

## What Can I Do To Protect Myself?

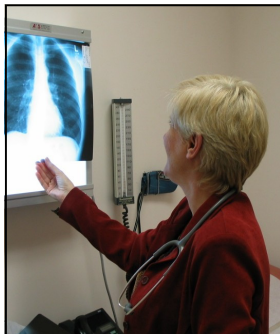
- Wear **NIOSH** approved properly fit-tested **dust respirator masks** to protect against dust, bacteria, fungi, and insects.
- During **cleaning** of barns and stables, areas should be **wetted down** to avoid dust from becoming airborne.
- **Store grain** at recommended moisture content levels to limit mould spore growth.
- Ensure adequate **ventilation** in animal lodgings to prevent buildup of ammonia.
- Frequent **removal** of **animal wastes** may prevent buildup of ammonia, and reduce exposure to urine and fecal allergens.
- If ammonia cannot be reduced to below permissible exposure levels, then use **NIOSH** approved **air purifying respirators**.



Dust mask respirator

## What To Do If I Suspect That I Have Agricultural Asthma?

- Remove occupational exposure to the substance that is causing the asthma.
- Seek medical attention
- Speak to an occupational health professional to learn more about occupational asthma.



OHCOW has medically trained professionals that can provide medical surveillance. In addition, occupational hygiene and ergonomic services can be provided for free.

### For More Information

<http://www.ohcow.on.ca>  
<http://www.wohis.org>  
<http://www.farmsafety.ca>  
<http://www.whsc.on.ca>



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Occupational Health  
Clinics for Ontario  
Workers Inc.

**PREVENTION  
THROUGH INTERVENTION**

# Agricultural Asthma



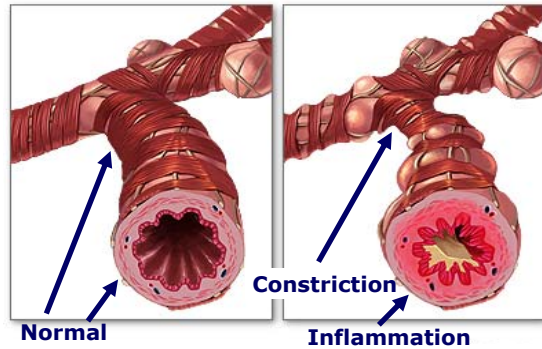
[www.ohcow.on.ca](http://www.ohcow.on.ca)

## What is Occupational Asthma?

Asthma is a lung condition which causes wheezing, shortness of breath, coughing, and tightness of the chest. With asthma, the airways (*trachea, bronchi, bronchioles, alveoli*) overreact to various substances causing tightening and difficulty breathing.

Occupational (*Workplace*) Asthma is defined as asthma which is caused by certain substances in the workplace. It usually occurs after a significant time exposure (*18 months to five years*). A worker may recover completely if no longer exposed.

### Normal versus Asthmatic Airway



## What is Agricultural Asthma?

**Agricultural asthma is a type of workplace asthma.** It is usually the result of an immune response to allergens (*substances which cause allergies*). These allergens enter the lungs and activate immune defense mechanisms. With each exposure, some worker's lungs will become more sensitive to the allergen until eventually the allergen causes a large allergic response resulting in the narrowing of airways, inflammation, and difficulty breathing. After this first allergic response, even a small exposure can cause the same response.

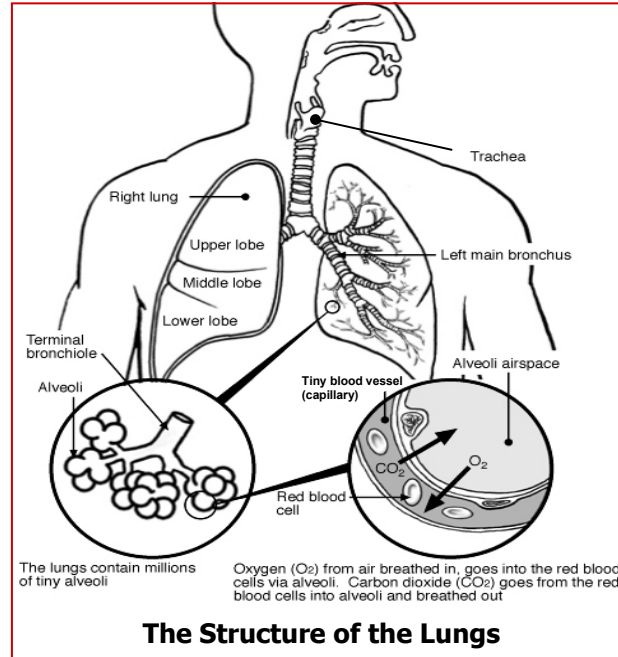
The frequency of occupational asthma across Ontario farm workers is about:

- ◆ 20-30% for pork farmers
- ◆ 5-10% for poultry farmers
- ◆ 4-7% for dairy farmers

The actual numbers may be higher since the disease is under-reported.

## What Causes Agricultural Asthma?

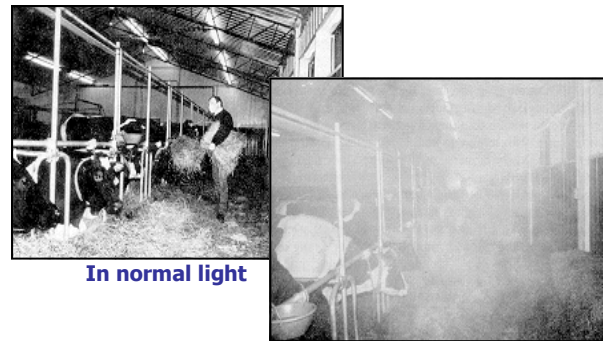
Farmers and farm workers are exposed to a wide variety of allergens that can cause asthma, or aggravate existing asthma. Other factors such as genetics and environmental tobacco smoke also play a role in one's risk of getting asthma. Potential allergens commonly seen in the agricultural setting include grain dust, bacteria, fungi, insects, pesticides, and animal products.



### The Structure of the Lungs

## Grain Dust

Grain dust asthma is a result of sensitization to grain dust or to one of its' components. Grain dust can be found in barns, flour mills, and grain storage facilities. It can be produced from ground up grain, hay, or straw. Grain dust is often not visible unless viewed under bright light.



## Insects and Pesticides

Mites are extremely small insects that feed off organic material. Mite parts and by-products are allergens that may cause allergies and asthma. There are many different types of mites. Storage mites are found where organic products are stored, red spider mites are found on many greenhouse crops as well as orchard trees. Dust mites are found wherever there is **dust**.

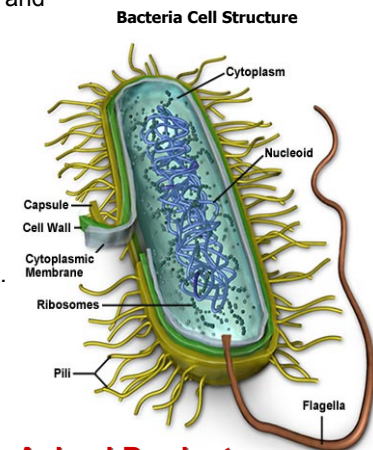
Pesticides used to get rid of insects are also found to be associated with agricultural asthma. However, there are confounding factors such as dust, insects and moulds that are present. It is important to *investigate* the effects of specific pesticides before use.



**Red Spider Mites**

## Bacteria and Fungi

Airborne bacteria and fungi residing in farm structures can get into the airways of the lungs. Some of the cellular components of microorganisms can cause an immune response. (*e.g. Endotoxins, glucans*).



## Farm Animal Products

Animal products such as dander, saliva, urine, and faeces contain proteins, which can be potential allergens. In addition, ammonia gas (a respiratory irritant) can be released from animal urine and faeces. It can also cause headaches and nausea. Ammonia is the most common gas to exceed permissible exposure values in animal housings. High levels of ammonia can cause occupational asthma by irritating the lungs. Workers who already have asthma are also more sensitive to ammonia. Ammonia can also be found in fertilizers.