

NewsWatch

Respiratory ailments nothing to sneeze at



NURSE MURF

By HELEN MURPHY

RESPIRATORY problems go with the territory in agriculture. The workplace is filled with irritants ranging from organic and inorganic dusts to chemicals, fumes and animal bacteria. Mites and molds account for many breathing problems as opposed to the usual suspect — smoking. Those in agriculture have some of the lowest rates of tobacco use compared to any other occupation.

Rhinitis — nasal irritation, sneezing, runny nose — is the least serious and most common complaint caused by ag irritants. Grain farmers, livestock breeders, dairy farmers, and processors of flax and hemp are bothered the most.

The same dusts, especially grain and cotton, also trigger an asthma-like syndrome. It feels like asthma but does not recur or become chronic. It improves by the end of the work week. Swine and poultry workers are troubled with this syndrome from the ammonia and multiple microorganisms in the air.

The dust most implicated in classic asthma is soya bean. Also, grain storage mites, cow dander and cow urinary proteins have been implicated. Chemicals such as solvents, welding fumes and ammonia, rather than being a cause, actually only aggravate underlying asthma. More recently, the Agricultural Health Study (www.aghealth.org) found a link between organophosphate pesticides and wheezing.

Chronic obstructive pulmonary disease is another dust-related ailment. The more exposure the tougher it is on the small air sacs (alveoli), which lose their elasticity. Fumes and endotoxins — toxic poisons produced by bacteria from animal manure — also cause air sac inflammation and bronchitis. These lung problems are common in those working in animal confinement areas.

Engineering controls in the grain industry have reduced the well-known problem of Farmer's Lung (hypersensitivity pneumonitis).

A mold (*saccharopolyspora rectivirgula*) that grows in damp animal feed storage in winter is a common cause. Recently researchers have found that hay dusts and endotoxins make the lungs more reactive to this spore. Farmer's Lung may be a single illness, come and go recurrently, or be chronic. Acutely, it comes on in the afternoon or evening after work and starts with chills, a cough and a feeling of being out of breath. It resolves in a few days.

Organic Dust Toxic Syndrome is a lung condition in which the air sacs and airways become inflamed from organic dust. The symptoms arise after four to six hours of exposure to the dust and include fever, breathlessness and cough. People recover quickly usually after 36 hours without long-lasting damage to their lungs. It is a toxic reaction to endotoxins and molds in the dust.

Toxic gas inhalation can occur with exposure to accumulated oxides of nitrogen, carbon dioxide and other gases in ensiled plant material. Animal manure storage produces carbon dioxide, carbon monoxide, ammonia, methane and hydrogen sulfide, all injure the airway. Mild exposures will cause irritation, but with high concentrations the lungs fill up with fluid leading to death by asphyxiation.

Preventive strategies

Controlling dusts and fumes, improving storage areas, and adding ventilation to prevent the growth of molds and bacteria reduce these respiratory problems. Studies of workers in animal confinement areas with humidity sensors and automatic ventilation systems demonstrated that they had better lung function than those without these technologies. Closed tractors and combines with air filters significantly reduce inhaled dust. Dust suppressants added to animal feed, automatic feeding systems, extractor fans and dust removal vacuums, and respirators are all vital ways to protect your lungs.

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Common respiratory hazards in ag

Organic dusts (grain, straw, hay)

- Molds and spores
- Bacteria
- Mites and their excreta
- Animal dander
- Animal urine and feces
- Animal feeds

Inorganic dusts

- Minerals (e.g., silicates)
- Quartz
- Clay

Chemicals

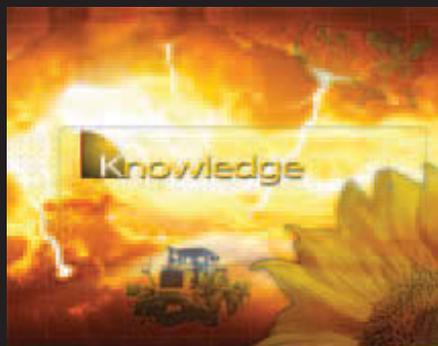
- Pesticides
- Fertilizers
- Paints
- Preservatives
- Disinfectants

Gases and fumes

- Slurry (ammonia, methane, hydrogen sulfide, carbon dioxide)
- Silage (nitrogen dioxide, carbon dioxide)
- Welding fumes (oxides of nitrogen, ozone, metals)
- Engine exhaust fumes (oxides of nitrogen, particulate matter)

Infectious agents

- Bovine tuberculosis
- Psittacosis (carried by turkeys and ducks)
- Q fever (carried by cattle, sheep and goats)



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