MANURE ProfitPro MANAGEMENT NEWS
Solving Manure Issues
July 2011

It's the Pits

Pit Gas Series #2: Methane and Ammonia

Managing manure demands constant attention. As manure decomposes, it steadily emits several types of gases—among the worst are methane and ammonia.

METHANE is colorless, odorless, non-toxic, flammable and lighter than air. The major risk of a fiery explosion comes into play when methane over exceeds oxygen. Thus, the more poorly ventilated area, the greater the risk. Add in a little spark from an equipment malfunction, heater pilot light or LP gas heaters suspended from the ceiling, and the recipe for a disaster is complete. Although methane is non-toxic to humans or livestock, it has the potential to cause asphyxiation if it overcomes oxygen in a secured facility. Asphyxiation is a condition of severely deficient supply of oxygen to the body that arises from being unable to breathe normally.

AMMONIA is produced by the decomposition of non-degraded proteins in manure. The strong odor it produces makes it easily detectable as soon as levels reach 5 to 10 ppm. High levels of ammonia, between 20 and 50 ppm, irritate the eyes, nose and throat. Noxious gases like methane and ammonia can severely damage a pig's respiratory system, which causes higher incidences of pneumonia, Pleuritis and other respiratory diseases. High ammonia levels have also been linked to lower feed intake and have a negative influence on feed conversion, which reduces the performance and overall health of the animal.

Pump-Out Precautions

Use lockout tags to remind everyone, including employees or family members, to stop from entering a potentially unsafe building. The National Pork Board provides the tags pictured on the right free of charge to all pork producers. Order yours at the Pork Store.

FREE *Manure Management Teleconference*
scheduled for **July 7, 2011** from 8 to 9 pm CDT on
"Series Two on the Danger of Pit Gases and How to Effectively Manage Them"
For more information, go to **manure.profitproag.com**.
Dial the toll free number 1-866-225-3498 just before 8 p.m. (CDT) and enter the security code 7159 # (pound key).

Table 1. Acute Effects of Swine Confinement Air Contaminants on Humans*

Gases	Exposure Level	Effect of Symptom
Ammonia	5 ppm	Lowest concentration detectable by smell.
	7 ppm	**RECOMMENDED MAXIMUM FOR HUMAN HEALTH**
	6 to 20 ppm and above	Eye irritation and respiratory problems
	40 to 200 ppm	Headache, nausea, reduced appetite, irritation to airways, nose and throat
Methane	50,000 to 150,000 ppm	Potentially explosive
	500,000 ppm	Asphyxiation

Source:
http://nasdonline.org/document/1298/d001097/beware-of-manure-pit-hazards.html

Solution

As part of its **Full-Circle Animal, Manure, and Soil-Plant System™**, ProfitPro has a number of ways to remediate noxious manure gases. Technologies, to be used alone or in combination, include probiotic feed additive (swine, dairy, beef), water additive (WaterRite ™), and manure biouaugmentation products. ProfitPro also offers a **Manure Management Service** that monitors and adjustments treatment applications to achieve optimal results. Products are available for individual application as well.

For more information on ProfitPro's **Manure Management Service** call **1-888-875-2425** or go to **www.profitproag.com.**

Question & Answer

Why should you be cautious of "foaming" manure?

Foam contains high levels of methane. During agitation, the manure breaks the foam bubbles, which leads to methane build up in the building.

Across the Midwest, foam and methane has been associated with fires and explosions in hog barns. If there is foam in the pit, turn off all pilot lights and the electric power supply (except the electricity required to power the ventilation system), prior to moving any manure.