Respiratory Protection in Agriculture

Agricultural work may lead to exposure to a variety of inhalation hazards, including dusts, microorganisms, chemicals, and toxic gases. In many situations, personal respirators are the only practical method available to control exposure to these hazards. However, the use of these devices is low among farmers and their families. In the Keokuk County Rural Health Study (a health and hazard study of families living in Keokuk County, Iowa, led by Dr. James Merchant of the Great Plains Center for Agricultural Health), only 15% of farmers reported wearing respirators when handling grain, 21% when working with hogs, and 3% when applying chemicals. These results indicate that farm families may not recognize the value of reducing their exposures to dusts and gases by using respirators, and thereby preventing future respiratory problems.

Matching the proper respirator for use with specific tasks is very important. If adequate oxygen is not present or if there is a danger of being exposed to gas concentrations which are “immediately dangerous to life and health,” such as the release of hydrogen sulfide during manure pit agitation, then a respirator which supplies fresh air is the only appropriate choice. The nature of the contaminant also determines which type of respirator should be used. When exposed to dusts, filtering respirators which are able to capture at least 95% of the dust particles are recommended. However, this type of respirator provides no protection from toxic gases such as hydrogen sulfide, ammonia, or carbon monoxide. For gas exposures, a respirator with a chemical cartridge that can absorb the specific gas needed is required. There are respirators available with cartridges that both filter dusts and absorb gases, but these gas adsorbing cartridges can be quickly

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AgriSafe Spotlight

by Stacey Jenkins

Most people work, but some people simply do their job better than they have to, and Charlotte Halverson is a great example. Charlotte works for Mercy Medical Center in Dubuque, Iowa, and partners with the National Education Center for Agricultural Safety. Charlotte joined the AgriSafe Network in 1991. Her typical clinic activities include health screenings, helping farmers navigate the health care system, training agricultural audiences, and facilitating programs.

The most common illnesses that Charlotte sees at her AgriSafe clinic include arthritis, chronic respiratory disease, and hearing loss. Charlotte believes the use of appropriate personal protective equipment would greatly reduce the incidence of disease and injury among farmers.

For Charlotte, the greatest benefits of participating in the AgriSafe Network include networking with other occupational health professionals, maintaining assessment skills, and staying current on agricultural safety and health issues.

Charlotte’s advice for starting an AgriSafe clinic:

• Identify the needs in your community and available resources.
• Establish a strong, open relationship with your supervising organization.
• Build relationships within the agricultural community.
• Be patient and open to adapting to your community’s needs.

For information on the AgriSafe Network visit www.agrisafe.org or call 866/312-3002.

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In order to provide protection, it is important that the respirator fit properly to the wearer’s face with no leaks between the face and the respirator. Each time a respirator is used the fit should be checked by placing the hands over the air inlet and inhaling, or over the exhalation port and exhaling. If air movement can be detected entering or escaping around the respirator it should be readjusted.

NIOSH is the federal agency that evaluates and certifies respirators. The NIOSH certification number is printed on each approved respirator or its packaging, and only NIOSH-approved respirators should be used. The GPCAH can provide guidance on the proper selection and fitting of respirators, as well as the AgriSafe Network. The GPCAH and the AgriSafe Network will be presenting a one-day training course in Iowa City, Iowa, on November 17, 2006, to provide hands-on instruction focusing on respirator use in agricultural settings. For training details contact Kristi Fisher at 712/363-4067. For more information on respirators visit www.cdc.gov/niosh or www.osha.gov.

Dr. Wayne Sanderson directs the Great Plains Center for Agricultural Health, housed in the Department of Occupational and Environmental Health of the College of Public Health. He can be reached at 319/335-4207 (wayne-sanderson@uiowa.edu).

Contact the AgriSafe Network at www.agrisafe.org or 866/312-3002.
Fourth Quarter Farm Injury Profile

Looking at our collection of newspaper clippings since 2003, the next 3 months (October, November, December) have together averaged 24 farm and agricultural deaths and 22 injuries in our 4-state region (IA, KS, MO, NE). The good news is the number of such clippings for the final quarter (Q4) of the year is typically 25% less than the harvest quarter we are now ending.

Farm and Agricultural Injury Monitoring System (FAIMS) history suggests that a reported injury is least likely to come from Kansas during Q4. The most reports for Q4 should be expected from Nebraska, if past patterns repeat.

Overall it is slightly more likely that FAIMS will record a fatal than a non-fat al incident in Q4, by the slim 24-to-22 margin noted above. In records of deaths, Iowa and Missouri should contribute more than Kansas and Nebraska again in Q4.

Collectively, mobile farm equipment is involved in a smaller portion of incidents in the typical fourth quarter, dropping from a dominant 3-to-1 in Q3 (the harvest quarter) to a level equal to other agents in Q4. Nonetheless, over 55% of Q4 farm equipment incidents have historically been reported fatalities: slightly higher than the even fatal – nonfatal split associated with other sources of farm and agricultural injury. Motor vehicle crashes and incidents involving livestock are the most frequently reported kind of incident in a typical fourth quarter. Tractor overturns will probably remain the single event resulting in the largest number of death clips. A similar number of deaths are typically reported involving farm equipment / motor vehicle crashes, in conjunction with grain or manure storage, and while working with livestock during the last three months of a year.

Finally, the extent to which past press clippings provide perspective on the future is affected by many factors. Among them are hazard elimination, awareness, application of safety technology, and conformance to safe operating practices. These actions make a difference. They can be encouraged and, when applied in advance, they can change the experience that might otherwise occur through the end of the year and beyond.

For more information contact Murray Madsen, murray-madsen@uiowa.edu or 319/335-4481.