Monthly Safety Blast

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Produced by the Southwest Center for Agricultural Health, Injury Prevention and Education

What's in the Air?

Thomas Jefferson said, "*Agriculture is our wisest pursuit, because it will in the end contribute most to real wealth, good morals, and happiness*." The words of our founding father are undoubtedly wise, but notice that he didn't mention anything about safety and health in agriculture. Agricultural work is often associated with wide open spaces and fresh air. Business people from crowded cities flock to the country to escape pollution and traffic. However, the air in agricultural, forestry and fishing workplaces is not always fresh and clean. When the workplace includes animals, plants, equipment and chemicals, dangerous airborne contaminants also exist.

Photo Credit: Bill Snead http://www2.ljworld.com/photos/bill_snead/?page=74

Common sources of agricultural air contaminants are listed below. Biological particles include dried feces, fungal or mold spores, bacterial cells and spores, pollen, insect parts, animal hair and feathers.

	Confined hog or poultry houses	Tractor operation/ internal combustion engines	Manure pits	Pesticides & fertilizers	"Soil-less" potting mixes or soil amendments	Silage/ grain in storage
Ammonia	x		x	x		x
Biological particles	x	x	x	x	x	x
Carbon monoxide		x				
Dusts	x	x		x	x	x
Vapors		x		x		
Hydrogen sulfide	x		x			
Methane	x		x			
Mists, Fogs				x		
Nitrogen oxides		x				x

Figure content from Oregon's OSHA Respiratory Protection Guide for Agricultural Employers

Exposure to the contaminants listed above can lead to asphyxiation, tuberculosis, asthma, hypersensitivity pneumonitis, lung disease, cancer and death. Symptoms of many respiratory diseases, including coughing and wheezing, are similar to symptoms associated with allergies and the common cold and are often ignored until the disease is in its advanced stages.

Operators and workers have to be aware of these hazards and protect themselves through engineering controls, safe work practices and personal protective equipment. High risk tasks include:

- Working in confined spaces
- Cleaning bird or rodent feces or hair
- Mixing/applying fertilizers and pesticides
- Cleaning grain storage bins
- Handling moldy hay or grain
- Mixing "soil-less" potting materials or soil amendments
- Working in silos
- Handling feeds or fish meal
- Welding metals
- Working with paints or solvents

To learn more about respiratory disease in agriculture and to develop a respiratory protection plan, check out the resources below.

Resources

- Agricultural Respiratory Protection-Video Series http://www.agrisafe.org/respiratory-protection-2/
- Murphy D, Harshman W, Cathleen L. Farm Respiratory Protection. Penn State Agricultural and Biological Engineering. 2006; http://www.agriculture.state.pa.us/portal/server.pt/gateway/PTARGS_0_2_24476_10297_0_43/AgWebsite/Files/General/E36.pdf
- Greskevitch M, Kullman G, Bang KM, Mazurek JM. Respiratory disease in agricultural workers: mortality and morbidity statistics. Journal of Agromedicine. 2007;12(3):5-10.

- Oregon's OSHA Respiratory Protection Guide for Agricultural Employers http://www.orosha.org/pdf/pubs/3654.pdf
- Linaker C, Smedley J. Respiratory illness in agricultural workers. Occup Med (Lond) 2002;52 (8):451-9.
- Respiratory Protection in Agriculture http://pubs.ext.vt.edu/442/442-601/442-601.html

Produced by the Southwest Center for Agricultural Health, Injury Prevention and Education. For more information, contact us at 903-877-5998 or by email to agcenter@uthct.edu.