United States with some of the highest incidence of occupational injury and illness.<sup>1</sup> Farmworkers face workplace hazards similar to those found in other industrial settings, such as working with heavy machinery and hard physical labor. They also face unique occupational hazards specific to farm work, including pesticide exposure, skin disorders, infectious diseases, respiratory problems, hearing and vision disorders, and musculoskeletal injuries. The following is a compilation of recent facts and figures pertaining to the occupational health and safety of farmworkers.

### General Information

- In 2011, there were 557 fatal occupational injuries within the agricultural industry, and for every 100,000 workers, agriculture had the highest rate of fatal occupational injuries: 24.4.<sup>2</sup>
- The agricultural industry also has a high number of cases involving nonfatal occupational injury and illness that required either time off from work or job transfer and restriction.<sup>3</sup>
- Children in agriculture are also at great risk: the U.S. Department of Agriculture released a report in 2009 that recorded 15,876 injuries to youths under 20 years of age who lived, worked or visited a farm.<sup>4</sup> The following data for 2009 was also noted:
  - Fifty (58) percent of youth injuries were incurred by males
  - Youth ages 10 to 15 incurred the highest number of injuries at 6,912
  - Youths under age 10 incurred 4,111 injuries
  - Youths ages 16 to 19 incurred 4,148 injuries<sup>5</sup>
- Every day, about 243 agricultural workers suffer lost-work-time injuries, and about 5 percent of these result in permanent impairment.<sup>6</sup>
- A 2011 study of farmworker health-seeking behavior along the U.S.-Mexico border found that farmworkers often visited Mexico to treat occupational injury and illness due to lower costs, faster appointments, convenience and a better understanding of their needs.<sup>7</sup>

### Pesticide Exposure

- Today, farmworkers are exposed to “nonpersistent” pesticides which are metabolized by the body within days. They may enter the body through ingestion and inhalation, but they are primarily absorbed through the skin.<sup>8</sup>
- During their daily work, farmworkers are often exposed to pesticides, which include substances that prevent, destroy or repel pests. Because some pests have systems similar to the human system, some pesticides also can harm or kill humans. The term pesticide also encompasses herbicides, fungicides, and various other substances used to control pests.<sup>9</sup>
- Farmworkers frequently encounter pesticides through direct contact with the chemicals, contact with pesticide residue on treated crops or equipment, and drift of pesticides into untreated areas.<sup>10</sup>

- Several studies also prove that entire families are at risk to pesticide exposure because of drift from nearby areas, not providing enough hand-washing or bathroom facilities, and bringing home clothes that have been contaminated.<sup>11</sup>
- The Pesticide Safety Education Program out of Cornell University states that mild symptoms of poisoning include headache, fatigue, dizziness, nervousness, perspiration, loss of appetite, thirst, eye irritation and irritation of the nose and throat. Severe poisoning symptoms include fever, intense thirst, vomiting, muscle twitches, convulsions, inability to breathe and unconsciousness.<sup>12</sup>
- The Florida Department of Health webpage lists several chronic effects from long-term exposure to pesticides:
  - Birth defects
  - Cancers
  - Blood disorders
  - Neurological problems
  - Reproductive effects<sup>13</sup>
- Exposure to large doses of a pesticide can lead to severe effects such as loss of consciousness, coma and even death.<sup>14</sup>
- Pesticide Safety regulations that exist include:
  - the *Worker Protection Standard*, which states that field workers must be trained on pesticide use, and
  - the *Occupation Safety and Health Act*, which requires employers with 11 or more employees to provide drinking, toilet and washing facilities for farmworkers while they work in the fields.<sup>15</sup>
- A study conducted in eastern North Carolina polled 300 farmworkers regarding pesticide safety and training. They reported the following:
  - 75.3% had water available for hand-washing, but only 44.3% were provided soap,
  - 51.3% were told when it was safe to enter fields after applying,
  - 51% were told when pesticides were applied,
  - 34.8% reported being provided pesticide safety instruction by a supervisor,
  - 28% percent worked in areas adjacent to fields where pesticides were being applied,
  - 25.2% were asked to enter fields before it was safe to do so,
  - 16% worked in fields while pesticides were being applied, and
  - 14.8% were provided with pesticide safety equipment.<sup>16</sup>
- Another pesticide danger for farmworkers is the limited information they are provided about the pesticides they are being exposed to. They are not told what types of pesticides are being used at any given time, they have little control over exposure, and they often live in grower-provided housing and do not know the severity of exposure in these dwellings.<sup>17</sup>
- One other challenge is that growers rarely speak the same languages as workers. Growers often do not recognize or understand how linguistic, cultural and power differences create barriers for farmworker pesticide safety.<sup>18</sup>

### **Heat and Sun Exposure**

- Farmworkers are at increased risk for heat injury and illness due to the nature of farm work: they work outdoors in direct sunlight, humidity levels are often higher in the fields, they generate large amounts of body heat, and they often use heavy work clothing and equipment.<sup>19</sup>
- Heat stress occurs when body heat builds up from both external and internal sources. This condition can lead to dehydration, electrolyte imbalance, neurological impairment, multi-organ failure, and death.<sup>20</sup>

- According to the Centers for Disease Control and Prevention, the signs and symptoms of heat exhaustion include heavy sweating, cold/pale/clammy skin, a fast, weak pulse, nausea and vomiting and fainting.<sup>21</sup> Meanwhile signs of stroke include a high body temperature above 103 degrees F, hot, red, dry or moist skin, rapid and strong pulse and sometimes unconsciousness.<sup>22</sup> Heat stroke is considered a medical emergency.
- A study published in 2008 found that in the previous 15-year period, 423 workers in agriculture and non-agricultural industries died from heat exposure. Results indicated that 67 percent of those fatalities were crop workers employed in the crop production or support activities for crop production sectors.<sup>23</sup>
- In a study conducted with 300 farmworkers in North Carolina, 94 percent of respondents reported that they work in extreme heat, and 40 percent reported having had symptoms of heat illness.<sup>24</sup>
- An added danger for farmworkers is that pesticides are absorbed through hot, sweaty skin more quickly than through cool skin.<sup>25</sup>

### **Hazardous Tools and Machinery**

- According to the Bureau of Labor Statistic 2011 data, the following was reported of fatalities within the industry of crop production:
  - 132 fatal incidents involving transportation, which includes injuries resulting from being struck by a vehicle, and
  - 45 fatal incidents from contact with objects and equipment.<sup>26</sup>
- As for non-fatal injuries in agriculture, machinery was the leading source, with 99,402 reported injuries. In 2011 there were:
  - 41,777 injuries from hand tools, and
  - 24,590 injuries from tractors.<sup>27</sup>

### **Infectious Diseases**

- Infectious diseases among the farmworker population are caused by poor sanitation and crowded conditions at work and housing sites, including inadequate washing and drinking water.<sup>28</sup>
- A study conducted in 2010 in assessed the water quality of 181 farmworker camps. Thirty-four (34) percent of samples were found unsafe for human consumption.<sup>29</sup>
- A 2006 study of farmworkers in North Carolina found that 46 percent of farmworkers lived in very crowded and unsanitary conditions. Conditions such as these increase farmworkers' exposure to environmental toxins and communicable diseases.<sup>30</sup>
- Although recent figures do not exist for tuberculosis rates, one study determined that 44 percent of migrants had a positive PPD (tuberculin) skin test.<sup>31</sup>

### **Musculoskeletal Injuries**

- Because farm labor consists of constant bending, twisting, carrying heavy items, and repetitive motions during long work hours, farmworkers often experience musculoskeletal injuries. Furthermore, workers are often paid piece-rate, which provides an incentive to work at high speed and to skip recommended breaks.<sup>32</sup>
- One study that interviewed 150 farmworkers reported that musculoskeletal injuries were very common as a result of the nature of farm work. The following is a breakdown of the frequency of injuries that resulted:
  - Backache occurred in 46 incidents;

- Shoulder pain occurred in 11 incidents;
  - Sprains occurred in 9 incidents;
  - Fractures occurred in 5 incidents; and
  - Pain/numbness of the hand occurred in 4 incidents.<sup>33</sup>
- A 2008 report recorded that about 20 percent of farmworkers suffer from musculoskeletal injuries.<sup>34</sup>

### **Respiratory Illnesses**

- Because agricultural work takes place in rural areas, farmworkers are exposed to organic and mineral dusts, animal and plant dusts, toxic gases, molds and other respiratory irritants.<sup>35</sup> All of these have been associated with respiratory illnesses, such as asthma and chronic bronchitis.<sup>36</sup>
- Another chronic respiratory illness of concern is Farmer's Lung, a noninfectious allergic disease caused by inhaling mold spores. These mold spores accumulate and settle in the lower lungs, which interferes with their ability to exchange gas. As a last defense, the body develops an allergic reaction that causes cold or pneumonia symptoms.<sup>37</sup>
- Farmworkers have a significantly higher death rate for a number of respiratory conditions, including hypersensitivity pneumonitis (proportionate mortality more than 10 times higher than expected), asthma, bronchitis, histoplasmosis, tuberculosis, pneumonia, and influenza.<sup>38</sup>
- Farmworkers who work in the following tasks are at increased risk of respiratory illnesses:
  - Dusty fields and buildings;
  - Handling of hay;
  - Feeding or working with feedstuffs;
  - Working in corn silage;
  - Cleaning silos or grain bins;
  - Working around bird droppings or dust from animal hair, fur, or feathers;
  - Working around fishmeal; and
  - Applying agricultural chemicals such as fertilizers and pesticides.<sup>39</sup>

### **Skin Disorders**

- Farmworkers are exposed to many occupational and environmental risk factors that result in skin disease: weather, mechanical devices, chemicals, plants, organic and inorganic dust and fungi.<sup>40</sup>
- A study conducted in North Carolina which interviewed 304 Latino farmworkers on skin conditions concluded that although skin conditions were observed, farmworkers turn to self-treatment as opposed to health care visits. The study reported that 63 percent used non-prescription preparations, 9 percent used prescription products and 6 percent used home remedies to cure skin ailments.<sup>41</sup>
- Another study conducted in North Carolina recorded the most commonly occurring skin problems and symptoms. The following, along with their frequency, was reported:
  - Skin fungus had a rate of 58.6 percent
  - Sunburn had a rate of 58.6 percent
  - Bumps, pimples, or acne had a rate of 48.4 percent
  - Calluses had a rate of 48.4 percent
  - Itching had a rate of 46.1 percent
  - Rash had a rate of 42.8 percent<sup>42</sup>

## Eye Injuries

- Agricultural work, by its nature, poses specific risks for eye injury. Some of these include different chemicals (pesticides, growth enhancers and fertilizers, tools and machinery).<sup>43</sup> Likewise, environmental factors also pose a risk due to exposure to hazards such as ultraviolet light, airborne soil, particulates, pollen, humidity and plant components.<sup>44</sup>
- These environmental objects are known to cause infections, allergic reactions, eye irritations, and corneal and other eye trauma. Chronic irritation and sun can cause cataracts, a clouding of the eye lens, and pterygium, a growth that obstructs the cornea.<sup>45</sup>
- Agricultural workers experience eye injuries and illness at a rate of 8.7 per 10,000 workers. This is more than two times higher than the rate of 3.8 per 10,000 for general workers in the U.S.<sup>46</sup>

<sup>1</sup> Bureau of Labor Statistics, United States Department of Labor. *News Release: October 25, 2012*. Available online: <http://www.bls.gov/news.release/pdf/osh.pdf>. Accessed on January 15, 2013.

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<sup>3</sup> Bureau of Labor Statistics, United States Department of Labor. *News Release: October 25, 2012*. Available online: <http://www.bls.gov/news.release/pdf/osh.pdf>. Accessed on January 15, 2013.

<sup>4</sup> United States Department of Agriculture. *Agricultural Safety: 2009 Injuries to Youths on Farms*. 2012. Available online: [http://usda01.library.cornell.edu/usda/current/ChilInju/ChilInju-04-05-2012\\_revision.pdf](http://usda01.library.cornell.edu/usda/current/ChilInju/ChilInju-04-05-2012_revision.pdf). Accessed on January 15, 2013.

<sup>5</sup> Ibid.

<sup>6</sup> National Institute for Occupational Safety and Health. (2008). NIOSH Safety and Health Topic: Agricultural Safety. Available online at <http://www.cdc.gov/niosh/topics/aginjury/> Accessed Sep. 5, 2008.

<sup>7</sup> Margaret M. Weigel and Rodrigo S. Armijos. *Exploratory Study of Occupational Health and Health-Seeking of Migrant and Seasonal Farmworkers on the U.S.-Mexico Border*, The Journal of Immigrant and Minority Health Vol 14 (2011)

<sup>8</sup> Thomas A. Arcury and Sara A. Quandt, *Chapter 5: Pesticide Exposure among Farmworkers and Their Families in the Eastern United States: Matters of Social and Environmental Justice*, Latino Farmworkers in the Eastern United States: Health, Safety and Justice (2009)

<sup>9</sup> U.S. Environmental Protection Agency. *Agriculture: Pesticides* (2008). Available online at <http://www.epa.gov/agriculture/tpes.html> Accessed on Sep. 8, 2008.

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<sup>12</sup> Pesticide Safety Education Program. *Symptoms of Pesticide Poisoning*, 2012. Accessed on January 2013: <http://psep.cce.cornell.edu/Tutorials/core-tutorial/module09/index.aspx>.

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<sup>15</sup> Ibid.

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<sup>18</sup> Ibid.

<sup>19</sup> Pamela Rao. *Heat stress among farmworkers: A preventable cause of injury and death*. Streamline. Vol 14, Iss 2. (2008)

<sup>20</sup> Ibid.

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