



Air quality in Canadian hog buildings: reduction of airborne dust, gas and human pathogens in buildings and their environmental dispersion.

This new study will look at pig buildings and the nose and throat of pig producers for the presence of airborne human pathogens as well as metal and antibiotic resistance genes. These will be compared with the usual contaminants found in the air of pig buildings such as dust, bacteria and endotoxins.

The goal is to optimize the protection of humans by building on existing strategies for odorous compound, gas and bioaerosol reduction. These strategies include modifying the components of sprinkling oil, optimizing the design of separating liquid and solid manure, and optimizing the filter for exhaust air treatment. The impact of the modification and optimization of these three things combined will be done in a laboratory setting to see if there is a reduction in contaminants. Then, in a pre-commercial setting, two rooms will be set up. One will have the best combination of the three strategies and one will have the most common strategies used in the swine industry at the present time.

Once the best combination of these strategies has been determined in the laboratory setting, it will be validated in a commercial pig building. The evaluation of this project will take place over a one year time period.

Currently this project is at the design stage of ventilation prototype constructions for barns. A Monitoring Committee has been selected that will identify swine producers that meet the criteria for recruitment and participation in this study via a questionnaire. The most clinically important human pathogens and antibiotic resistant genes have been selected for the basis of this study.

The *Air quality in Canadian pig buildings* project, is one of two projects in the Animal Housing Environment priority area, under Agrivita Canada Inc.'s Canadian AgriSafety Applied Research Program, lead by a national team of researchers from the Institut de recherche et de développement en agroenvironnement (IRDA), and Centre de recherche de l'Institut universitaire de cardiologie et de pneumologie de Québec at the Université Laval (CRIUCPQ), University of British Columbia, the Canadian Centre for Health and Safety in Agriculture (CCHSA) and the Canadian Agricultural Safety Association (CASA).

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