Farm safety and handling agrichemicals

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Summary

- Exposure to chemicals can lead to a variety of immediate or long-term health effects including headache, poisoning, respiratory illness, burns and birth defects.
- Manufacturers and importers are required to supply a Material Safety Data Sheet (MSDS) that explains how to handle the chemical safely.
- Always follow the manufacturer’s instructions on storage, use and disposal of chemicals.
- Organisations such as WorkSafe Victoria can offer valuable advice on improving health and safety on your farm.

Chemicals on the farm can be dangerous. Common agricultural chemicals (agrichemicals) include fuels, solvents, insecticides, herbicides, fungicides, fertilisers and veterinary chemicals. Farmers need to take care when storing, transporting, using and disposing of chemicals to ensure their own safety; their neighbours’ safety and that of the environment.

Any chemical should be treated with extreme caution and only ever used according to the instructions. Vapours or direct exposure can lead to a variety of acute (short-term) and chronic (long-term) health effects. Health effects can include headache, poisoning, burns, birth defects, nervous system disorders and some cancers.

Hazardous materials are required by law to include a Material Safety Data Sheet (MSDS) and label. The MSDS gives valuable information on how to safely handle the chemical. Before using any farm chemical, you should read the label, understand the MSDS, do a chemical users course (such as ChemCert), and follow usage instructions.

To further reduce the risks, it is worth remembering that hazardous chemicals can occasionally be replaced with less toxic options. Sometimes, a safer form of the product is available. For example, pellets may be used instead of powder.

Common agrichemicals

Agricultural chemicals may be purchased in various concentrations and forms (such as liquids, powders, granules and pellets), depending on their intended use. Many of the more potent chemicals require the farmer to have completed chemical training to enable purchase and use.

Commonly used agrichemicals include:

- glyphosate
- aluminium or zinc phosphide – fumigant
- organophosphates
- pyrethroids
- methyl bromide
- sodium fluoracetate – ‘1080’ baits
- strychnine
- paraquat, diquat
- cresol
- alkaline and acid cleaning agents
- neonicotinoids
- formalin
- nutritional supplements – selenium and copper
- livestock vaccines and drenches

Side effects of exposure to agrichemicals

The effects of chemical exposure depend on the type of chemical and the degree of exposure. If chemicals are swallowed, absorbed through the skin or inhaled as a mist, vapour or dust, some of the immediate effects can include:

- poisoning
- headache
- nausea
- vomiting
- diarrhoea
- pinpoint pupils
- dizziness
- fine muscle twitching
- increased bronchial and lacrimal secretions
- skin rashes and irritation
- chemical burns.

If you notice any of these symptoms after being exposed to chemicals, seek immediate medical attention.
It is very important to report any adverse outcomes from agrichemical use to the Australian Pesticides and Veterinary Medicines Authority (APVMA).

Some long-term effects of chemical exposure can include:

- increased risk of some cancers
- birth defects
- diseases of the lungs, liver or kidneys
- nervous system disorders.

**MSDS information for agrichemicals**

Manufacturers and importers are required to supply a Material Safety Data Sheet (MSDS) that details information on the chemical, including:

- the registered use of the chemical
- precautions for use
- possible health effects
- safety measures for handling
- contact numbers for further information
- withholding periods – it is the responsibility of the farmers to ensure correct usage and that slaughter or production withholding periods are observed.

It is important that you research chemicals prior to purchase to ensure that you buy the most suitable and least dangerous chemical available to do the job you require.

MSDSs can be found online to assist in safe and effective chemical choices and should be thoroughly read before use and kept in an accessible place for reference.

**Safe storage of agrichemicals**

Suggestions for the safe storage of chemicals include:

- Always follow the manufacturer’s instructions for proper storage.
- Keep chemicals in their original containers and do not pour into smaller bottles.
- Do not remove labels from containers.
- Store chemicals in a locked, well-ventilated shed with floors that will contain spills.
- Store chemicals and appropriate personal protective equipment in different locations.
- Do not store liquid chemicals above solids.
- Separate different classes of chemicals to prevent reactions.
- Store animal feeds, seeds and fertilisers separately from other chemicals.
- Have mop-up materials on hand, such as sand, soil or DrySorb.
- Keep ignition sources well away from chemicals.
- Keep a record of the chemicals you buy, store and use.

**Safe transport of agrichemicals**

Suggestions for the safe transporting of chemicals include:

- Transport chemicals separately from food, water, animal feeds, seeds and fertilisers. This applies to transport of household and home garden quantities of the chemical, as well as bulk transport.
- Drums of agricultural chemicals should not be transported in enclosed cabins with the driver and passengers.
- Secure your load.
- Carry a written record of the chemicals you are transporting.
- Take all appropriate protective gear along with you.

**Safe use of agrichemicals**

Suggestions for the safe use of chemicals include:

- Ensure anyone using agricultural chemicals is suitably trained to use both the chemical and any equipment required for application.
- Use chemical decanting kits to reduce the risk of spills and splashes while mixing chemicals.
- Only mix the quantity of chemical required for the task at hand.
- Make sure the decanting and mixing area is well ventilated. If this is not possible, ensure that recommended personal protective equipment (PPE) is worn for enclosed environments.
- Follow the manufacturer’s instructions on the label.
- Always wear recommended protective clothing such as chemical-resistant gloves, overalls, goggles and appropriate P2 facemasks or a P3 respirator. (Respirator cartridges should provide multi-level gas protection.)
- Avoid exposing non-target animals or plants.
- Triple rinse equipment after chemical application and dispose of the rinse water (rinsate) appropriately. Rinsate contains low concentrations of the chemical from the cleaning process.

**Safe disposal procedures for agrichemicals**

Suggestions for the safe disposal of chemicals include:
Always follow the manufacturer’s instructions for proper disposal of both chemicals and rinsate from equipment.
Thoroughly triple rinse and then puncture empty containers to prevent reuse for other purposes.
Return empty containers to the manufacturer or check with your local council about proper disposal methods.
Audit your chemical store on a regular basis and dispose of any excess or outdated chemicals in the appropriate manner.

AgSafe provides for the safe collection and recycling of cleaned chemical containers (through the drumMUSTER program) and the collection of unwanted rural, agricultural and veterinary chemicals (through the ChemClear program).

Seek medical help for ill-effects of agrichemical exposure

If you think someone is suffering ill effects from chemical exposure:

- **In an emergency ring triple zero (000) for an ambulance**. If you can, inform the healthcare workers about what chemicals the person may have been exposed to (take the MSDS with you).
- For advice regarding the effects of exposure to chemicals, call the Poisons Information Centre 13 11 26 (24 hours, 7 days, Australia wide).

If use of a chemical has caused you ill-effects, try to avoid using it in the future. Select the safest possible chemical to use and follow the MSDS.

Where to get help

- In an emergency, call triple zero (000)
- **Victorian Poisons Information Centre** Tel. 13 11 26 for advice when poisoning or suspected poisoning occurs and poisoning prevention advice
- Your doctor
- Your nearest health service (with an emergency department)
- National Centre for Farmer Health Tel. (03) 5551 8333
- WorkSafe Victoria Tel. (03) 9641 1555 or 1800 136 089
- Farmsafe Australia Tel. (02) 6269 5622
- drumMUSTER Tel. (02) 6206 6888
- ChemClear Tel. (02) 6206 6868 or 1800 008 182 (booking line)

References

- Material Safety Data Sheets, WorkSafe Victoria, Victorian WorkCover Authority, Australia. [More information here.]
- A guide to using agricultural chemicals in Victoria, Agriculture Victoria. [More information here.]

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Please note that we cannot answer personal medical queries. If you are looking for health or medical advice we recommend that you:

- talk to your doctor or pharmacist
- dial triple zero (000) in an emergency
- ring NURSE-ON-CALL Tel. 1300 60 60 24.

2/4 Your Comments

Tell us who you are  Select an option  

Enter your comments below (optional)
More information

Safety

The following content is displayed as Tabs. Once you have activated a link navigate to the end of the list to view its associated content. The activated link is defined as Active Tab

- Safety basics
- Child safety
- Safety in and around the home
- Safe lifestyle and entertainment
- Outdoor, weather and sports safety
- Travel and transport safety
- Fire, flood and other disasters
- Work and environmental safety
- Farm safety

Safety basics

- Bites and stings – first aid
  If you are bitten or stung by an insect or animal, apply first aid and seek medical treatment as soon as possible.
- How to survive a rip current (video)
  Learn what to do if you find yourself in a rip current.
- Ladder safety matters – Mick (video)
  Stop and think before you use a ladder.
- Ladder safety matters – Nick (video)
  Stop and think before you use a ladder.
- Ladders Safety Matters - Paul (video)
  We can keep our pools safe, healthy, and most importantly fun.
Look after your health at harvest time (slideshow)

Farmer health, wellbeing and safety are often neglected when facing the pressures of harvest. Simple safety measures can dramatically reduce the risk of injury and illness.

Child safety

- Animals and child safety
  Children should always be closely supervised near animals and taught how to behave safely around pets.

- Babies and safety
  Most injuries to babies do not occur by chance - many are predictable and largely preventable.

- Baby care - moving from cot to bed
  Some children are unsettled the first few nights in a 'big bed'. Try to be patient, loving and reassuring.

- Baby furniture - safety tips
  Even if your baby furniture meets every safety standard and recommendation, your child still needs close supervision.

- Bicycle safety and children
  As they grow and develop, and with the help of adults, children become increasingly aware of how they can manage their own safety and become safer road and bicycle users.

- Burns and scalds - children
  Most hot tap water scald injuries to children happen in the bathroom.

- Child safety and injury prevention
  By making a few practical changes to your home, you can dramatically reduce the risk of injury to your child.

- Child safety in the car
  Taking care to restrain children correctly while travelling in a car is the best way to prevent injuries.

- Eating tips for young toddlers
  Children have a natural ability to sense when they are hungry and when they are full.

- Farm safety -- children
  Children who live on farms are at greater risk of injury and death than their parents or other farm workers.

- Hot weather and child safety
  Babies and children can quickly lose body fluids in hot weather, which can lead to dehydration.

- Internet safety for children
  A child's digital footprint can be as easy to follow as their real footprints.

- Look after your health at harvest time (slideshow)
  Farmer health, wellbeing and safety are often neglected when facing the pressures of harvest. Simple safety measures can dramatically reduce the risk of injury and illness.

- Mobile phone safety for children
  Teach your child strategies for responding to mobile phone bullying.

- Playgrounds and child safety
  Play environments can be safe and beneficial for your child. With proper planning, you can make sure your child gets plenty of playtime activity.

- Poisoning and child safety
  Call the Poisons Information Centre on 13 11 26 immediately if you suspect your child has been poisoned or given the wrong medicine or the wrong dose of medicine.

- Road and traffic safety for children
  As they grow and develop, and with the help of adults, children become increasingly aware of how they can manage their own safety, and become safer road users.

- Scooters and child safety
Scooters can travel at fast speeds and falls and collisions are disturbingly common.

- Water safety for children
  Toddlers are most at risk of drowning because they are mobile and curious but don’t understand the danger of water.

Safety in and around the home

- Animals and child safety
  Children should always be closely supervised near animals and taught how to behave safely around pets.

- Asbestos in the home
  Asbestos fibres breathed into the lungs can cause a range of health problems including lung cancer and mesothelioma.

- Chemicals in the home
  Learn how to safely store and dispose of household chemicals, and how to respond when a person is poisoned.

- Electric shock
  Always disconnect the power supply before trying to help a victim of electric shock.

- Gas heating - health and safety issues
  If you service your gas heater regularly and use it correctly, it will be safe and economical to use.

- Groundwater
  Groundwater quality varies across Victoria; in some areas, groundwater is not suitable for use.

- Ladder safety matters – Mick (video)
  Stop and think before you use a ladder.

- Ladder safety matters – Nick (video)
  Stop and think before you use a ladder.

- Ladder Safety – Mick’s story
  Injuries associated with ladder falls have been steadily increasing in Australia, especially among men aged 60 years and older doing work in and around the home.

- Ladder Safety – Nick’s story
  Injuries associated with ladder falls have been steadily increasing in Australia, especially among men aged 60 years and older doing work in and around the home.

- Ladder Safety – Paul’s story
  Paul was sanding the exterior of his house when he overreached and fell more than two metres from his ladder.

- Ladders Safety Matters - Paul (video)
  We can keep our pools safe, healthy, and most importantly fun.

- Look after your health at harvest time (slideshow)
  Farmer health, wellbeing and safety are often neglected when facing the pressures of harvest. Simple safety measures can dramatically reduce the risk of injury and illness.

- Medicines - safety issues
  Make sure your doctor knows about every medicine you take, including vitamins.

- Older people – preventing falls at home
  Falls are a major cause of injury for older people. Find out how you can prevent falls around your home.

- Pest control in the home
  If you use pesticides to control pests around the house, make sure you use as little as possible.

- Swimming pools - water quality
  Check your swimming pool regularly to make sure the water is safe for swimming.

- Vision loss - safety around the home
  There are many ways to improve home safety for people whose vision is deteriorating.

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• Water quality in tanks, bores and dams
  Make sure your private drinking water supply is safe...
• Water safety for children
  Toddlers are most at risk of drowning because they are mobile and curious but don't understand the danger of water...

Safe lifestyle and entertainment

• Internet safety for children
  A child's digital footprint can be as easy to follow as their real footprints...
• Mobile phone safety for children
  Teach your child strategies for responding to mobile phone bullying...
• Party planning - tips for teenagers
  Don't advertise a party via SMS or the internet to limit the risk of gate-crashers and violent situations...
• Solariums (sunbeds and tanning beds)
  There is no such thing as a safe solarium tan...

Outdoor, weather and sports safety

• Exercise safety
  Training too hard or fast is a common cause of sports-related injuries...
• Heat stress and heat-related illness
  Heat kills more Australians than any natural disaster. Find out how you can treat and prevent heat-related illness...
• Heat stress and older people
  People aged 65 years and over are at increased risk of heat-related illnesses and need special care in hot weather...
• Heat stress – preventing heatstroke
  Heatstroke is a life-threatening emergency that can be avoided by following simple prevention measures...
• Hot weather and child safety
  Babies and children can quickly lose body fluids in hot weather, which can lead to dehydration...
• How to cope and stay safe in extreme heat
  Know the effects of extreme heat, who is at risk and how you can prepare yourself and others...
• How to survive a rip current (video)
  Learn what to do if you find yourself in a rip current...
• Hypothermia
  The early responses to hypothermia will be moving around, seeking shelter, hair standing on end (goosebumps) and shivering...
• Walking - safety and environmental issues
  Choose a route that is appropriate for your age and fitness level. Warm up and cool down with a slow, gentle pace to ease in and out of your exercise session...
• Water from natural resources
  Drinking untreated water, such as creek water, bore water and sometimes even rainwater can lead to illnesses including gastroenteritis...
• Water safety for children
  Toddlers are most at risk of drowning because they are mobile and curious but don't understand the danger of water...

Travel and transport safety

• Bicycle safety and children
  As they grow and develop, and with the help of adults, children become increasingly aware of how they can manage their own safety and become safer road and bicycle users...
• Child safety in the car
Taking care to restrain children correctly while travelling in a car is the best way to prevent injuries.

- **Look after your health at harvest time (slideshow)**
  
  Farmer health, wellbeing and safety are often neglected when facing the pressures of harvest. Simple safety measures can dramatically reduce the risk of injury and illness.

- **Motor vehicle crashes**
  
  Motor vehicle crashes continue to be one of the biggest killers and causes of injury in Victoria.

- **Road and traffic safety for children**
  
  As they grow and develop, and with the help of adults, children become increasingly aware of how they can manage their own safety, and become safer road users.

- **Safe driving**
  
  Safe driving is up to every individual on the road. You can be a safe driver by being alert and ready to take action at any time.

- **Scooters and child safety**
  
  Scooters can travel at fast speeds and falls and collisions are disturbingly common.

- **Travel safety tips**
  
  You can reduce your risk of being mugged or robbed while travelling by taking a few simple precautions.

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**Fire, flood and other disasters**

- **After a flood – animal and insect related hazards**
  
  When returning to a flood-affected area, remember that wild animals, including rats, mice, snakes or spiders, may be trapped in your home, shed or garden.

- **After a flood – returning home safely**
  
  When returning to your home after a flood, take precautions to reduce the possibility of injury, illness or disease.

- **Bushfire aftermath - safety tips**
  
  Houses, sheds and other buildings or structures burnt in a bushfire can leave potential health hazards.

- **Bushfire preparation advice**
  
  Being prepared for a bushfire helps you cope better in an emergency.

- **Bushfire smoke**
  
  Bushfire smoke can reduce air quality in rural and urban areas, and may affect people's health.

- **Emergencies - floods**
  
  You and your family should work out an emergency plan in case of flood.

- **Smoke from planned burns**
  
  Bushfire smoke can reduce air quality in rural and urban areas, and may affect people’s health. Planned burns are an important part of reducing the risk of bushfires.

- **Talking to children about bushfire risk**
  
  Children can be affected by information regarding bushfire risk and they may become concerned about issues of safety. Talking to children openly in a way that suits their age, while also involving...

- **Urban flash floods - FAQs**
  
  Urban flash flooding can happen quickly and without warning. Heavy rain causes runoff to collect in dips, car parks and roads, and there is a risk of contamination, injury and disease.

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**Work and environmental safety**

- **Asbestos and your health**
  
  When asbestos fibres become airborne, people working with asbestos may inhale particles which remain in their lungs.

- **Cadmium**
  
  Low-level exposure to cadmium over a long period of time may cause health effects because cadmium can accumulate in the body.

- **Computer-related injuries**

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Using a computer can contribute to problems of the muscles and joints, eyestrain and overuse injuries of the arms, wrists and hands...

- **Eye safety at work**
  Wearing eye protection appropriate for the task can significantly reduce the risk of injury...

- **Ladder safety matters – Mick (video)**
  Stop and think before you use a ladder...

- **Ladder safety matters – Nick (video)**
  Stop and think before you use a ladder...

- **Ladders Safety Matters - Paul (video)**
  We can keep our pools safe, healthy, and most importantly fun...

- **Look after your health at harvest time (slide show)**
  Farmer health, wellbeing and safety are often neglected when facing the pressures of harvest. Simple safety measures can dramatically reduce the risk of injury and illness...

- **Q fever**
  Q fever is caused by a micro-organism that can be carried by cattle, sheep and goats...

- **Shiftwork**
  A person working the night shift is at greater risk of various disorders and accidents...

- **Skin cancer - protecting outdoor workers**
  People who work outdoors are in one of the highest risk groups for skin cancer...

- **Workplace conflict**
  A clash of personalities at work is bad for business, because it can affect productivity and increase absenteeism...

- **Workplace safety - confined spaces**
  Around 60 per cent of people killed in confined spaces were trying to rescue someone else...

- **Workplace safety - coping with a critical incident**
  Stress responses can develop over time after trauma, and support may be required by some workers or groups...

- **Workplace safety - dangerous goods**
  Dangerous goods are objects or substances that are potentially harmful to people or the environment, such as explosives or chemicals...

- **Workplace safety - hazardous substances**
  A hazardous substance can be inhaled, splashed onto the skin or eyes, or swallowed...

- **Workplace safety - infection control**
  The spread of many pathogens in the workplace can be prevented with regular hand washing...

- **Workplace safety - manual handling injuries**
  A person can be injured when handling objects in a variety of ways including pulling, pushing, holding or restraining...

- **Workplace safety - noise pollution**
  There are many ways to reduce exposure to excessive noise in the workplace...

- **Workplace safety - overuse injuries**
  Occupational overuse syndrome, also known as RSI, is caused by repetitive movements or awkward postures...

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### Farm safety

- **Chemicals and grain drift**
  Sprayed chemicals can drift over neighbouring properties or water sources, and can affect human health, animals or the environment...

- **Farm safety and handling agrichemicals**
  To reduce risks on the farm, use hazardous chemicals according to manufacturer guidelines or replace them with less dangerous options...

- **Farm safety – children**
Children who live on farms are at greater risk of injury and death than their parents or other farm workers.

- **Farm safety - confined spaces**
  
  Any confined space on a farm can be dangerous and the threat may not be apparent until it's too late.

- **Farm safety - crush injuries**
  
  Hand and finger injuries are the most common crush injuries that occur on Victorian farms.

- **Farm safety - falls**
  
  Falls are a common farm hazard, especially for older farmers.

- **Farm safety - handling animals**
  
  Any animal-handling practices can increase the risk of injury to farmers, farm workers and the animal.

- **Farm safety - machinery**
  
  Poorly used or faulty machinery is a major cause of death and injury on farms.

- **Farm safety - manual handling**
  
  Farm workers often experience muscle and ligament strain, but good manual handling techniques and safe work habits can prevent most injuries.

- **Farm safety - quad bikes**
  
  Most injuries and deaths involving quad bikes (all-terrain vehicles) are caused by the bike rolling over the rider.

- **Farm safety - risks and hazards**
  
  Farms can be dangerous places for workers and family members, but the risks can be reduced.

- **Farm safety - sheep and shearing**
  
  Handling sheep can cause manual injuries and badly designed shearing sheds can present a range of hazards.

- **Look after your health at harvest time (slideshow)**
  
  Farmer health, wellbeing and safety are often neglected when facing the pressures of harvest. Simple safety measures can dramatically reduce the risk of injury and illness.

**Related Information**

- **Chemicals and spray drift**
  
  Sprayed chemicals can drift over neighbouring properties or water sources, and can affect human health, animals or the environment.

- **Cadmium**
  
  Low-level exposure to cadmium over a long period of time may cause health effects because cadmium can accumulate in the body.

- **Pest control in the home**
  
  If you use pesticides to control pests around the house, make sure you use as little as possible.

- **Arsenic mine tailings and health**
  
  Mine tailings near goldmines may contain high levels of arsenic.

- **Copper chrome arsenic (CCA) treated timber**
  
  CCA treated timber should not be used to build children's play equipment, patios, new garden furniture, decking or handrails.

**Home**

**Related information on other websites**

- Australian Centre for Agricultural Health and Safety
- Australian Government, RIRDC
- Australian Pesticides and Veterinary Medicines Authority (APVMA)
- Farmsafe Australia
- Victorian Government - Plague Locusts
- WorkSafe Victoria

**Content Partner**

This page has been produced in consultation with and approved by: National Centre for Farmer Health

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