PRESS RELEASE

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University of Iowa College of Public Health

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GREAT PLAINS
Center for Agricultural Health

In livestock production, not all gas monitors are the same.

Study finds that routine care of low-cost hydrogen sulfide monitors is needed to save lives.

Last fall, livestock producers in Iowa, Illinois, and Wisconsin were alerted to the dangers of hydrogen sulfide gas following a series of cattle fatality incidents during manure handling activities. Hydrogen sulfide is an important manure pit gas, and it is released during agitation and manure pumping. Many livestock workers are familiar with the gas's "rotten egg" odor.

Some producers are starting to wear low cost direct readying gas monitors to provide warning when hydrogen sulfide gases are released and can be dangerous to life and health. Hydrogen sulfide monitors are available from many manufacturers and are recommended for use during manure handling operations. Leaving the area when a working gas monitor alarms can save lives.

Researchers at the University of Iowa compared the performance of four easy to use, low-cost hydrogen sulfide monitors, published in the *Journal of Agricultural Safety and Health*. Each monitor had different features, but each one had a low and high alarm to alert the user of dangerous hydrogen sulfide, and each was advertised as good for at least two-years in the field. The researchers tested each monitor's performance over time, simulating what they might be exposed to over one year of use in a livestock environment.

Performance declined over time. All of these monitors showed signs of reduced performance as the study progressed. "When we exposed these monitors hydrogen sulfide at levels that would be seen on the farm, the time it took for the monitor to signal an alarm increased," said Dr. Renée Anthony. "This would be a problem if someone wearing the monitor was not warned of hazardous concentrations quickly."

Not all manufacturers recommend performing bump tests. Results of this study recommend you do. The "bump test" simply requires delivering a known concentration of gas to the monitor and then checking: Does the alarm go off? Does it alarm quickly (<15 seconds)? In addition, if the monitor displays concentration, does it match the one on your gas bottle? "Bump testing is important for workers who plan to perform high-risk activities like agitating or pumping manure and pressure washing", said Anthony. "For monitors that don't display concentration, it is the *only* way to know if the sensor still able to detect hydrogen sulfide."

Information for how to perform a bump test is available HERE. Producers should plan ahead and test their monitors before using them in potentially hazardous situations to make sure.

For questions on gas monitors or how to perform bump tests, please contact the Great Plains Center for Agricultural Health at CPH-GreatPlainsCenter@uiowa.edu.

The Great Plains Center for Health serves the region of IA, IL, MO, KS, WI, MN, NE, SD, and ND. The Center frequently posts safety messages about manure gases and other agricultural hazards on their Facebook page, at www.facebook.com/GPCAH. Follow ***#manuremondays*** *to learn more about safe manure handling. For more information about the Great Plains Center for Agricultural Health, go to* ***www.gpcah.org****.*

Reference:

1. Beswick-Honn JM, Peters TM, Anthony TR. Evaluation of low-cost hydrogen sulfide monitors for use in livestock production. *Journal of Agricultural Safety and Health*. https://doi.org/10.13031/jash.12530

Figure 1: The number of days *until a first failure* of personal hydrogen sulfide monitors stored in livestock buildings.

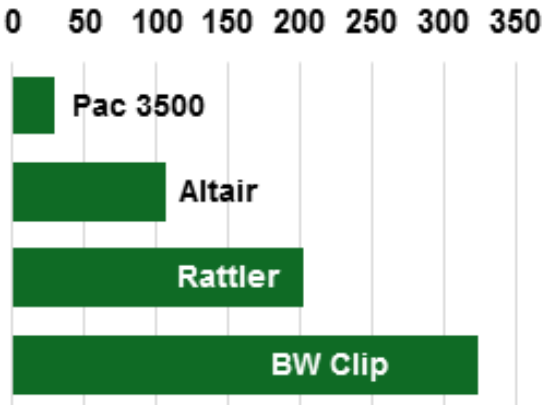

Figure 2: Gas montitors tested

Concentration Displayed:

Time Remaining Displayed: