

FARMER'S LUNG DISEASE

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Farmers and ranchers are continually exposed to dusts, mists, fumes, vapors, gases, and other airborne particles that can pose short-term and long-term health risks. Animal confinement areas such as closed barns and buildings for chicken, dairy cattle, and swine are common sources of organic dusts. Silos, manure pits, and feed mixing facilities can emit gases, vapors, bacteria, and mold spores into the air which is then breathed in by workers. Understanding the sources of respiratory contaminants common on farms is essential to protecting yourself, workers, and family members.

One problem associated with respiratory illness on farms is Farmer's lung disease.

WHAT IS FARMER'S LUNG?

Farmer's lung disease is an allergic reaction caused by inhaling moldy hay or straw dust which contains specific, heat-tolerant mold spores. These spores are most prevalent where crops are harvested in wet or rainy weather where the temperature of stored material increases. Organisms that cause Farmer's lung flourish in areas of high humidity and prefer temperatures of 104 to 140 degrees Fahrenheit.

Farmer's lung is often a disease of dairy farmers who handle contaminated hay during the winter months. Most cases occur in winter or early spring when farmers typically feed stored hay to livestock.

As moldy hay is disturbed, it releases mold spores that are breathed in by farmers. These spores cause an allergic reaction in the body's immune system. Frequent exposure to these mold spores can cause pulmonary fibrosis, or scarring of the lung tissue. The alveoli (air-sacs) of the lungs become filled with fibrotic tissue and will result in an irreversible loss of the lung's ability to transfer oxygen to the bloodstream. Patients with pulmonary fibrosis have a mortality rate greater than 90 percent at five years after diagnosis.

WHO IS SUSCEPTABLE TO FARMER'S LUNG?

The most likely victims of Farmer's lung are farm workers who are frequently exposed to moldy hay, straw, silage, and other plant material. Other people exposed to dust from moldy hay or straw include animal handlers, stable employees, poultry workers, zoo attendants, and animal and pet shop workers. Even farm visitors sensitive to mold dust may contract acute Farmer's lung symptoms.

COMMON SYMPTOMS

The signs and symptoms of Farmers' lung vary considerably from a sudden attack to a slow progressive illness, and depend on the intensity, frequency, and duration of exposure to mold spores. A farmer's pre-existing medical condition and immune system function will also determine the severity of a reaction to these mold spores.

Allergic reactions to molds may cause an acute attack, sub-acute attack, or low-level chronic or long-term response.

Acute Farmer's Lung

Acute Farmer's lung occurs after a person breathes in a large amount of dust from moldy crops, resulting in an intense attack four to eight hours later. Symptoms of acute Farmer's lung include:

- Shortness of breath
- A dry irritating cough
- A sudden general feeling of sickness
- Fever and chills
- Rapid heart rate
- Rapid breathing

If a person avoids further exposure, symptoms will usually decrease after 12 hours; however, they can take up to two weeks to subside. Periodic attacks can last up to 12 weeks. If the inhalation exposure

is large, some agricultural workers may develop acute respiratory failure. Symptoms of acute Farmer's lung are sometimes confused with pneumonia.

Sub-Acute Farmer's Lung

Sub-acute Farmer's lung is more common than acute Farmer's lung and develops more slowly, responding to continual exposure to small amounts of moldy dust. Symptoms include:

- Coughing
- Shortness of breath
- Mild fever and occasional chills
- General feeling of sickness
- Aches and pains in the muscles and joints
- Loss of appetite and loss of weight

Chronic Farmer's Lung

Chronic Farmer's lung affects people who have been continually exposed to moldy hay or straw. It generally develops after several acute attacks over many years of exposure. Symptoms resemble those of sub-acute Farmer's lung; yet permanent lung damage develops and gradually worsens as exposure to mold continues.

DIAGNOSIS AND TREATMENT

Many physicians are not familiar with Farmer's lung disease. If you are having respiratory problems and suspect Farmer's lung, make sure to inform the physician of your environmental working conditions and exposure to hay or straw. Misdiagnosis of acute Farmer's lung as viral or bacterial pneumonia or infection is common.

Blood tests, chest X-rays, and breathing capacity tests are all tools a physician can use to diagnose Farmer's lung. However, the most important diagnostic tool is a detailed environmental history.

There is no cure for Farmer's lung disease. Systemic corticosteroids (or anti-inflammatory steroid hormones) and eliminating exposure to mold spores that cause this reaction are the primary treatment measures.

PROTECTIVE MEASURES

There is no way to know in advance if you are immune to the molds that cause Farmer's lung. The best way to prevent this condition is to minimize exposure to situations where you are likely

to breathe in mold spores from plant material. Following are recommendations to minimize exposure to the moldy spores:

1. Make sure that crops are adequately dried prior to being stored. Artificial drying systems and preservatives can help prevent mold development.
2. If possible, ensile wet hay.
3. Always use a plastic sheet to cap open silos—don't use plant material. Hold the edges of the sheet down with heavy weights, such as tires.
4. Wet down the top of a silo before uncapping the ensiled material. This prevents moldy dust from becoming airborne.
5. Use the same wetting techniques when cleaning out grain bins or other areas that are likely to be dusty.
6. Provide as much ventilation as possible when working in dusty areas. Make sure doors and windows are open.
7. Avoid working in confined areas if you can take your work outdoors.
8. Be sure to open hay bales that you know are molding outdoors.
9. When you have to work with moldy material, keep your distance. If you have to break open a moldy bale, do so with a fork, rather than leaning over the bale and using your hands.
10. If possible, mechanize feeding operations to limit exposure to moldy dust. For example, feed large round bales instead of square bales.
11. Wear an approved toxic dust respirator in addition to the other precautionary measures.

REFERENCE

Wild L, Chang E: Farmer's lung. EMedicine, March 13, 2003.

<http://www.emedicine.com/med/topic771.htm>

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