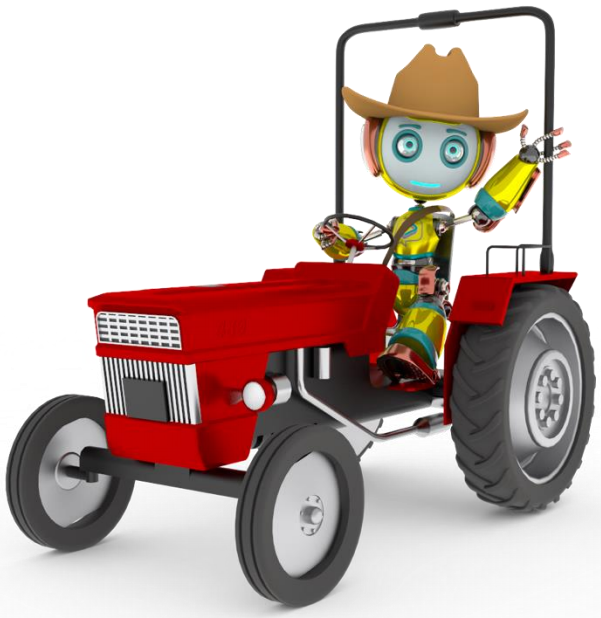
WorkSafe SmartMove Certificate

Farming Industry Module
Study Guide



Disclaimer

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Contents

Farming Industry

Learning outcomes

In this module you will:

1. Learn about common workplace hazards encountered in the farming industry
2. Identify existing and potential hazards at a workplace and learn how to report and record them
3. Understand how to prevent injuries from common workplace hazards
4. Learn how to eliminate workplace hazards and reduce risks

The farming industry involves activities in diverse geographic settings, mostly in regional and remote properties. Activities in the industry include: sheep and wool farming; beef cattle farming; grain farming; dairy cattle farming; poultry farming; pig farming and other livestock and horticultural farming.

Job roles for young workers in the farming industry may include: farm workers, jackaroos/ jillaroos, and shearing shed hands.

Major hazards found in the farming industry are:

- machinery and equipment
- electricity
- falls
- manual tasks
- hazardous substances
- noise
- hazardous working conditions.

The farming industry is one of the most dangerous to work in, so you need to pay attention all the time. SAMM can help you to take steps to manage workplace hazards.

SAMM – Spot the hazard; Assess the risk; Make the changes; Monitor and follow-up.

Machinery and equipment

A young shearing hand received severe injuries to his arms whilst using a wool press. His forearms became trapped in the press, fracturing both his arms.

A young worker was killed when using a hay-baling machine. She had gone to the part of the machine that compresses the bales of hay and was crushed by those parts. The machine did not have proper guards in place and a lock out procedure was not followed.

In farming, workers work with a wide range of machinery and equipment including powered mobile plant (PMP), shearing machines, and wool presses.

Powered mobile plants can be described as any machine that is self-propelled and controlled by an operator. Common mobile plants are tractors, earthmovers, dozers, graders, headers, self-propelled spray units, forklifts, telehandlers and mobile cranes.

When working with or near machinery and equipment, the hazards you may encounter include:

- moving parts that can reach, hit or crush you such as booms or mechanical arms
- ejecting objects (parts, components, products or waste items) that may strike you
- being hit by mobile machinery and equipment such as forklifts or front end loaders.

> *Machine guarding can prevent or reduce access to dangerous areas of the machine. A guard can perform several functions such as protecting you from moving parts, containing ejected parts from the machine and preventing emissions escaping.*

Let's have a look at how to stay safe

- Keep all guards in place. Any guard removed during cleaning, or maintenance must be replaced before you use the machine. It is there to protect you from moving parts.
- Operate all machinery and equipment correctly and safely. Follow safe work procedures. Ask your supervisor to show you, if safe work procedures are not available. Switch machinery and equipment off when not in use.
- When first using machinery and equipment, you must be supervised until you are competent. You may be buddied up with an experienced worker so skills, knowledge and experience can be shared.
- Don't work alone with machinery unless there is an emergency stop button located within reach of an operator.
- Wear Personal Protective Equipment (PPE) given to you, and wear clothing that won't get caught on levers, or in moving parts.
- Keep the area around the machinery clean.

> ***Remember:***
>
> *Never use any machine you have not been trained to use.*

Examples of dangerous machinery and equipment

Tractors

A farm worker was killed when a tractor moved unexpectedly when the worker was underneath it looking for the source of a hydraulic oil leak. The tractor was over 30 years old and rarely used.

Powered mobile plant such as tractors is the major cause of serious injury and fatalities in farming. Incidents can include an operator falling off when driving or sitting in a stationery or moving tractor, and being hit by, or being trapped between, a tractor and its attached machinery.

Let's have a look at how to stay safe

- Operators must be trained to operate a tractor safely and without risk to themselves or others, including to:
  - follow all safety instructions
  - turn on the tractor from the driver's seat only and ensure the seatbelt is worn appropriately
  - never leave a tractor jacked up
  - never leave the motor of an unattended tractor running
  - remove the starter key when not using the tractor to prevent unexpected use
  - never get off a moving tractor
  - Passengers must only ride when a passenger seat has been fitted
- You should keep away from any mobile plant being operated, including tractors. If you need to be in an area where mobile plant is being used, make visual contact with the operator before moving into the area.

Quad bikes

A young worker died from massive head injuries when he was thrown from a quad bike in a paddock. After rounding up sheep, the worker was heading back to the shed when he collided with a wire or 'cockies' gate across the road. The worker did not wear a helmet and was working alone at the time of the incident.

A quad bike is a four-wheeled motorised vehicle used for farm work. While quad bikes are sometimes referred to as all-terrain vehicles (ATVs), they are not safe for use in all terrains.

Quad bikes are one of the main cause of fatalities and serious injury in workplaces, especially on farms. The risk of quad bike accidents can increase from:

- the operator not wearing an approved helmet
- operating the vehicle in a situation where it is likely to overturn
- the operator being insufficiently trained, having limited experience or operating a quad bike incorrectly; for example on unstable, sloping or rough ground.
- Loading the quadbike incorrectly, which decreases stability and increases risk of rollover.

What can your employer do to protect you?

- Have quad bike operating rules in place.
- There is a tendency for quad bikes to rollover and cause serious injury or death to operators. Your employer must have rollover protection devices fitted to the vehicle.
- Provide you with a safe vehicle that is best suited to the job. The vehicle should be in good condition and well-maintained.
- Ensure adequate procedures and means of contact are in place for workers who work alone.
- Provide you with personal protective equipment (PPE) such as an approved riding helmet, gloves and eye protection.

What can you do to keep safe?

- Follow quad bike operating rules.
- Your workplace may have more than one type of quad bike available for different uses. Only operate a quad bike for which you are authorised.
- You need to take reasonable care of your own safety.
- Rollovers are a major risk of quad bike incidents. Take precautions while riding on all types of terrain. The conditions can change with the weather, and may require different skills.
- When operating on slopes, you must be trained in active riding techniques so that you know when to change your riding position to safely cross slopes and make turns. The long seat on quad bikes is to enable active riding, not for carrying passengers.
- Ride on familiar tracks and be aware of what obstacles are in your path. Be on the lookout for potential hazards when riding a quad bike including rocks, bumps, pipes, fences, undulations, wildlife and speed all have the potential to cause accidents.
- Take extra care when using spray tanks, as they can make the bike unstable. Know how much weight the quad bike can safely carry or tow, and never operate an overloaded quad bike.
- Always wear PPE when riding a quad bike. These include an approved riding helmet, a visor or glasses to prevent serious eye injuries, and closed shoes to keep feet safe from injury.

Silos

A teenager assisting on a silo during harvesting was on top of the silo without a harness or fall arrester. The teenager fell into the grain and was suffocated before the silo could be emptied.

A silo is a tall structure used on farms for storing grain seed or pellets. When used to store fermented feed, the contents are known as silage.

Storage silos and loading systems, which include augers, are dangerous. Augers are large mechanical screws inside a tube which draw up grain.

Dangers from operating silos include falls from height, being in explosive and toxic environments, shortage of oxygen, and grain suffocation.

Let's have a look at how to stay safe

- Grain auger belts, pulleys, drive shafts and rotating screws must be correctly guarded.
- Fall protection must be provided to protect workers from harm. Use a safety harness both inside and on the outside of the silos and stay above the grain level while working.
- Ensure that energy sources to augers are locked out before entering silos to clean them
- Fumigated silos should be ventilated before anyone enters.
- Someone should be nearby when you are working in or around the silo in case of problems.

- Checks must be made for explosive grain dusts, carbon dioxide and high temperatures inside silos.
- Filling or emptying a silo must not start while someone is inside.

Quiz – Machinery and equipment

1. Guards are fitted to machinery:
   a. as part of exterior design
   b. to keep the machine clean
   c. to protect you from moving parts
   d. none of the above

2. Which of the following is a cause of injury associated with driving a quad bike?
   a. An operator not wearing a helmet
   b. A quad bike not having rollover controls in place
   c. A lack of training, inexperience or using a quad bike incorrectly
   d. All of the above

3. One of the main causes of farm fatalities in Australia is from:
   a. drought
   b. tractors
   c. barbed wire fences
   d. chemical sprays

4. Hazards from working in silos include:
   (Select **five** that apply)
   a. falls from height
   b. asphyxia (suffocation)
   c. sunburn
   d. toxicity
   e. explosion
   f. being caught up in the moving parts of an auger
   g. toothache

Electricity

A farmer hit the overhead power lines with his tractor. He jumped out of the tractor with his hand still on it. He was seriously injured when 11,000 volts passed through his body via his hand. He needed skin grafts on his body, and four toes and his middle finger had to be amputated.

Electric shocks happen when a person becomes part of an electrical circuit and the current flows through their body. Electricity passing through the body can cause convulsions (involuntary contractions of the muscles) and the heart to stop beating, as well as internal and external burns. It can also cause secondary injuries resulting from falls or collisions and fire hazards resulting from an electrical fault.

The most common causes of electrocution in farming are usually caused by:

- contacting with overhead power lines, usually when using equipment
- faulty electrical tools
- working with or near equipment that people think off or isolated, but is actually on or 'live'
- installation and/or repairs being undertaken by an unqualified repairer
- the absence of a *residual current device (RCD) and lack of its testing

> *A *residual current device (RCD) is a safety switch or life-saving device designed to prevent you from receiving an electric shock if you touch something live, such as a bare wire. If you are using portable electrical equipment and extension leads at work, it must have an RCD installed at the switchboard, built into a fixed socket or through a portable RCD outlet. The RCD must be regularly tested. This is a legal requirement.*

Lockout procedure

When cleaning, maintaining or adjusting machinery and equipment, a lockout procedure is required to safeguard the workers who carry out the tasks.

Lockout is a safety procedure to ensure that dangerous machines are properly shut off and are not able to be started up again prior to the completion of maintenance or repair work. It is used when:

- servicing or repair work places workers in danger
- a machine guard is removed for servicing

There are three steps involved in locking out machines and equipment: Lock, tag and test.

Lock

This means the electrical circuits must be shut down and locked.

This is when a lock is put on an ON switch so the machine can't be turned on. Only the person who put it on can remove it. If that person isn't available, strict rules need to be followed to ensure it is removed safely.

There are a wide range of locks that can be used in this process. These can be:

- switches with a built-in lock
- chains
- jaws or hasps
- padlocks.

When the machinery is locked:

- there should be one key only for each lock (or set of locks) and this should be held by the person who put the lock on
- all people involved in carrying out the work must fit their own lock at the same isolation point(s)
- locks must be clearly labelled (tag)
- locks must be removed upon completion of work or at the end of the shift. if the work will be continued by others, they must fit their own locks.

Tag

This means to attach an information tag to a power source or piece of equipment warning others not to operate it.

A lockout tag:

- includes the name of the person working on the equipment, the time and date of the work and the equipment that's being isolated
- must be attached in a prominent position at each isolation point
- must be fitted and removed by the person who attached it, or by an 'authorised person'
- must be removed upon completion of the work or at the end of the shift. If the work will be continued by others, they must fit their own tags.

Two types of tags that are commonly used are danger tags and out of service tags.

Test

This means that all power sources need to be checked with proper test instruments to make sure everything is de-energised before going ahead with work.

Let's have a look at how to stay safe

- Understand the lockout procedure. Do not operate or use machinery and equipment that is being locked and/or tagged.
- Use machinery and equipment properly – regularly inspect wiring, cords, plugs and tools for obvious external damage and look out for shorting, smoking or sparking fittings
- Report any breakdowns or faulty machinery or equipment to your employer. It is the responsibility of your employer to make sure they are in good working order.
- Ensure all available power is RCD protected.
- Don't overload power boards with lots of appliances. Only use power boards fitted with overload protection.
- Use weatherproof outlets and fittings in areas exposed to wind and rain. Avoid using electrical equipment outdoors in wet conditions.
- Wear suitable footwear and clothing when using electrical equipment.
- Be aware of the locations of all safety switches and what equipment they cover in case equipment needs to be switched off in an emergency. You may ask this question during your induction.

> ***Be aware!***
>
> *Always check the location of the power lines before you start work. Power line heights are deceptive. Know the operation and maximum height of your machine. Make sure tall items like balers and headers are kept well clear of overhead power lines.*
>
> *Your employer should erect signs to warn people that overhead power lines are on site.*
>
> *Never stack irrigation pipes or park machinery under power lines.*

Quiz – Electricity

5. When cleaning, maintaining or adjusting machinery and equipment, a lockout procedure is required to:
   a. safeguard workers
   b. safeguard machinery
   c. identify hazardous energy
   d. finish work

6. There are three steps in locking out machine and equipment. These steps are:
   a. lock, look and tag
   b. lock, tag and test
   c. tick, tock and tack
   d. lock, test and try
7. An incident with electricity is usually caused by:
   a. installation and/or repairs of electrical equipment by a qualified electrician
   b. contacting with overhead power lines, usually when using equipment
   c. Use a portable RCD with a portable electrical tool
   d. regularly inspecting wiring, cords, plugs, and tools and equipment for obvious external damage

Falls

Falls have been the cause of many injuries in farming. Workers are at risk of falling from silos and field bins, vats and tanks, windmills and when loading and unloading livestock.

Falls from height

A fall from height is a fall from one level to another. Your employer must manage the risks of falls. Where possible, it is best to avoid or limit the need to work at height. If working at height cannot be avoided, your employer must provide safe systems of work including:

- Safe use of equipment. Your employer must ensure the tools and equipment provided are appropriate for the task and in good condition. Information, training, instruction and supervision are to be provided to use equipment and tools safety.
- Provide fall protection systems to access areas where there is risk of a fall, such as:
  - fall injury prevention devices – examples include roof safety mesh, safety net, guard railing, scaffolding, fall-arrest systems and elevating work platforms (EWPs)
  - work positioning systems – for example, travel restraints which are designed to prevent workers from reaching an edge where they could fall.
- Provide ladders that are industrial-rated and well-maintained with no bent or broken parts and ensure they are used correctly.

Slips, trips and falls

Slips, trips and falls are described as falls on the same level. These types of injuries can result in serious harm and lengthy time off work. The injuries can also affect young workers in their everyday social and school lives and may mean they cannot play sport or engage in physical activities or hobbies.

A slip, trip and fall may cause injuries, including:

- broken bones when colliding with an object or hitting the ground
- cuts if it occurs near sharp objects
- sprains or strains.

What causes slips, trips and falls?

- Slippery floors from water or liquid spills.
- Wearing unsuitable shoes.

- Unstable, loose, or uneven surfaces.
- Steps and different floor levels.
- Poor lighting.
- Objects on the floors.
- Clutter left in walkways.

What can your employer do to prevent slips, trips and falls?

- Allow safe movement in the workplace, including entries and exits that are free of obstructions
- Ensure floors and surfaces in the workplace are well-maintained and installed with task appropriate surfaces
- Provide adequate lighting for safe movement
- Ensure sufficient space to work
- Maintain workplaces to be clean and tidy
- Provide tools and equipment to assist you to work safely
- Ensure workers wear suitable footwear with appropriate treads that are kept clean
- Install ramps in areas where the floor level changes and trolley access is required
- Guard rails or other safeguards are provided on ramps and stairs

How can you prevent slips, trips and falls at work?

- Wear suitable shoes with treads that are kept clean – incorrect footwear can cause slips and trips
- Clean up spillages straight away
- Keep walkways clear of obstacles, especially during high traffic times
- Carry items only at a height that you can safely see over to avoid trip hazards and bumping into things
- Ensure that you have enough light to work safely; this may include portable task lighting.

Quiz – Falls

8. Which of the following will reduce the risk of falls from heights?
    a. Practicing Ninja warrior skills
    b. Using fall arrest systems (such as a safety harness)
    c. Being brave
    d. Asking your mate to do it for you

9. A slip, trip or fall may cause injuries, including:
    a. broken bones when colliding with an object or hitting the ground
    b. cuts if it occurs near sharp objects
    c. sprains or strains
    d. all of the above

Manual tasks

A young farm mechanic manually pushed tractors forward to move them. As a result, he developed sciatica which is a set of symptoms including pain in the lower back, buttock, and/or various parts of the leg and foot. In addition to pain, which is sometimes severe, there may be numbness, muscular weakness, and difficulty in moving or controlling the leg.

Manual tasks are any activity or sequence of activities that requires a person to use their body (musculoskeletal system) physically to perform work such as lifting, lowering, pushing, pulling, carrying, moving, and holding or restraining a person, animal or things. They can include handling livestock, jumping down from machinery and repetitive movements like loading hay bales onto a trailer.

Most jobs require several types of manual tasks to be performed. However, not all manual tasks are hazardous. The most common injuries and health issues that can arise from performing hazard manual tasks are musculoskeletal injuries, which affect the muscles, bones and/or joints.

Examples of musculoskeletal injuries are:

- sprains and strains of muscles, ligaments and tendons (e.g. back strain)
- joint injuries
- disc protrusion or disc herniation of the back
- nerve injury or compression
- muscular and vascular disorders (e.g. carpal tunnel syndrome or repetitive strain injury)
- soft tissue injuries

How does performing a manual task result in injury?

Contrary to popular belief, it's not just the weight of an object that creates the risk of musculoskeletal injuries. Workers are at risk of suffering injuries due to:

- increased effort (force)
- awkward postures
- applying pressure on one part of the body
- performing the same action quickly and repeatedly
- lifting heavy objects

What can your employer do to prevent injuries from performing manual tasks?

- Your employer has a responsibility to provide and maintain a safe workplace. If you are about to perform hazardous manual tasks and you are unsure how to go about it, ask your employer or supervisor for assistance.
- Your employer should provide you with *risk management and **task-specific training where hazardous manual tasks have been identified at your workplace.

> **Risk management* *is the steps required to manage workplace hazards described as SAMM – Spot the hazard; Assess the risk; Make the changes; Monitor and follow-up.*
>
> ***Task specific training* *is the practising of actual tasks that will be performed.*

Task specific training should be provided:

- during induction to the task
- as part of your refresher training
- when work tasks are about to be changed or introduced

There are a variety of ways you can be trained. Methods include a buddy system, demonstrations, training by observation, training at staff meetings, toolbox talks, and practice sessions.

After the training, you should be able to:

- recognise the risks and the sources of those risks, and in discussion with your employer or supervisor decide the best way to minimise them
- prepare the workplace layout and surroundings to perform manual tasks safely
- prepare the load for manual handling, where applicable
- organise the task and work flow to minimise the risk of injury
- use relevant mechanical aids, handling devices and tools provided to you (i.e. trolleys, wheel barrows or trailers used for feed preparation, feeding horses and manure collection, feed supplied in bulk).

> *Manual tasks can cause injury immediately (e.g. lifting something heavy and injuring your back) or over time through gradual wear and tear on your body. The way you handle things on a daily basis will make a difference.*

General safety tips for heavy lifting

- Use various lifting devices available to lift heavy weight objects (e.g. trolleys, front-end loaders, ute-back cranes and hydraulic tailgates)
- Avoid twisting and bending when standing or sitting at a job. For instance, complete jobs at a waist height workbench rather than on the ground.
- Avoid double handling. For example, look for ways to reduce the number of times you repeatedly handle objects such as bags of fertiliser, hay bales, livestock, etc.
- When you do have to carry and lift numerous items, where possible choose lightweight material, or divide the load up into smaller units. You could also half-fill containers.
- Ask your work mates to help sharing the loads

Quiz – Manual tasks

10. How does performing a manual task result in injury? Choose **four** that apply
    a. increased effort (force)
    b. awkward postures
    c. natural postures
    d. applying pressure on one part of the body
    e. performing the same action quickly and repeatedly

11. The most common health problems that can arise from hazardous manual tasks are:
    a. musculoskeletal injuries
    b. cold and flu
    c. tooth decay
    d. food allergies

12. When should you receive task-specific training to perform manual tasks?
    a. During induction to the task.
    b. As part of your refresher training.
    c. When work tasks are about to be changed or introduced.
    d. All of the above.

Hazardous substances

A worker was constantly exposed to pesticides from sheep dipping. The worker suffered nerve damage, blurred vision and poor balance due to organophosphate pesticide exposure.

A hazardous substance can be any solid substance, liquid, gas or dust that may cause you harm. Hazardous substances shouldn't be a problem most of the time, but things can go wrong if you:

- get them on your skin
- eat or drink them by mistake
- breathe them in
- mix substances so they become dangerous
- mistake one substance for another

In farming hazardous substances include fuels, solvents, fertilisers, pesticides, agricultural dusts, animal medications, acids and cleaning agents.

Example of hazardous substances

Pesticides

Many materials used in farming such as insecticides, herbicides and fungicides, collectively known as pesticides, are harmful to health. Pesticides are designed to kill pests, but some of them can be harmful to humans.

Exposure to pesticides can cause acute, as well as, chronic effects. Examples of acute effects include stinging eyes, rashes, blisters, blindness, nausea, dizziness, diarrhoea and death. For chronic effects, pesticides have been linked to cancer, Alzheimer's disease, ADHD, and damage to reproductive systems.

Pesticides can be used safety in the workplace, with appropriate risk controls in place.

Agricultural dusts

Some agricultural processes and organic farm environments produce fine dusts which are known as agricultural dusts. These dusts may come from:

- grain harvesting, storage, crushing and handling
- hay and silage handling
- lot feeding
- handling of pigs, poultry and cattle in confined spaces
- particles of hair, feathers, and dander and dried manure.

Fine dust particles may be deposited throughout the respiratory tract causing respiratory problems. Conditions are such as runny nose, sore throat, asthma, acute bronchitis, and toxic organic dust syndrome.

> ***Be aware!***
>
> *Farm workers who are asthmatic, suffer from rhinitis or who smoke cigarettes are at increased risk of respiratory problems.*

Common injuries and incidents from hazardous substances

Toxicity

Toxicity is the degree to which a toxic substance can damage an organism. Pesticides are highly toxic if not used correctly.

To confirm whether the product is toxic, look for the danger hazard symbol on the product’s label or its safety data sheet.

The toxicity of pesticides is indicated by one of the following three warning statements written in large print:

- DANGEROUS POISON – indicating high toxicity
- POISON – indicating moderate toxicity
- CAUTION – indicating low toxicity

Be aware!

Some chemicals can release toxic gas when in contact with liquid or moisture. The common fumigant aluminium phosphide can kill insects (weevils), animals (mice and rats) and humans by releasing toxic phosphine gas.

Corrosive chemicals are usually incompatible with other chemicals and with each other. When they are mixed or combined they can release a toxic gas, (i.e. liquid chlorine which is a base, comes into contact with acid, release poisonous chlorine gas).

Toxic gas associated with fermenting silage may cause severe injury or death to persons who are exposed to large concentrations

Chemical burns

A chemical burn happens when skin or eyes come into contact with a corrosive chemical such as an acid or a base. Internal burns can happen by breathing in the vapour.

Some common cleaning agents like bleach, toilet and drain cleaners and disinfectants include corrosive chemicals.

Be aware!

Corrosive chemicals can "eat through" clothing, metal, and other materials.

You must be trained and supervised when using corrosive chemicals.

You must wear PPE and other suitable clothing when using corrosive chemicals.

First aid should be given for chemical burns as soon as possible.

Strong acids and strong bases react very dangerously when mixed together – they can boil and splash anything nearby.

Flammability and Explosion

Fumes from flammable liquids when mixed with air in certain proportions can create an invisible hazardous atmosphere that can ignite.

Ignition sources can be obvious like cigarettes, or less obvious like static electricity (zapping), hot surfaces (stoves, lamps), and electrical installations (powerpoints, switches and switch boards).

Common flammable liquids in the workplace are petrol, solvents, methylated spirits, acetone, adhesives, paints, perfume, methanol, ethanol and degreasers.

Be aware!

In a silo with a dusty atmosphere (e.g. one being filled from a feed mill) the atmosphere might become explosive when the humidity is low. A spark from metal striking metal, an electric switch or a match could cause a dust explosion.

You must not reuse "empty" containers that used to contain flammable chemicals. Even if they are properly cleaned, residual fumes inside empty containers can still create hazardous atmospheres that can explode if a spark is present.

Angle grinders produce ignition sources such as heat and sparks. Never attempt to cut or apply heat to drums that have contained flammable liquids or flammable gasses.

Areas where flammable liquids are used, mixed, or transferred from one container to another must be kept well ventilated and well separated from offices, warehouses and other places where people can gather. In the case of a spill or leak, you need to remove any ignition source if it is safe to do so.

Suffocation (Asphyxia)

Asphyxia is caused by a lack of oxygen in air resulting in deficiency of oxygen in the blood.

When present in high concentrations, common gases (e.g. nitrogen, carbon dioxide, helium, and propane) can displace oxygen in the air, especially within a confined space. Inhaling too much of common gases can cause dizziness, disorientation, abnormal heart function, unconsciousness and even death.

These gases are often found in agricultural workshops during maintenance and testing of vehicles.

Be aware!

Most asphyxiant gases are colourless and odourless so their presence in high concentrations may not be noticed.

Working in confined spaces is dangerous and additional measures may be required to conduct work safely. Confined spaces can include silos, storage tanks, containers, utility vaults, pipes, trucks or rail tank cars, boilers, bins, ditches and trenches.

Carbon dioxide in a silo can displace oxygen and cause suffocation.

How can you keep safe from hazardous substances?

- Read the label – look for warning labels and signs. Always follow the danger safety warnings.
- Read the safety data sheet (SDS) for more information about the product and how to use it safely. Your employer must provide (or have available) safety information documents for any substances or products that are hazardous.
- Check the hazardous substance register at your workplace. It is a legal requirement that your employer must keep a current register of each hazardous substance that may be used or stored in the workplace.
- Don't eat, drink, and smoke when you are using or near a hazardous substance or dangerous goods.
- Don’t keep food near hazardous substances or dangerous goods.
- Always use the PPE and clothing provided by your employer.
- Know what to do and where to go if a substance affects you. If you don’t know, check with your employer.
- Keep ignition sources away from any chemicals that are potentially flammable.
- Maintain good housekeeping standards – declutter and avoid build-up of combustible materials around any chemical storage

Quiz – Hazardous substances

13. Safety Data Sheets (SDS) provide essential information about:
    a. hazardous substances and chemical ingredients
    b. potential health effects from exposure to hazardous substances
    c. safe use, handling, first aid, disposal and storage requirements
    d. all of the above

14. Select **three** correct actions you would take to keep yourself and others safe from hazardous substances.
    a. Read the product label
    b. Read the product SDS
    c. Follow safe work procedures
    d. Smell the substance

15. A spark from metal striking metal, an electric switch or a match could cause a dust explosion in a silo with a dusty atmosphere, particularly if the humidity is low.
    a. True
    b. False

16. Exposure to agriculture dusts can cause _____.
    a. musculoskeletal injuries
    b. back pain
    c. respiratory problems
    d. chemical burns

Noise

Noise from agricultural tools and machinery can cause permanent hearing loss and tinnitus. Damage can occur gradually over a number of years and remain unnoticed until it is too late. Hearing loss can lead to a loss in quality of life.

The hazard noise poses is dose related, and the higher the dose of noise, the greater the risk to the worker's hearing.

The noise dose is dependent on three factors:

- Intensity/Loudness: measured by a noise level meter and is described in decibels (dB)
- Frequency: the number of sound vibrations in one second and is measured in hertz (Hz)
- Duration: the length of time workers have been exposed to noise

In Western Australia, the law sets a workplace exposure standard averaged over eight hours to be 85 dB(A) or a peak noise level of 140dB. Any noise exposure above 140 dB can create almost instant damage to hearing. If you have to raise your voice to be heard, the noise level is likely to be 85 dB(A) or more.

Typical noises in agriculture that can damage hearing include:

- tractor 95-100dB(A)
- header 88-90dB(A)
- orchard sprayer 85-100dB(A)
- angle grinder 95-105dB(A)
- bench grinder 90-95dB(A)
- chainsaw 105-120dB(A)
- pig shed at feed time 95-105dB(A)
- shotgun over 140dB(C).

What can your employer do?

Where the exposure standard is exceeded, your employer must provide solutions to noise hazards such as:

- choosing quieter machinery and equipment
- modifying equipment to reduce noise
- keeping equipment in good working condition
- Using portable noise barriers around static equipment like generators and concrete pumps
- isolating work areas from noisy machinery using distance or insulation;
- Limiting the time workers spend in noisy environment
- providing you with hearing protectors (i.e., earplugs and earmuffs) to use along with all other control measures.

What can you do to save your hearing?

To safeguard your hearing, you must wear the hearing protectors that have been given to you. It might seem like there is nothing wrong with your hearing, but the damage is done without you noticing it.

Hearing protectors, like earplugs and earmuffs, should be regularly cleaned, repaired and stored near noisy areas.

> ***Remember:***
>
> *The most important factor for effectiveness of hearing protection is wearing it.*

Quiz – Noise

17. Noise levels are measured in:
    a. decimals or dM
    b. decibels or dB
    c. millimetres per second
    d. dBs per second

18. To prevent hearing loss at work, the law sets a workplace exposure standard averaged over eight hours to be _____ dB(A)
    a. 85
    b. 95
    c. 140
    d. 200

19. The most important factor for the effectiveness of hearing protection devices is:
    a. style
    b. appearance
    c. colour
    d. wearing it

Hazardous working conditions

Working with animals - biological hazards

Farm workers are at risk of contracting transmitted diseases from animals to humans. Zoonoses are diseases from animals that can cause serious illness in people.

The two most common Zoonoses that pass from animals to humans in Western Australia are Leptospirosis and Q fever. Catching either disease from another infected person is extremely rare.

- Leptospirosis is commonly found in pigs and cattle, but sometimes found in sheep, dogs and cats. The bacteria passed from animals to humans through contact with the urine of sick or infected stock, native and feral animals, and also by swimming, wading, or using water from contaminated streams, rivers and dams. The bacteria enter the body through cuts in the skin and through the linings of the eyes, nose or throat.
- Q fever is most commonly found in cattle, dairy cows, sheep and goats. It can be caught by inhaling vapours from infected farm animals, birth fluids and dust, contact with contaminated straw, wool, hair or hides, and drinking infected unpasteurised milk.

Both Leptospirosis and Q fever generate flu like symptoms. You may have muscle pains, severe headaches and fever. The treatment for both diseases is antibiotics.

What can your employer do to keep you safe?

- Your employer should have safe work practices and risk control systems in place so that workers are not exposed to infectious diseases, such as leptospirosis and Q fever. Safe work practices should include:
  - vaccinating livestock against leptospirosis (in consultation with a veterinarian)
  - vaccinating workers against Q fever
  - avoiding contact with contaminated water
  - burning afterbirth and contaminated litter
  - pasteurising or boiling milk before drinking
  - getting rid of rats and mice
  - maintaining cleanliness in animal sheds, yards and pens
- Provide you with suitable cleaning and disinfecting products and PPE

What can you do be safe?

Follow basic hygiene steps to protect yourself including:

- receiving training on how to clean and disinfect objects and surfaces properly.
- washing your hands with soap when dealing with animals, and before eating and drinking
- clean benches and floors with detergents or disinfectants
- treating of abrasions and wounds, which should be covered with waterproof dressings at all times while at work
- prompt washing of skin and eyes if contaminated by animal urine
- If you think you may be infected with either disease, see a doctor quickly.

Quiz – Working with animals

20. Identify the **two** most common Zoonoses that pass from animals to humans:
    a. Leptospirosis
    b. Hay fever
    c. Q fever

d. Musculoskeletal

e. Saturday night fever

21. Which of the following statements can be used as a risk control system to protect workers from zoonosis?

(Select **four** that apply)

a. Vaccinating livestock against leptospirosis

b. Vaccinating workers against Q fever

c. Maintaining cleanliness in animal sheds, yards and pens

d. Pasteurising or boiling milk before drinking

e. Workers should only wash their hands before and after shifts when working with animals to save water

Handling animals

Handling animals presents unique hazards. The unpredictable nature of a large animal poses a specific safety risk to inexperienced workers, especially when working with animals in a confined space, handling, transporting or riding them.

Young or inexperienced workers are less likely to understand animal behaviour, be unfamiliar with the workplace environment or may not understand the significance of instructions and directions.

Many serious injuries and fatalities are caused by workers being hit, trapped or struck (e.g. cattle), and falling from, being bitten or kicked (e.g. horses) by an animal. Serious injuries are most likely to occur in a confined space such as cattle yards, pens and stables. A kick from a horse to the head can cause serious, even fatal, injury.

Let's have a look at how to stay safe

- Your employer must have a safe system of work that manages the risks associated with handling an animal.
- They must have control measures to create a safe work environment (i.e. If you handle livestock in pens or yards, make sure these are designed so you can't be trapped or crushed).
- They must ensure that tools and equipment provided are appropriate for the task, well-maintained and in good condition (i.e. latches, bolts and chains on gates work properly).
- You need to be trained on animal handling before commencing any work activity. You must be given constant supervision until you are competent.
- Tips on animal handling are to:
    - take the time ensuring animals are restrained properly before you handle them
    - ensure you are in a safe position when loading or unloading stock
    - avoid working alone when loading or unloading stock
    - check that you have a clear escape route
    - you need to stay alert while handling animals. Animal behaviour can be unpredictable.
    - wear appropriate clothing and PPE (e.g. safety glasses, rubber gloves, masks, coveralls, steel toed footwear, safety approved helmets when riding horses).

Quiz – Handling animals

22. What can your employer do to reduce the risk of injuries from handling animals?
    a. Provide a safe system of work to manage the risks
    b. Must have control measures to create a safe work environment
    c. Provide you with training on animal handling and given constant supervision until you are competent
    d. All of the above

23. A kick from a horse to the head may result in a fatal injury.
    a. True
    b. False

Working in hot conditions

Farm work often occurs outdoors. Workers are at risk of heat stress and exposure to solar ultraviolet (UV) radiation. The effects of heat stress range from discomfort to life threatening illnesses such as heat stroke. Sunburn can cause permanent skin damage and is a major risk factor for developing melanoma.

Heat may come from:

- hot climate conditions
- radiant heat from the surroundings such as shed walls and hot ground surfaces
- work where heavy PPE must be worn
- any combination of these factors

What is heat stress?

Heat stress occurs when your body cannot cool itself enough through sweating to maintain a healthy temperature. Symptoms of heat stress include:

- cool, moist skin with goose bumps
- heavy sweating
- dizziness
- fatigue
- weak, rapid pulse
- low blood pressure upon standing
- muscle cramps
- headache

What is heat stroke?

Heat stroke is much worse than heat stress. Heat stroke symptoms include:

- body temperature above 40ºC
- hot dry skin
- irritability
- speech problems
- confusion
- convulsions
- unconsciousness
- *cardiac arrest

> **Cardiac arrest* is a life-threatening condition that requires immediate first aid (cardio pulmonary resuscitation – CPR) and medical treatment.*

What can your employer do to keep you safe?

- Know the weather forecast and assess how to organise the day's tasks to avoid the risk of heat stress and heat stroke.
- Make shade available.
- Rearrange tasks and lighten the work in extreme heat.
- Provide workers with information on heat stress and skin cancer and ways to prevent both.
- Supervise workers to ensure they are working safely and that their skin is not exposed to the sun.
- Ensure there is a supply of cool, clean drinking water available at the site.

What can you do to be safe?

- Wear protective clothing – all outdoor workers should be covered to elbows and knees, and workers with fair skin should wear long sleeves and long pants. Also wear a hat with a brim and safety glasses with UV protection.
- Apply sunscreen (SPF30+) 20 minutes before sun exposure. Make sure the back of your neck and arms are covered. Reapply as necessary.
- Drink approximately 250ml of water every 15 to 20 minutes during hot working conditions. Keeping well hydrated is a critical factor in avoiding heat illness.
- Take regular breaks. Know your limits. Practice self-pacing when working in hot conditions.
- Inform your employer if you have an underlying health condition (e.g. heart disease, high blood pressure and diabetes) that may increase your risk of heat illness.
- Maintain a healthy lifestyle, including a healthy diet and regular exercise.
- If you are feeling tired, dizzy or weak or you're having trouble concentrating, tell your supervisor. Rest in a cool, well-ventilated area, remove excess clothing, drink plenty of water and fluids, and apply a wet cloth, cold water or ice packs to the skin (particularly the neck, armpits and groin).
- Although water is generally adequate for fluid replacement, low joule cordials and electrolyte replacement solutions may be provided to encourage fluid intake. High sugar cordials and sports drinks are not recommended.

> ***Be aware!***
>
> *Workers on cattle stations may require to ride horses while mustering or otherwise handling horses. Working with horses is dangerous. Workers should wear a safety approved riding helmet with adequate ventilation when horse riding instead off wide-brimmed felt hats (i.e. vented helmet with a wide brim added).*

What should you, your employer or workmates do if someone has heat stroke?

- First, call 000 for an ambulance.
- Lay the person down.
- Cool the person down by applying cold packs or wrapped icepacks to neck, groin and armpit areas.
- Use a wet towel, sheet or clothing to cover the person.
- If the person is fully conscious and able to swallow, provide water. Encourage them to take sips rather than large gulps.

> ***Remember:***
>
> *Urgent medical attention must be sought if the person becomes unconscious or has a seizure. In the case of cardiac arrest, CPR is required immediately and should continue until the paramedic arrives (ambulance). If available, attach an automated external defibrillator to the person as soon as possible and follow the step-by-step instructions.*
>
> *A first aid officer is trained to perform CPR in your workplace.*

Quiz – Working in hot conditions

24. _____ is the most serious form of heat stress.
    a. Heat rash
    b. Heat exhaustion
    c. Heat stroke
    d. Heat waves

25. To avoid heat stress during hot work conditions, it is recommended that you drink at least 250ml of water _____ to replace lost fluids.
    a. every 15 to 20 minutes
    b. during lunch break
    c. every 2 to 3 hours
    d. if needed

26. What should you do in the first instance when you suspect that your workmate is experiencing heat stroke?
    a. Call 000 for an ambulance
    b. Lie the person down
    c. Cool the person down by applying cold packs or wrapped icepacks to neck, groin and armpit areas
    d. Use a wet towel, sheet or clothing to cover the person

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Working alone

A farm worker was seriously injured while working alone. His workplace had a procedure of making regular contact with an isolated worker; however, there was no requirement to communicate at the end of a working day. The farm manager had spoken with the farm worker over mobile phone in the afternoon. Sometime later, the worker had ridden a quad bike and collided with a cocky's gate (wire gate). The quad bike rolled over and the worker suffered serious head injuries.

The worker had been provided with a mobile phone, but was unconscious and unable to call for help. He laid unconscious on the ground all night until his workmate found him the next morning. He died in hospital the next day.

A person is described as an isolated worker when performing work tasks alone, cannot be seen or heard by another person, and does not expect a visit from another worker or member of the public for some time.

Some tasks in farming, such as seeding, harvesting, checking livestock and checking windmills or water supplies, require a worker to work alone, away from others during the day, or away from the homestead over several days.

Let's have a look at how to stay safe

When you are required to work alone, you still have rights under WHS law. Your employer has responsibilities to provide and maintain a safe workplace and you need to take reasonable care of your own safety including:

- Your employer must have a working alone procedure in place which includes:
  - a means of two-way communication available (e.g. mobile telephones, two-way radios),

including a means to communicate in the event of an emergency. Training for the use of two-way radios, satellite phones and other means of communication is to be given by your employer.

- a regular contact with an isolated worker throughout the day (e.g. pre-arranged mobile telephone calls as scheduled time), as well as the contact at the end of the day to confirm the worker has safely completed work
- supervisors and other workers are to be trained in what action to be take in the event that contact cannot be made with the isolated worker.

- Your employer must provide you with the means of communication, personal protective equipment (PPE), safe machinery, equipment and tools for you to do your job safely.
- Your employer must provide you with adequate information, instruction and training to ensure that you understand the hazards that may be associated with the tasks when working alone, and the procedures that should be followed to reduce risk.
- You need to clearly understand and follow procedures and take reasonable care to not to put yourself in danger.

> ***Remember:***
>
> *When working alone, carry a communication tool with you at all times. You might need it to call for help.*

Quiz – Working alone

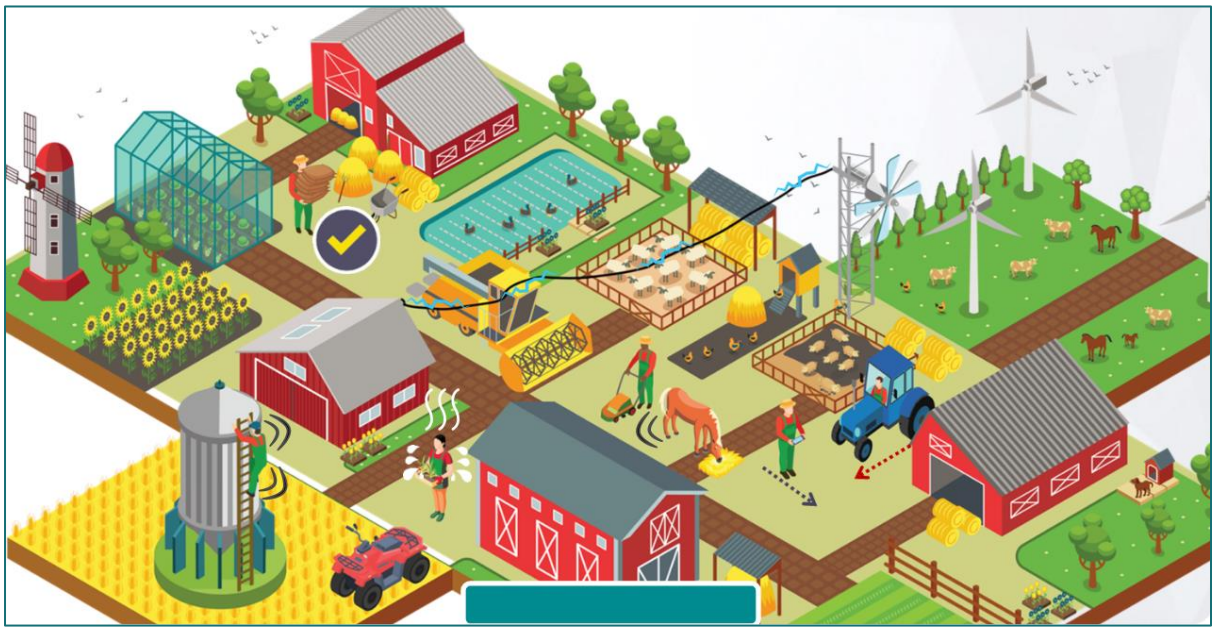
27. What is an isolated worker?
    a. A worker who works alone, cannot be seen or heard by another person and does not expect a visit from anyone for some time
    b. A worker who works independently to others in the office
    c. A worker who likes to be on their own.
    d. All of the above

28. A working alone procedure may include:
    a. a means of two-way communication available (e.g. mobile phones, two-way radio)
    b. a regular contact with the isolated worker throughout the day
    c. supervisors and other workers being trained in what action to be take in the event that contact cannot be made with the alone worker
    d. all of the above

Spot the hazards

Wooroloo Farm

There are 6 hazards in this area. Try to find them all.



Hazard notebook

Fill in the hazard notebook

#	Spot the hazard	Assess the risk	Make the change	Monitor and follow-up
1	Worker carrying heavy bags of fertiliser across the farm	high	Suggest they use a wheelbarrow to avoid muscular stress	Check in later to see if the wheelbarrow is being used. Offer to fetch the wheelbarrow
2				
3				
4				
5				
6				

Farming module – Knowledge quiz

1. Guards are fitted to machinery:
   a. as part of exterior design
   b. to keep the machine clean
   c. to protect you from moving parts
   d. none of the above

2. Which of the following is a cause of injury associated with driving a quad bike?
   a. An operator not wearing a helmet
   b. A quad bike not having rollover controls in place
   c. A lack of training, inexperience or using a quad bike incorrectly
   d. All of the above

3. One of the main causes of farm fatalities in Australia is from:
   a. drought
   b. tractors
   c. barbed wire fences
   d. chemical sprays

4. Hazards from working in silos include: (Select **five** that apply)
   a. Falls from height
   b. Asphyxia (suffocation)
   c. Sunburn
   d. Toxicity
   e. Explosion
   f. Being caught up in the moving parts of an auger
   g. Toothache

5. When cleaning, maintaining or adjusting machinery and equipment, a lockout procedure is required to:
   a. safeguard workers
   b. safeguard machinery
   c. identify hazardous energy
   d. finish work

6. There are three steps in locking out machine and equipment. These steps are:
   a. lock, look and tag
   b. lock, tag and test
   c. tick, tock and tack
   d. lock, test and try

7. An incident with electricity is usually caused by:
   a. installation and/or repairs of electrical equipment by a qualified electrician
   b. contacting with overhead power lines, usually when using equipment
   c. Use a portable RCD with a portable electrical tool
   d. regularly inspecting wiring, cords, plugs, and tools and equipment for obvious external damage

8. Which of the following will reduce the risk of falls from heights?
   a. Practicing Ninja warrior skills
   b. Using fall arrest systems (such as a safety harness)
   c. Being brave
   d. Asking your mate to do it for you

9. A slip, trip or fall may cause injuries, including:
   a. broken bones when colliding with an object or hitting the ground
   b. cuts if it occurs near sharp objects
   c. sprains or strains
   d. all of the above

10. How does performing a manual task result in injury? Choose **four** that apply.
    a. increased effort (force)
    b. awkward postures
    c. natural postures
    d. applying pressure on one part of the body
    e. performing the same action quickly and repeatedly

11. The most common health problems that can arise from hazardous manual tasks are:
    a. musculoskeletal injuries
    b. cold and flu
    c. tooth decay
    d. food allergies

12. When should you receive task-specific training to perform manual tasks?
    a. During induction to the task
    b. As part of your refresher training
    c. When work tasks are about to be changed or introduced
    d. All of the above

13. Safety Data Sheets (SDS) provide essential information about:
    a. hazardous substances and chemical ingredients

b. potential health effects from exposure to hazardous substances
c. safe use, handling, first aid, disposal and storage requirements
d. all of the above

14. Select **three** correct actions you would take to keep yourself and others safe from hazardous substances.
    a. Read the product label
    b. Read the product SDS
    c. Follow safe work procedures
    d. Smell the substance

15. A spark from metal striking metal, an electric switch or a match could cause a dust explosion in a silo with a dusty atmosphere, particularly if the humidity is low.
    a. True
    b. False

16. Exposure to agriculture dusts can cause _____.
    a. musculoskeletal injuries
    b. back pain
    c. respiratory problems
    d. chemical burns

17. Noise levels are measured in:
    a. decimals or dM
    b. decibels or dB
    c. millimetres per second
    d. dBs per second

18. To prevent hearing loss at work, the law sets a workplace exposure standard averaged over eight hours to be _____ dB(A)
    a. 85
    b. 95
    c. 140
    d. 200

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    a. style
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    c. colour
    d. wearing it

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    a. True
    b. False

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    c. Heat stroke
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    d. all of the above