



How to identify airborne contaminant hazards on farms

Airborne contaminants are harmful particles, vapours, or gases that become suspended in the air and can enter the body when breathed in. In agricultural work, these contaminants commonly arise from dust, chemicals, fumes, gases, mould, and organic matter such as manure or plant material. Many routine farming activities—including harvesting, grain handling, chemical mixing, and working in livestock sheds—can generate airborne contaminants, often without obvious signs that the air quality has changed.

This information sheet explains the main risks and what farmers and workers must do to stay safe.

What airborne contaminants are on farms?



Dust

Dust is the most common airborne contaminant in agriculture. You can breathe in dust when:

- handling grain, hay, straw, or feed
- cleaning out silos, sheds, or animal housing
- working with soil during harvesting or seeding
- using fertiliser or seed
- working in poultry or livestock sheds.

Dust can contain:

- grain particles
- soil and silica
- mould spores
- animal dander and manure particles
- biological contaminants.

These come from plants, animals and organic materials.

Examples

- Mould from hay, silage, grain, compost
- Bacteria from manure and effluent
- Dust from feathers, wool, bedding and animal housing.



Chemical contaminants

Chemical contaminants are a common airborne hazard in agriculture. You may be exposed to them when:

- mixing, spraying, or handling chemicals
- cleaning equipment, sheds, or animal housing
- working with fertilisers or pesticides
- handling grain, feed, or soil treated with chemicals.

These substances often originate from agricultural products, soil and equipment. Chemical contaminants become airborne when mixed, sprayed or handled.

Examples

- Pesticides and herbicides
- Fumigants
- Disinfectants and sanitisers
- Fertiliser dust and vapours
- Fuel vapours.



Gases and fumes

Gases and fumes are another significant airborne hazard in agriculture. Even small amounts can be dangerous. You may be exposed to gases and fumes when:

- entering manure or effluent pits
- using or storing fertilisers
- running engines, pumps, or generators in enclosed spaces
- welding, soldering, or cutting metals
- burning vegetation or waste.

These substances can build up quickly in confined or poorly ventilated areas, posing serious health and safety risks.

Examples

- Ammonia from manure and fertiliser
- Hydrogen sulphide from effluent pits (can be fatal)
- Carbon monoxide from engines and generators
- Welding fumes
- Smoke from burning vegetation.

Health effects

Short-term problems

- Coughing, sneezing, sore throat
- Headaches or dizziness
- Irritated eyes
- Trouble breathing.

Long-term problems

- Asthma
- Farmer's lung
- Chronic bronchitis
- Lung scarring
- Silicosis (from soil dust).

When are airborne contaminants most likely?

Airborne contaminants can be present in many agricultural tasks, but some situations put workers at higher risk than others. You are most at risk when:

- harvesting or handling grain
- cleaning silos, pits or sheds
- mixing or spraying chemicals
- handling dusty feed or bedding
- welding or grinding in workshops
- burning waste or stubble
- agitating manure or effluent
- working in enclosed or poorly ventilated areas
- windy, dry or hot weather can make exposure worse.

How to control the risks?

You must reduce airborne contaminants as much as possible. Use a mix of the controls listed below.



Engineering (best option)

Engineering controls use physical devices to change the characteristics of a task. The best engineering controls for your workplace will depend on the tasks your workers carry out. Engineering controls can include:

- good ventilation in sheds and workshops
- dust extraction or fans
- enclosed tractor cabs with filtered air
- wetting down dusty areas
- enclosed augers and grain transfer systems
- gas monitors in high-risk areas
- regular inspection and maintenance of cab filtration systems.



Administrative

Administrative controls provide additional protection after you have implemented engineering controls. Administrative controls may include:

- keep workers upwind of dust or chemicals
- limit time spent in dusty or smoky areas
- keep sheds clean to reduce dust build-up
- follow safe chemical-mixing procedures
- restrict access to high-exposure areas
- conduct air monitoring if you're unsure about exposure levels.



Personal protective equipment

You should never rely solely on personal protective equipment (PPE), including respiratory protective equipment (RPE). PPE and RPE should only be used to supplement higher-level control measures, or when no other safety measures are available. For example, use:

- P2 or P3 masks for dust
- chemical respirators for spraying
- gas cartridges for ammonia or fumigants
- eye protection and gloves.

PPE must fit properly and be kept clean. You also need to provide training on using and maintaining PPE and make sure workers are using it correctly. Depending on the risk, RPE may have to be fit tested by a competent person such as a certified occupational hygienist. You can search for [occupational hygienists](#) near you on the Australian Institute of Occupational Hygienists' website.

Responsibilities

Employer

Employers must:

- identify airborne hazards
- put controls in place to reduce exposure
- provide PPE and training
- keep [safety data sheet](#) (SDS) available
- provide ventilation and clean-down facilities
- do air monitoring if needed
- provide health monitoring for certain chemicals.

Workers

Workers must:

- wear PPE correctly
- follow safe-work procedures
- report strong smells, dust clouds or poor air
- never enter confined spaces without permission
- follow chemical labels and SDS instructions.



If a hazard is identified, you should conduct a [risk assessment for airborne contaminants](#). For more information, read our checklist *How to identify airborne contaminant risk on farms*.

