Ozone Benefits for Pork Producers

Ozone can play an important role in the elimination of odor and disease in the hog barn. Positive results have been observed in several studies and trials. Many of the findings noted on this page are from a study by Dr. R. D. von Bernuth of Michigan State University, developed from tests in two barns – one with ozone added to the air and one without ozone added.

Odor Control:

Hydrogen sulfide levels were significantly less in the ozonated barn with levels generally about 100 parts per billion (ppb), whereas in the untreated barn the levels averaged about 400 ppb. Other odor causing compounds that were decreased by ozonation were dimethyl disulfide, dimethyl trisulfide, indole, skatole, and 4-amino acetophenone. It was observed that no odor of pigs and/or ozone was noticeable in the treated barn.

Increased Productivity:

The average daily weight gain and feed efficiency was documented to be superior in the ozonated barn versus the non-ozonated barn. Average daily feed consumption for the non-ozonated barn was 1.295 lb./pig, average daily gain was 0.688 lb./pig, and feed efficiency was 1.883 lbs. feed per lb. gained. The ozone treated barn had an average daily feed consumption of 1.181 lb/pig, average daily gain was 0.722 lb/pig, and feed efficiency was 1.637 lbs of feed per lb. gained.

Improved Health and Environment:

- Decrease in the amount of bacteria.
- An almost complete cessation of tail biting.
- A drop in mortality rate and illness.
- Reduced coughing.
- Decrease in air born dust.
- Reduction in the number of flies.
Energy Savings:

Since odor and bacteria levels are significantly reduced, the barn heating cost can be decreased by an estimated 20-30% due to reduced ventilation requirements.

Manure Processing:

The use of ozone for the remediation of nuisance odorous chemicals in liquid swine manure slurry was investigated. Gaseous ozone was bubbled directly into stored swine manure slurry in a continuously stirred batch reactor. The results of this study demonstrate clearly that ozonation is effective for the elimination of the odor associated with stored swine slurry. In addition it is effective for killing potentially pathogenic bacteria, without increasing the concentrations of major pollutants of current concern, (i.e., nitrate and phosphate). Furthermore, it does not destroy ammonia, which is a major plant nutrient. (Ozone: Science & Engineering, vol. 19, no. 5, pp. 425-437, Nov 1997.)

Spraying water on pigs to keep them cool and calm is a common practice. This water then mixes with the manure in the pit. This procedure consumes large quantities of water and results in large quantities of barn water to treat. Recent testing in Tennessee shows that this water can be treated with a two-step process. These include a solids filtration with a screw press and then an ozone treatment. As a result, this will allow the farm to recycle the water to spray back on the pigs, ultimately reducing the amount of manure water to the lagoon.