

ENVIRONMENT

Title: The Effect of Air Quality in Swine Finishing Facilities Upon Animal Performance and Environmental Pollution Potential - **NPB #01-128**

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Date Received: 7/1/2002

Abstract:

This project was conducted with 96 finishing pigs in 4 identical rooms under closely controlled ventilation and temperature. The objectives of the project were to determine if air quality impacted pig performance, to identify and quantify the gasses emitted and to determine emission rates of those gasses, and to compare gasses, dust, and performance as influenced by three different levels of ozonation in the facility. The emission rates were calculated and tabulated. The gasses detected were too numerous to detail here but are detailed in the dissertation produced in conjunction with this project (Kim-Yang, 2002). Overall performance of the pigs was not affected although feed intake and gain were reduced in the early stages at the highest ozone level. The differences were overcome by later compensatory gain and there was no difference in the end. The ozone linearly decreased odor detection thresholds as measured by the amount of dilution when odor is first detected by a trained odor panel (dilution threshold). Ammonia, indole, and skatole were linearly reduced by ozonation. P-cresol was reduced quadratically with a minimum at 0.05 ppm ozonation, but the other gases analyzed in detail (hydrogen sulfide, phenol, and p-ethyphenol) were not affected. Dust levels on average increased quadratically with ozone with a maximum at 0.05 ppm.

These research results were submitted in fulfillment of checkoff funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer reviewed

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