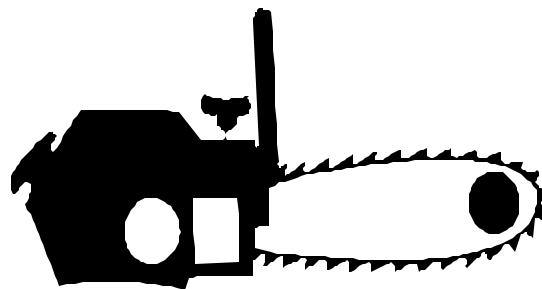


**Beneficial facts for Farmers from**

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**RAYMOND J. SAMULIS,  
BURLINGTON COUNTY  
AGRICULTURAL AGENT**



**CHAIN SAW SAFETY**

By Michelle Bross, Burlington County Master Gardener  
Raymond J. Samulis, County Agricultural Agent

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In the past, chain saws were primarily used by woodworkers and lumberjacks. Nowadays, they are very popular among homeowners and farmers, who find them useful for cutting firewood, trimming trees and clearing land. While a chain saw may seem indispensable, operating one can be **five times more dangerous than driving a racecar**. Tens

of thousands of people are treated yearly for injuries associated with chain saws.

Some of the hazards associated with chain saw use are **kickback, burns, electrocution** and **dismemberment**.

**Kickback** is one of the greatest hazards. It occurs when the nose or tip of the saw guide bar comes in contact with a solid object, causing it to recoil and hit the operator. It is a very violent and sudden motion, and it can do serious harm. Some causes of kickback are: abrupt change in wood character (knot or nail); striking a tree limb with the tip of a moving chain saw; running the saw too slowly; twisting the saw while cutting (chain grabs); using a dull or loose chain; cutting with only one hand; having a loose grip on the saw; not paying attention.

Kickback can be prevented by a few simple precautions, which are as follows:

- **hold the saw firmly with both hands**, keeping the left arm straight and stable
- use a saw equipped with an **anti-kickback device** (chain brake, anti-kickback chain)
- **watch for any obstructions**; they can snag the chain

- do not cut with the tip or nose of the blade; **cut with the lower part of the blade**
- maintain a **high saw speed** when entering, cutting and leaving the wood
- keep the **chain sharp**
- **cut below mid chest** height (above is too close to the face)
- **do not cut brush or shrubbery**

### Prior to Cutting

Before cutting with a chain saw, it is important to **wear the following proper clothing and protective equipment**, which can help reduce the possibility of serious injury:

- **well-fitting clothing** (no baggy sleeves or pants)
- properly fitted **hard hat**
- **safety goggles** or safety glasses, with side shields
- good pair of **ear plugs** (hearing can be damaged in 12 minutes without them)
- good, light-weight, leather **gloves**
- **safety boots** or shoes, with high tops

Having a **well-maintained chain saw** will also prevent injuries. Maintenance includes **sharpening teeth** (use the proper tools, wear gloves), correcting **chain tension** (all chains stretch with use), **lubricating** (prolongs chain's life)

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and **tuning the engine** (use a good tool kit and follow manufacturer's directions).

### **Safe Operation**

#### **1. Refueling:**

- Use the manufacturer's recommended fuel mixture.
- Turn off chain saw before refueling.
- Use a funnel or flexible nozzle to avoid spilling fuel.
- Refuel only when engine is cool.
- Thoroughly clean any spills immediately.
- Do not smoke during refueling.

#### **2. Starting the Engine:**

- Start the chain saw on **clear ground**.
- Set the starting controls.
- Grip the top handle firmly with one hand; pull the string with the other.
- **Never drop-start the saw.**

#### **3. Cutting:**

- **Have a helper** with you, **if possible**, but don't let

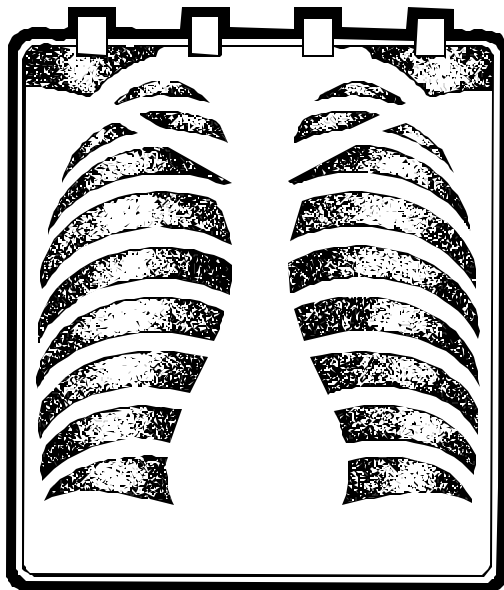
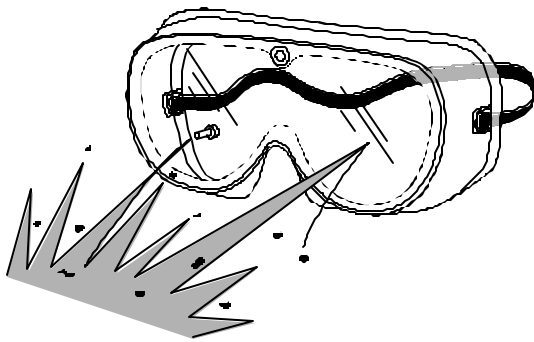
him hold the wood while cutting.

- Reposition log **before cuts**, not while engine is running.
- **Don't cut small or flexible branches.** They can cause kickback.
- Leave **risky jobs to the professionals.**
- Do not work from a **ladder.**

In the hands of careless or inexperienced operators, chain saws can be very hazardous. It is imperative that the above safety precautions are followed, in order to avoid serious injury.

#### **References:**

National Ag Safety Database  
([www.cdc.gov/nasd/docs](http://www.cdc.gov/nasd/docs))  
Georgia Farm Bureau Safety Program  
National Safety Council ([www.nsc.org](http://www.nsc.org))  
University of Missouri Extension



## The Farmer's Lungs

By Michelle Bross, Burlington County Master Gardener  
 Raymond J. Samulis, County Agricultural Agent

Farmers and ranchers account for more than 30% of adults disabled by respiratory illness, yet large percentages are non-smokers. What seems like

nothing worse than a nagging winter cold, may actually be the early stages of a lung disease. **If ignored, permanent lung damage is possible.**

A farmer works with a large amount of organic matter, often in a confined

space. Because of limited ventilation, the concentration of airborne particles is markedly increased. Respiratory hazards that farmers and their families may be exposed to include **fungi, bacteria and toxins** found in **grains, pesticides, solvents, irritant gases and fuels.**

### Farmer's Lung

Farmer's Lung is a serious allergic disease caused by inhaling dust from moldy hay, straw or grain. The farmer's body responds to the mold spores by developing an allergy giving cold or pneumonia-like symptoms. Typical symptoms include:

- chronic coughing
- increasing shortness of breath
- physical weakness
- fever and sweating at night
- loss of appetite
- aches and pains
- chills
- blood in the sputum
- crackling breathing
- depression

Farmer's Lung can be controlled, but **it can't be cured**. Oxygen therapy and bed rest can treat the symptoms, but the only proven treatment is the avoidance of contact with moldy material.

### **Organic Dust Toxicity or Grain Fever**

Working with dusty feed can also produce Organic Dust Toxicity Syndrome. As many as 30% of swine confinement and grain workers may be affected by this syndrome due to their exposure to high levels of organic dust. ODTS symptoms are similar to those of acute Farmer's Lung, but it is not an allergic reaction. It is milder than Farmer's Lung, and shorter-lived, although it can recur.

### **Silo-Filler's Disease**

Dangerous levels of silo gas are generated within hours and sometimes up to two weeks after fresh plant material is placed in silos. Because the gas is heavier than air, it travels down the silo chute and collects in adjoining buildings. Breathing in silo gas causes nitric acid to form in the lungs. Nitric acid can be deadly when formed in human lungs. Symptoms of this disease include:

- shortness of breath
- coughing
- chest pain
- fever

Treatment includes supplemental oxygen, mechanical ventilation and often, high doses of corticosteroids.

### **Preventative Measures**

Although the only way to prevent lung disease is to completely eliminate contact with airborne toxins, there are ways to minimize exposure:

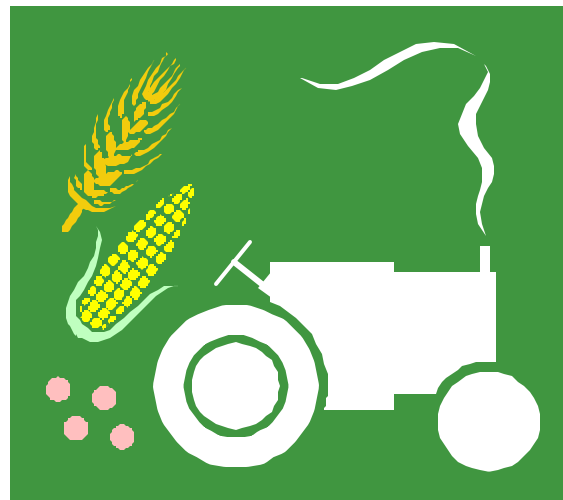
1. **Identify contaminants and hazards** on the farm
  2. **Minimize the amount and type** of contaminants and hazards
  3. **Avoid decayed grains** – the mold spores and dust are dangerous
  4. **Limit exposure** to contaminants
  5. **Use fans, exhaust blowers and filters** to remove air contaminants
  6. **Work outside** whenever possible
  7. **Wear protective equipment** (respirators, masks, etc.)
  8. **Dry grain** properly **before storage**
  9. **Ventilate** storage buildings
  10. **Cap open silos**
  11. **Wet down feed** before transferring, to minimize dust
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The **chances of acquiring a lung disease are greatest in late winter and early spring**, primarily because farmers are feeding with the hay and grain that have had a long time to develop mold. Early diagnosis is crucial in preventing permanent damage. A delay in seeking medical help damages the farmer most. By the time a farmer sees a physician, there is often serious damage. Farmers who don't seek medical help may be

forced to give up farming, and may even suffer from a permanent disability or even death.

**References:**

- Michigan State University Extension
- National Ag Safety Database  
([www.cdc.gov/nasd](http://www.cdc.gov/nasd))
- Occupational Medicine – AgEBB  
([agebb.missouri.edu](http://agebb.missouri.edu))
- University of Minnesota Extension  
([www.extension.umn.edu](http://www.extension.umn.edu))
- Virginia Cooperative Extension  
([www.ext.vt.edu](http://www.ext.vt.edu))
- Virginia Polytechnic Institute – Agricultural Engineering Department



## Agricultural Dusts

By William B. Luckenbill  
Deputy Coordinator of Emergency Management

Some of you have mentioned some concerns about **agricultural dusts** and **how they can be hazardous**. We generally know that **dusts are produced by grains, oil seeds, agricultural seeds, legumes, sugars, spices, feeds, and other related materials**. A dust is a finely divided agricultural material, which is **420 microns or smaller** in size. This material would easily pass through a number 40 US Standard Sieve.

Materials meeting this US Standard Sieve Test criteria present a **fire or explosion hazard** when ignited in air. Some farms have bulk raw grain in the

form of cereal, oilseed or legumes which under the right conditions may also produce dust.

Now that we have discussed the hazards, let's take a look at some of the things we should do in our **Agricultural Grain Dust Safety Program**. We can start our program by performing an **annual check of all electrical connections and wiring** that serve the storage area, including any areas where we might process or move grain materials that could produce dust. The National Electric Code, NFPA (National Fire Protection Association) 10, provides reasonably clear guidance. We can **establish "No Smoking" areas and**

**"No Spark" areas** around our dust storage facilities.

Generally, **dusts should be removed from floors and structural members** in the area. Compressed air should not be used to accomplish cleaning unless all machinery is shut down and all ignition sources are eliminated. Be sure to **wear a high quality dust mask or respirator** for your own protection. If you use a portable shop vac to remove dust, it must be listed as Class II, Group G Division I, safe for use in dust areas. **Portable fire extinguishers** should be **installed near dust or grain collection areas** in a cabinet or protected area. Don't forget to install extinguishers near a door for access, and out of the

entrance pathway where they could be knocked down or damaged.

It is a very good idea to have a written **Emergency Action Plan** that outlines:

- a. **Notification of occupants** in the area and nearby buildings.
- b. An **assembly area** for accountability of people
- c. How to **notify emergency responders (911 in Burlington County)** and know what to say. For example, " I have a grain dust fire in a silo at the \_\_\_farm on County Road\_\_\_. No one is injured or trapped. We will meet

you by the tractor shed. “ (Write this out along with directions because it is hard to remain clear and calm in emergencies.)

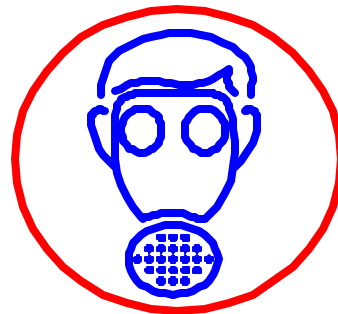
- d. A facility drawing** (This helps responders protect the whole property and triggers your memory for any changes)
- e. MSDS for any hazardous chemicals in the area**, including pesticides and fuel
- f. Other emergency telephone numbers**
- g. Emergency response duties for workers and family**
- h. Location of any emergency equipment** on farm property. (Fire extinguishers, first aid kits, respirators)

- i. Alternate storage locations** for your equipment or livestock if a building is not available for short term.

**Silos** are supposed to have **explosion relief venting**. These vents should have clean-out doors and panels. **Vents must be cleaned to prevent clogging** due to dust accumulation. **Silos** must have a means of **air displacement during the filling** process. **Displaced air should be filtered** with an efficiency of 99.9% at 10 microns. Keep on file all manufacturers guidelines and directions that come with equipment. Fill piping

and tubing must support the weight of the material inside it in a full or choked position, must be capable of being disassembled for cleaning.

**Practice the plan just to be familiar with it** and be sure it works for you. More information can be found in NFPA 61 and NFPA 10, which were the source documents for this article.



## Wearing The Correct Pesticide Respirator

By Raymond J. Samulis, County Agricultural Agent

Most activities in our every day lives have some form of risk, either obvious or hidden. For example, when using a power saw, you know you should keep away from a blade turning at 5,000 rpm. Pesticides are one area where some of the risk is obvious and some less so. If you are applying a pesticide that has a skull and crossbones on the label, it's considered extremely toxic, and you should take every precaution to protect yourself. In some cases, if you know through experience a pesticide will cause skin irritation, you may consider using a respirator even though the label does not call for one. **When dealing with your own safety and health, no precaution is considered wasted.**

Let's assume that you have made the decision to wear a respirator. What type should you use, and how do you know it will perform correctly? Fortunately, there are two organizations that check the effectiveness of personal safety equipment. The first is the National Institute of Occupational Safety and Health (NIOSH), and the second is the Mine Safety Organization. Both of these organizations test equipment to be sure they provide the proper filtration needed for highly poisonous materials. Here are some things to consider to be sure that you are on the right track when selecting and using respirators.

- 1) **Dust masks are not acceptable for use with pesticides.** These masks are designed only for large particulate matter, such as plaster dust, and not the tiny vapors we experience with pesticides.
  - 2) Make sure you have selected a **mask with the proper type of cartridge.** For most pesticide applications you will need a **black coded cartridge** on the mask, which is used for "Organic Vapors".
  - 3) **Pre-filters** or cotton pads are sometimes **used in conjunction** with the proper cartridge when there are **heavy dust conditions.**
  - 4) **Respirators must be properly fitted** to assure that no vapors leak in around where it fits over your face. Test the mask by covering the vent hole and applying positive pressure (exhaling). Likewise, by covering the vent hole and gently inhaling, your mask should collapse slightly if the seal is tight.
  - 5) **A more definitive test can be performed** using special ampuls of banana oil, which you can purchase. Banana oil has a very distinctive odor, and even very low amounts can be detected. **If you can detect the odor while wearing the respirator, it would indicate a loose fitting mask and a leak.**
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- 6) **Disposable gas cartridges should be changed regularly** following the manufacturers recommendations, or whenever the odor of a pesticide is detected while it is in use.
- 7) **Replace the entire respirator periodically** since the rubber in masks can become brittle, lose its flexibility, and will no longer have the essential tight fit.

Remember; just because a certain pesticide has a relatively high toxicity, does not necessarily mean it has to be highly hazardous. **Proper handling of pesticides and the proper use of personal protective equipment**, such as respirators, go a long way to **greatly decrease the potential hazard to both the applicator and the environment.**

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