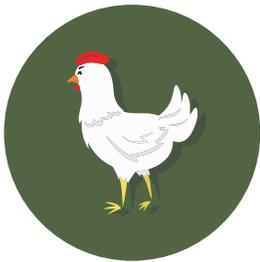




# CANFARMSAFE™

001-4

## Improved Animal Welfare Barns: What are the health & safety risks?



Increasing public concern for the welfare of animals raised for consumption is pushing the livestock industry towards changes to production facilities that improve animal quality of life. Recent shifts toward the enrichment of livestock housing environments include:

- Poultry: enriched or furnished cages and aviaries are replacing conventional cages
- Dairy: use of bedding become more common practice
- Swine: mated gilts and sows housed in groups instead of kept separate



Most new configurations that aimed at improved animal welfare allow the animals to roam more freely in larger pens, but this has the potential to produce more odours, gases, and microbes in the air due to the increased animal activity. Increased microbes, dust, and particulate matter in confined spaces can negatively impact air quality and in turn affect the health of both producers and livestock.



### What's the Risk?

The new practices and changes in livestock environments to improve animal welfare are a positive shift for the industry, there remain unknown risks that have not been fully investigated regarding changes in air quality that result from these new practices in livestock facilities.

Airborne contaminants are often concentrated and confined in livestock production operations. These contaminants include:

- Gases
- Odours
- Microorganisms
- Fragmented materials from bedding, feed, manure, and soil

The changes made inside livestock buildings may be affected by the animal activity levels, ventilation, feeding practices, bedding materials, flooring type, and waste handling. Ammonia, fine particulate matter and microbial aerosols are of particular interest inside livestock operations because these possess a hazard to both human and animal health when critical levels are reached in confined spaces and also are linked to human respiratory problems. Concentrations of methane and ammonia are highly dependent on feed composition, barn design and operation, and manure management practices.

## Investigating & Improving Air Quality

The *Developing Strategies to Minimize Health Risks in Next-Generation Livestock Buildings Integrating Modern Animal Welfare Considerations* project out of IRDA in Quebec will assess the risk and investigate the effects of new practices of improved animal welfare on air quality in livestock production. It will utilize existing research that shows the possibility of improving the air quality in barns using new technologies, best management practices, and engineering practices. Most of these technologies for improving air quality in barns have not been tested in livestock facilities with improved animal welfare environments where factors like bedding, increased animal movement, and larger areas per animal all of which may bring new challenges to incorporate these technologies.

## Project Phases

Producers currently have no tool or information to change or improve the management strategies in livestock production facilities that have adopted improved animal welfare environments. This project will focus on collecting this information, developing and testing management practices that are cost-effective for producers, testing these developed strategies in a commercial setting and conducting a cost-effectiveness analysis on the solutions.



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