

Respiratory Health

Protecting your lungs on the poultry farm.



Training Guide



Southwest Center
FOR AGRICULTURAL HEALTH, INJURY PREVENTION, AND EDUCATION

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Respiratory Hazards

On livestock farms, the air quality can be suboptimal. If you didn't have a respirator (sometimes called dust masks) with you, you might have tried to use a handkerchief or your shirt to help filter out the dust.

This hazardous dust not only makes it hard to breathe, but it can also make us sick and cause lung disease.

Poultry house dust is a complex mixture of animal dander, feed particles, animal waste, and bacteria.

Our research has found that poultry house dust contains extremely small particles (nanoparticles), known as bacterial extracellular vesicles, that are released by the bacteria.²

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During the winter months, ammonia can be especially prevalent. When nitrogenous compounds break down, they produce ammonia. **It can be characterized by a sharp and pungent odor.**

Spending periods of time in an area with minimal or poor ventilation of ammonia concentrations, it can be particularly damaging to your health.

For example: between flocks when the house is closed or during the brooding period.³



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The most vulnerable route of entry is the lungs. This route is the quickest and most direct, because of its large surface area. Although the lungs have built-in mechanisms to defend against foreign matter, like coughing and sneezing, **the capacity of the lungs is limited.**

Respiratory protective devices should be worn if other measures to control exposure, such as ventilation, are not available or are insufficient.³



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Did you know?

- Cloth masks, bandanas, and dust masks are not NIOSH* approved filtering facepiece respirators and do not provide adequate protection against hazardous dusts, gases, or vapors like those produced in poultry houses.
- They can be worn for comfort against non-toxic nuisance dust during activities like mowing, gardening, sweeping, and dusting.¹



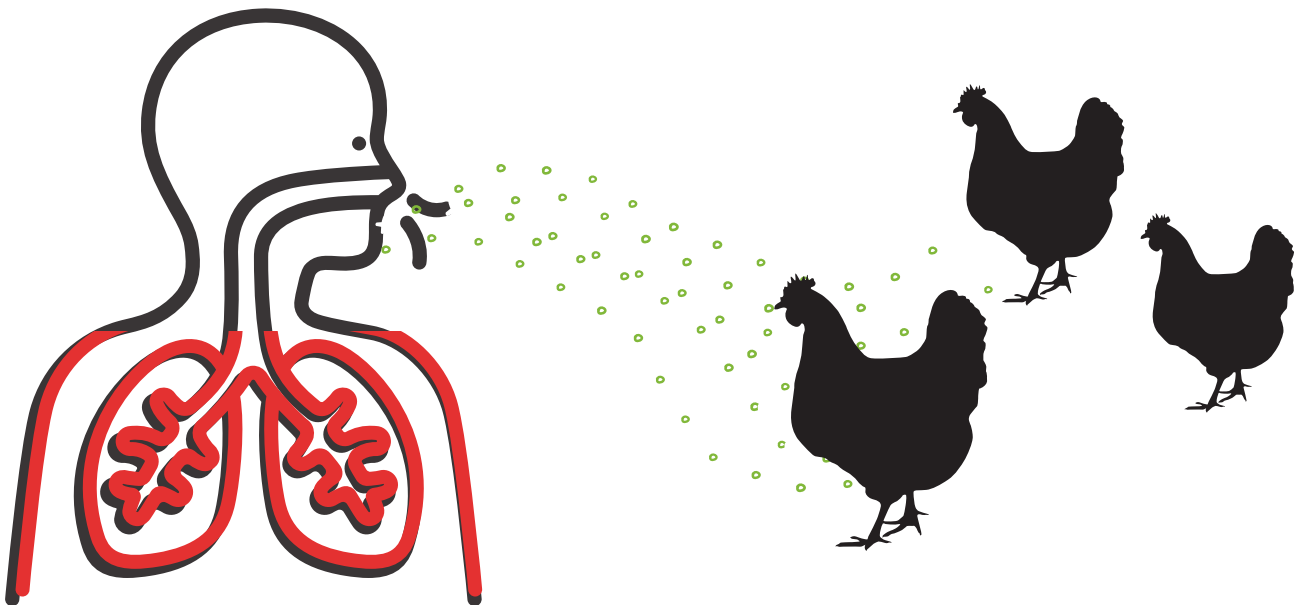
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How can I get sick from dust?

- By not covering your nose and mouth from dust when working in or around poultry houses and/or farms.
- By wearing a mask that is not NIOSH* approved like a dust mask, bandana, or cloth mask.



Even though you can't see them, inhalation of these bacterial particles can damage our lungs.

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What kind of respirator can I wear?

- Wear an N95 or P100 disposable filtering facepiece respirator when working inside poultry facilities.

How do I take care of my respirator?

- Replace a respirator or filter when it is visibly dirty or damaged or when you experience difficulty breathing through it.
- Never wash or try to blow out respirators or filters.
- Inspect your respirator/mask regularly for worn-out straps, cracks, and dents, and store it in a clean, cool, dry place.
- Replace respirator cartridges when you can smell or taste chemicals or dusts while or after using the respirator, or according to the manufacturer recommendations. ¹

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What kind of respirator can I wear?

- Wear a 2 Strap Air Purifying Respirator. A P100 will provide the best protection but a N95 is still highly effective.

3M 8210 N95



3M 8511 N95



3M 8271 P95



3M 8293 P100



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What kind of respirator can I wear? Cont.

- A **P100 cartridge in combination with a reusable respirator can provide the maximum filtration** against dust and other particles. Though it offers the highest form of protection, a disposable N95 respirator offers considerable protection at a lower cost.
- An ammonia cartridge combined with an N95 or P100 particulate filter provides protection from ammonia and organic dust.¹



P100 Cartridge & Reusable Respirator

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Disposable vs Reusable

- **Disposable respirators** are generally single-use, but repurposing may be appropriate in some situations. N95 filtering facepiece respirators are approved by NIOSH (see image below) and are the most common type. They are often used in agriculture settings.



N95 Filtering Facepiece Respirator

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Disposable vs Reusable Cont.

- **Reusable respirators** are cost-effective options that offer protection from hazardous gases, vapors, and particles like those found in poultry houses. These are paired with cartridges that offer different levels of protection. A P100 cartridge (see image below), helps protect you against harmful organic dust while Ammonia cartridges with a P100 filter protect you from Ammonia and organic dust.



P100 Cartridge & Reusable Respirator

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Resources:

1. **Dust Mask vs. Respirator** <https://ehs.msu.edu/occ/respirator/dustmask-vs-resp.html>
2. **Poultry Dust Exposure and Lung Inflammation, Principal Investigator: Vijay Boggaram, PhD, *Bacterial extracellular vesicles isolated from organic dust induce neutrophilic inflammation in the lung*** <https://journals.physiology.org/doi/abs/10.1152/ajplung.00107.2020>
3. **Respiratory Health on the Poultry Farm** <https://nasdonline.org/197/d000146/respiratory-health-on-the-poultry-farm.html>
4. **Agriculture Respirator Selection Guide**
https://f0c4c2e0632d8cbc8cf01ee2f12b5b447bf2ed4ab14451ea8912.ssl.cf2.rackcdn.com/agrisafe_a6e510c82f357489100f925136cc0f6a.pdf
5. **Respirator Selection Guide**
https://f0c4c2e0632d8cbc8cf01ee2f12b5b447bf2ed4ab14451ea8912.ssl.cf2.rackcdn.com/agrisafe_36fc0165b4d298f25d257d952a9bbe95.pdf

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