TO BE UPDATED TO REFLECT LATEST LEGISLATIVE CHANGES

GOOD PRACTICE GUIDELINES

Staying safe in and around farm dairies

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New Zealand Government

WORKSAFE NEW ZEALAND | MAHI HAUMARU AOTEAROA

The purpose of these guidelines is to help reduce the risk of injuries and fatalities by providing practical guidance on how to manage hazards in and around farm dairies.

ACKNOWLEDGEMENTS

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STAYING SAFE IN AND AROUND FARM DAIRIES: KEY POINTS

Design the farm dairy to let workers milk in a comfortable position, between shoulder and mid-thigh

Install kick rails

Guard rotary platform rollers

Fence off all effluent ponds

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INTRODUCTION

IN THIS SECTION:

This publication is a guide to improving health and safety on dairy farms, especially in and around farm dairies.

1.1 PURPOSE

This guideline outlines the potential hazards in and around farm dairies, and provides recommendations to eliminate, isolate and minimise those hazards. WorkSafe NZ accepts these recommendations as current industry good practice. They will help you comply with the Health and Safety in Employment Act 1992.

Dairy farming can be dangerous. This guideline gives advice about the following hazards:

- shed design
- machinery
- slips and trips
- manual handling tasks, such as milking
- cattle handling
- electrical hazards
- confined spaces
- artificial insemination
- noise
- chemical storage
- effluent ponds/management.

1.2 SCOPE

This guide applies to anyone working on dairy farms, including farm owners, sharemilkers, farm staff, contractors, farming families and the wider rural community.

1.3 DEVELOPMENT

Industry experts helped WorkSafe NZ develop this guide. WorkSafe NZ also conducted a thorough review of accident statistics and published academic literature and looked at how overseas health and safety regulators manage the same issues.

WorkSafe NZ has made every effort to ensure the guide's recommended hazard controls reflect current good practice.

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HAZARDS AND CONTROLS IN FARM DAIRIES

IN THIS SECTION:

The most common hazards faced by those working in farm dairies are set out in this section. Guidance is provided about how to effectively manage these hazards.

2.1 FARM DAIRY DESIGN

People working in farm dairies are exposed to hazards involving machinery and moving parts, animals, slips, trips, falls, exoskeletal injuries, electrical and chemical hazards, and burns from hot water. The following hazards in farm dairies can be controlled through good design.

MANAGING THE HAZARD:

HAZARD	CONTROLS
Exposed platform rollers on rotary platforms	> Provide a skirt around the platform or guard the rotary milking platform rollers.
Projections at head height like receivers, interceptors, pipes and rails	> Where possible, remove head-high obstacles and hazards, especially pipes and rails.
Unguarded herringbone rapid exit mechanisms	> Guard rapid exits in herringbone sheds to stop people getting trapped in the shed and yards.
Moving rotary platforms passing fixed rails can potentially trap or crush a person	> Fit a 'banana' rail between the rotary platform's backing and kick rails.
Carrying out cattle husbandry, artificial insemination (AI) and pregnancy testing on rotary platforms	> Fit purpose-built AI/pregnancy testing platforms with steps and rails. > Build a separate AI/pregnancy test race alongside the farm dairy. > When using a trolley or stand for AI and tail painting, make sure the footing wheels are lockable and the floor surface has enough grip. > Install a handrail.
Poor drainage	> Use rubber non-slip matting or concrete grooving on surfaces to increase traction. > Place lids on drums used in cleaning systems.
Cracked or leaking pipe joints	> Make sure there are no leaks or weaknesses in the pipe jointing.
Very hot water	> Place very hot water taps where children cannot easily get to them. > Hot water taps should not be easily opened by getting caught in clothing or being leaned on. The best options are taps that require a two-step process to turn them on. > Extend pipes and hoses deep into drums to reduce splashing. > Insulate exposed pipes to prevent burns. > Label water pipes and taps with safety signs saying: 'very hot water'.
Poorly designed cow entries and exits that have turns, ramps, steps or are too steep	> Avoid corners or bends in cow entry points. > Design a cow entry with a slope of less than 6%; it should slope up to the farm dairy.

HAZARD	CONTROLS
Touching unguarded machinery	> Guard machinery. > Install emergency stop mushroom buttons. > Use a lanyard (cord)-operated emergency stop instead of the forward/stop reverse lanyard. Never disconnect the lanyards.
Cows going down and/or entering the pit	> Quick release gate systems should be in place to release cows if they go down.
Kicking cows	> Install kick rails.
Distressed cows	> Install good-sized personnel escapes or yard refuges.

A safe farm dairy should be designed that way from the start; but existing farm dairies can have many safety features incorporated into refits, expansions and upgrades.

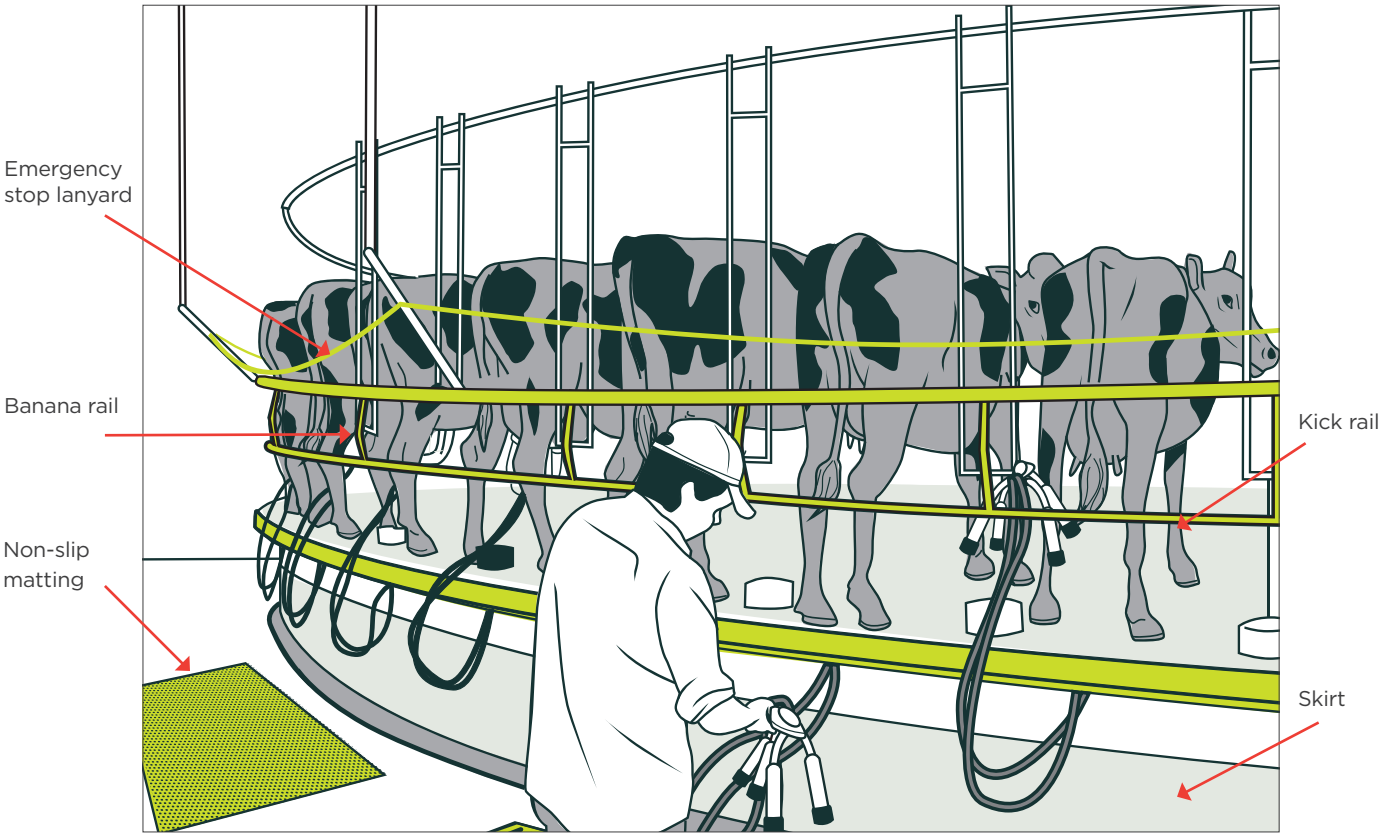


Figure 1: Safety features in a rotary dairy (for illustrative purposes only).

2.2 MACHINE GUARDING

In the farm dairy these unguarded machinery parts present serious risks of injury:

> belts and pulleys (found on vacuum pumps, milk pumps and auger motors)
> generator flywheels and gear wheels
> shafts and spindles on vacuum pumps and milk pumps, also on the tractor power take-off (PTO) drive when using a tractor as a power source
> chain and sprocket gears, found on some backing gates and grain crushers
> meal feeding systems.

The dangerous machine parts are:

> **'Drawing-in points' or 'nip points':** These occur when a belt contacts a pulley. These points grab at fingers, clothing or hair and draw the operator in, causing serious injuries.
> **Shear points:** Items or parts of a machine that move against each other and can cut by pinching. Often this hazard occurs on machines like augers with exposed flights.
> **Impact and crushing areas:** These are similar to shear points but they don't cut. These points crush limbs or people, like rotary platform rollers (where people can be caught between fixed rails) and the moving stalls on rotary, hydraulic or pneumatic gates (like cow entrances and exits on all shed types).
> **Entanglement areas:** These are areas that catch clothing and hair, like exposed rotating shafts on pumps.

MANAGING THE HAZARD:

All machine guarding must comply with *AS 4024 Safety of Machinery* series.

Regularly maintain all farm machinery according to manufacturer's instructions. Clearly mark all controls. Do not use faulty machinery.

2.3 SLIPS AND TRIPS

Slips and trips are one of the most common accidents when working in and around farm dairies. Many farmers have slip-related accidents, which substantially reduces their capacity for work. Injuries to arms or wrists not only make it hard for the farmer to work, but put a heavier workload on other workers.

Slips and trips often happen in the pit during milking, when handling cattle, getting cows in for milking, and during maintenance and cleaning.

The following hazards make it more likely that you will slip or trip:

> slippery surfaces – when surfaces (especially concrete) are wet or dirty with manure, milk, algal build-up, oils, feed and cleaning fluids
> poorly designed steps – too high or not deep enough, or in poorly lit areas (eg in and around the pit)
> divided attention – eg needing to watch the stock when moving across an uneven surface
> poor footwear, especially if the tread is worn
> speed – walking quickly, running, jumping or taking shortcuts
> obstacles – a step or rise as little as 9–10mm can cause trips, like pipes or cables in the farm dairy or rough ground
> cluttered workspace and poor maintenance.

MANAGING THE HAZARD:

HAZARD	CONTROLS
Wet or slippery surfaces	> Make sure that footwear is slip-resistant (ie has good tread). > Have a system for cleaning up spills and make sure it is followed. > Improve traction in yards for cattle and people by scouring surfaces and removing algae with high-pressure washing. > Provide good light and ventilation to keep floors dry. > Clean up manure, oil, chemical and feed spills on floors and walkways. > Install non-slip matting in wet work areas.
Hoses, pipes and uneven surfaces	> Hang hoses along walls out of people's way. > Run pipes along walls instead of walkways. > Remove unused fittings, like bolt fasteners in floors. > Move obstacles from walkways and vat room entrances. > If you can't remove tripping hazards, highlight them with yellow paint, tape or safety signs. > Keep floors and steps in a good condition. > Trim grass to show potential tripping hazards. > Return chemicals and equipment to storage.
Steps	> Build pit steps properly – use non-slip surfaces. > Fit handrails.
Overhead obstacles	> If you can't remove overhead obstacles, cover them with padding, highlight them in bright colours and/or put up safety signs warning people.

For more information, see WorkSafe NZ's *Good Practice Guide: Preventing Slips, Trips and Falls on Farms*.

2.4 MANUAL HANDLING IN THE FARM DAIRY

Manual handling refers to activities where a person has to use force to lift, push, pull, roll, hold, restrain or carry an object or animal. It also includes repetitive tasks.

Manual handling tasks on dairy farms include one-off events like restraining a cow, lifting feed or additive bags and carrying buckets of milk or water. You can also be injured by doing repetitive movements with low force, like putting cups on, teat spraying by hand or using hand tools.

If not done properly, manual handling can result in a musculoskeletal injury, which is soft tissue damage to muscles, tendons, ligaments, cartilage or nerves. These injuries usually happen in the back, shoulders, elbows, knees and fingers.

Musculoskeletal injuries can be very painful, often take longer to heal than cuts and broken bones, and have the potential to become chronic injuries (causing long-term pain). Severe harm can lead to some body movements, like bending down, being permanently restricted. They can even stop you from working.

MANAGING THE HAZARD:

Assess potentially hazardous manual handling tasks to find ways of doing the same job in a safer way.

Watch out for the following activities and think about what you can do to eliminate them or reduce the harm they could do:

> Repeated or a sustained use of force, like pushing cows into place.

> Repeated or sustained awkward working positions, or movement where you have to bend and twist at the same time, like putting cups on in a shallow pit or washing buckets on the floor.

> Momentary use of strong force, like lifting a large chemical drum onto a shelf.

> Manually handling animals, like pushing cows into position or lifting calves from one pen to another.

> Operating gate mechanisms.

> Moving unstable loads, like large part-filled drums.

See WorkSafe's *Good Practice Guide: Preventing Manual Handling Injuries on Farms* for more information.

2.4.1 MILKING

Handling milking clusters is probably the most frequent manual handling task in farm dairies. Repetitive manual handling, especially in awkward positions (like putting cups on in a shallow pit) can cause musculoskeletal injuries.

Specific tasks causing injury are:

> handling milking clusters

> putting on and removing clusters while bending in an awkward posture

> releasing clusters from automatic cup removers (ACRs).

An obvious hazard is the mismatch between the worker's height and the pit's depth (or the rotary's height).

MANAGING THE HAZARD:

Set up your workplace to reduce bending, twisting or loading. Keep the work in front of people, between their shoulder and mid-thigh. This position allows the natural lumbar curve in the back to be maintained.

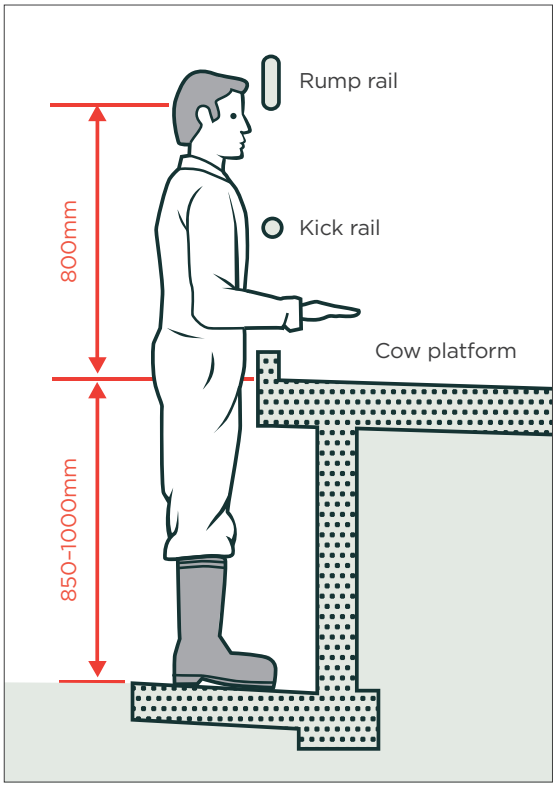


Figure 2: Appropriate height for milking

Other ways to manage milking risks:

> Design the farm dairy so workers milk in a comfortable position, eg they don't need to overreach or bend constantly.

> Think about designing or changing the cups-on/off area so workers can change the height they are working at to suit them. Keep everything within reach between the shoulders and hips.

> Put idle clusters on brackets and jetters at a height that reduces bending and reaching.

> Retrofit vacuum release valves on ACR rams.
> Use automatic cup removers where possible – this will keep the work in front of the body and reduce twisting in rotary milking sheds.
> Install rubber 'fatigue' matting in the pit to reduce the strain from standing for long periods.
> Provide clear access to the udders by planning the height of kick rails or splash guards. Ensure kick rails are placed so they discourage reaching over them, and workers are protected from kicking.
> Vary jobs to reduce repetitious manual handling tasks, including rotating between cups-on and cups-off positions.

2.4.2 LIFTING AND CARRYING

Lifting and carrying objects increases the risk of back injury. Most back injuries don't happen suddenly. They usually occur after many years of wear and tear, making the discs between the vertebrae weak and prone to rupture.

These lifting and carrying tasks pose risks:

> handling buckets of grain, feed, milk or chemicals
> handling bags of feed and feed additives
> handling herd test samples
> moving chemical drums or containers
> lifting full buckets of water or milk
> lifting calves.

MANAGING THE HAZARD:

Look at ways to reduce how many heavy items you lift. Move your feet instead of twisting your back. Keep the load in front of and close to your body. During long shifts, change jobs regularly to give your muscles a break.

To reduce lifting and carrying hazards:

> Buy products in bulk or pallet form and unload them using a forklift, front-end loader or auger.
> When lifting bulk quantities mechanically, secure the load with straps, chains or other fixtures.
> Buy items you don't use often in smaller, or ready-to-use, amounts.
> Use powered equipment or mechanical aids to replace manual tasks.
> Use trolleys and ramps with wheels and other mechanical aids.
> Balance the load by carrying quantities in both hands (eg two buckets, one in each hand).
> Get help to lift bags and heavy objects.
> Keep a safe lifting posture by keeping your back straight, the load close to your body and lift by bending your legs.
> If possible, install automatic feed systems.

2.4.3 OTHER MANUAL HANDLING TASKS

Other manual handling tasks in the farm dairy, such as herd testing, also pose risks for musculoskeletal injuries.

MANAGING THE HAZARD:

HAZARD	CONTROL
Removing herd test sample flasks	> Design the workplace so you can take samples from a comfortable posture.
Sorting sample flasks on a bench	> Design a herd sample sorting table that reduces reaching and bending.
Transporting trays of samples through the shed to a vehicle	> Clear obstacles from the walkway. > Remove tripping or slipping hazards. > Plan your route to avoid hazards (eg. opening and closing gates while carrying samples). > Minimise repetitively transferring the samples into trays. > Make sure the person taking the herd samples has had a farm dairy safety induction. > If possible, make sure the herd tester provides miniflasks. These flasks accept a smaller sample and weigh less. > Where practical, use a trolley to transport heavy samples to the vehicle. > Pack samples in a suitable package at the collection point. > Limit the number of samples in each tray to a comfortable weight for carrying.
Washing buckets	> Install a trough at working height in the shed for washing buckets.
Artificial insemination	> Use a crush, or some other means of keeping the animal tightly restrained in an area small enough to prevent movement during insemination. > Consider positioning the AI facility by the bale so that animals can move straight into it after milking.
Bending using teat sprays	> Use a teat spray wand with a long wand (this also reduces kicking and spray exposure risks).
Moving augers	> Fit jockey wheels to augers to reduce the effort needed to move them. > Be aware of overhead power lines when moving augers.

2.5 ELECTRICITY

Electrical safety is a major issue in dairy farming. The wet conditions in the farm dairy increase the risks. Electrocution can kill. Other electrical risks are fire or machinery breakdowns. These risks can cause serious injury, destroy property, damage plant and equipment, and you can lose production.

MANAGING THE HAZARD:

HAZARD/RISK	CONTROL
Electrical leads and power outlets in wet areas	> Don't use electrical leads in wet areas. > Install weatherproof and waterproof switches. > Connect electrical leads to a residual current device (RCD). > Remove electrical extension leads from the workplace, especially around wet areas, and store them until needed. > Keep leads off the floor by using droppers.
Touching overhead power lines	> Keep low overhead wires away from silos or areas where large vehicles go (milk tankers or livestock transports) tip trucks, front end loaders, post bangers, excavators, moving augers, irrigation sprays/pipes.
Circuit board overload	> Install a circuit board with an RCD, or safety switch, covering the farm dairy. (RCDs are also available for three-phase power). > Replace blown fuses with the correct wire – DO NOT use oversized fuse wire. > Replace blown fuses with the same rated fuses or circuit breakers. > Provide a dry powder extinguisher near the main switchboard in case of an electrical fire. > Train workers how to use the fire extinguishers. > Know where underground power is located.
Using damaged electrical leads	> Regularly check electrical wiring, switching and electrical equipment for signs of insulation breakdown, and cracks or breaks in switch or controller casings. > Don't use extension leads when coiled or rolled up. > Provide accessible mushroom-shaped emergency stop buttons where necessary. > Replace old and unsafe wiring with new and conduited wiring as needed. > Replace extension leads with a hard-wired system. > Have power appliances and extension leads checked and tagged by a registered electrician at least once a year.
Repairs and installations by unqualified people	> Do not repair or alter electrical equipment yourself. > Use a qualified electrician. > Have a qualified electrician design the electrical system for the needs of the farm dairy. Consider putting wiring or power points out of reach of children.
Contact with wet surroundings	> Fit all lighting in work and outside areas with protective guards. Check regularly for faulty insulation. > Locate lighting in the vat room away from vat openings to avoid breakages and milk contamination. > Always use properly earthed power tools. Only use double-insulated portable electrical tools. > Test RCDs regularly. > Test portable RCDs before each job. > Install emergency stop buttons on pumps and motors that workers can reach without reaching over the pump or motor. > Put a suitable lockout/tagout procedure in place that clearly shows when it is safe to use machinery. > Wear rubber footwear.

2.6 CONFINED SPACES

There are several potential confined spaces on dairy farms, including milk vats, tanks, pits, pipes or feed silos.

Confined spaces have unique hazards, like restricted entries or exits, dangerous atmospheres or engulfment. The effects of physical or chemical agents acting alone or in combination can be made worse in a confined space.

Gases, like refrigerants or from cleaning fluids, can leak into a vat, pushing out the oxygen. You will suffocate in this environment.

MANAGING THE HAZARD:

You can remove the hazards caused by confined spaces through safe design. If you don't need to enter these spaces, you've eliminated the hazard.

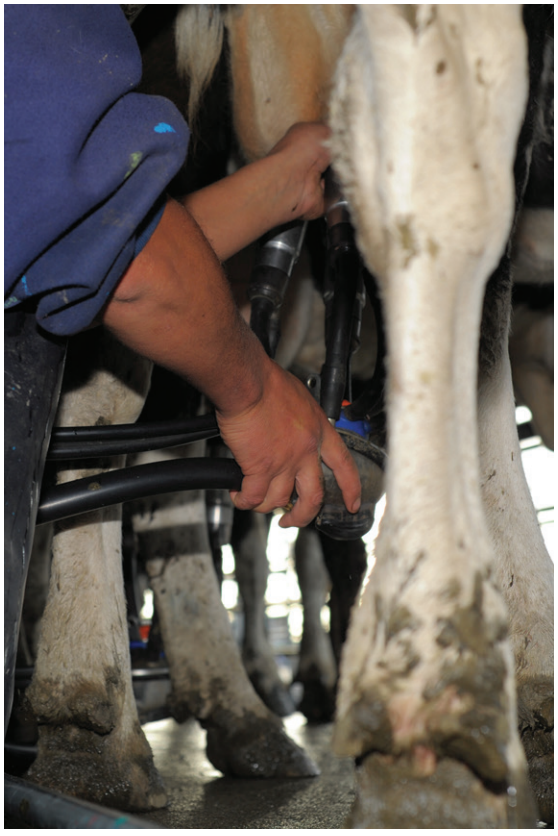
Assess the risk of accessing the vat from a height.

- Install a vat that does not need anyone to go into it.
- Clean vats from outside with pressure washers and/or detergents instead of entering the vat.
- Use a suitable lock-out system to restrict access.
- Put up signs saying, 'Authorised access only'.

If you have to enter a milk vat:

- After the wash cycle, put a cold rinse through the vat and air it before entering.
- Turn off and isolate power to the vat before entering. Electrically isolate the agitator before maintenance or cleaning.
- You may need to use mechanical ventilation (a fan) to vent the space when you are inside.
- Use internal and fixed ladder access.
- Make sure the access hatch stays open while you are inside to make sure you get fresh air.
- Fasten the access hatch so it can't close accidentally while you are inside.
- Display warning signs and take steps to prevent unauthorised access.

Always have another responsible person watch you when you work inside a vat or milk silo. They must be able to see what you are doing and raise the alarm in case you collapse or hurt yourself in the vat.



2.7 CATTLE HANDLING

Handling cattle always involves a risk of injury from crushing, kicking, butting or goring. Even skilled cattle handlers take knocks or kicks some time in their careers. Never underestimate the risk from cattle, even with good systems in place.

Injuries usually happen when moving dairy cows in and out of the dairy shed, during milking (eg from kicks) and during herd testing.

Risks increase if cattle are fearful or agitated. Cows may be fearful or agitated if:

- facilities are unsafe
- a consistent routine is not maintained
- they are exposed to unexpected, loud noises
- they experience pain because of facility features (eg poorly placed neck rails, poor flooring, obstacles)
- a dominant cow approaches another cow and their comfort zone is invaded
- the cow does not cope with the equipment or facility (eg poor lighting, noise from air-operated gates, slippery floor surfaces)
- the work involves infrequently-handled animals, or newly calved cattle
- a veterinarian is treating them.

Many cattle are familiar with being around humans – dairy cows are normally handled daily and pose fewer risks. However, newly calved cows are very protective of their calves and can behave unpredictably. Fattening cattle, kept in the paddock, may not be handled often, so the risks are greater. Dairy bulls are dangerous. They are unpredictable and may be aggressive toward humans and other bulls.

MANAGING THE HAZARD:

Make sure cattle are handled by experienced people who know the hazards and how to avoid them.

Proper handling systems, trained and competent staff and a rigorous culling policy helps ensure cattle handling can be carried out in relative safety.

Make sure that heifers new to the milking herd – which may be less familiar with noises, activity and people – get used to them before their first milking. To do this, walk them through the shed pre-calving and with the machines running to familiarise them with the noises.

Don't leave heifers by themselves on the rotary platform, especially if it is stationary, as they become easily agitated.

Install kick rails in the cow shed to prevent injuries to milkers.

If you have a habitually aggressive or difficult to handle animal, think about culling it from the herd. If this is not an option, make sure your equipment and work systems can deal with it. Tell staff and other people (like vets) about the potential difficulties.

Handle dairy bulls with extreme caution. Handlers should never work alone with bulls.

If practicable train bulls to stay in the paddock, so they do not need to be drafted out at the milking shed.

For more information see WorkSafe NZ's *Good Practice Guide for Handling Cattle Safely*.

2.8 CHEMICAL STORAGE

Agrichemicals are potentially hazardous and people can become ill if they are exposed to them. Badly stored agrichemicals can seriously harm children or others unaware of the risks of exposure. Also, some chemicals can form potentially deadly, flammable or explosive cocktails if accidentally mixed.

MANAGING THE HAZARD:

Store agrichemicals safely and make sure children and unauthorised people cannot get to the chemicals.

> The storage of agrichemicals on farms must meet both hazardous substances and new organisms (HSNO) and local council regulations.
> The storage area must be well built, well ventilated and in a flood-free area. It should be located so that any spill can be contained and cleaned up, and so spills will not flow into waterways. For small containers of product (typically five litres or less) drip trays may be suitable. For larger numbers of containers (or if you have drums of material or above ground fuel tanks), use bunds (walls that stop the liquid leaking and causing harm).
> Keep incompatible agrichemicals at least 3 metres apart.
> Stores with flammable agrichemicals must be at least 20 metres from buildings where people live and 6 metres from flammable materials, such as hay bales and fuel stores.
> All stores must have fire extinguishers.
> Put up signs on all agrichemical storage areas to tell people about what material is stored, the amount, the hazards of the material and how the hazards may be managed. The signs must also tell people what to do in an emergency and who to contact.
> You must have an inventory of the products stored on site, their hazardous properties and the quantities you are likely to have at any one time.

2.9 NOISE

Dairy farms can be noisy. A farm dairy has many loud and continuous noises, including a radio cranked up to be heard above the other noises. If noise is not controlled, it can cause serious and permanent hearing damage. The amount of hearing loss depends on how loud the noise is and how long people are exposed to it.

Noise is measured in decibels (dB) or energy at the ear – dB(A). The Health and Safety in Employment Regulations 1995 say employers must keep average work noise levels below 85dB(A). Employers also have to make sure employees aren't exposed to peak noise levels of 140dB or more.

Employers must have a noise management plan to keep the noise levels down, if:

> workers have to work in noisy environments where, over 8 hours, the average exposure is over 85dB(A)
> the peak noise level goes to 140dB or over.

Particular risks include:

> sustained loud noise in the work area (such as in the pit, at the cups-on and cups-off positions, feed shed, or plant room)
> loud noise from vacuum pumps and other milking equipment
> vibration from milking pumps and other machinery
> noise from augers, grain crushers and hammer mills
> poorly maintained equipment.

MANAGING THE HAZARD:

Some noises can be eliminated (eg the radio) or reduced (eg by using quieter processes, enclosures, different materials or noise dampening). Use hearing protection if the noise cannot be reduced.

Specific controls for reducing noise:

> When buying new plant and equipment, choose models that meet or exceed noise requirements.
> Ask about plant and equipment noise levels before buying. Manufacturers often include a noise rating or decibel level in manuals or on equipment labels.
> Use sound absorption panelling.
> Enclose noisy plant and equipment.
> Put the vacuum pump in a separate insulated enclosure, and close the door.
> Put noisy equipment away from the working area or away from metal (especially corrugated iron) walls.
> Secure fixtures and fittings to reduce vibration.
> Mount on a concrete platform. Avoid metal stands that can vibrate.
> Turn exhausts away from working areas or dampen them.
> Check vacuum pumps work as described in the operating manual.
> Do regular maintenance in line with the operating manual's recommendations.

Provide and use hearing protection when other solutions do not reduce workers' exposure to noise enough.

> Display hearing protection signs where workers must wear hearing protection.
> Ear muffs or plugs have different noise reduction capacities; use the type of muffs and plugs that meet the relevant standard and have a suitable noise reduction rating.
> Look after and replace your hearing protection when needed.
> Hearing protection should be both effective and comfortable to wear.
> Train people about how to wear the hearing protection, how to clean it and when to replace it. Make sure they wear it and keep it in good condition.

See WorkSafe NZ's *Good Practice Guide: Preventing Noise-Induced Hearing Loss on Farms* for more information.

See 'Classified Hearing Protectors'. This guide can be found in AS/NZS 1269: *Occupational Noise Management* and on the WorkSafe website: www.business.govt.nz/worksafe/information-guidance/all-guidance-items/hearing-protectors-selection-and-use-of/classified-hearing-protectors-dec-2013.pdf

2.10 CHILDREN

The dairy farm isn't only a workplace; it's also a home and place of recreation. Children can have accidents and injuries on dairy farms. Particular risks include:

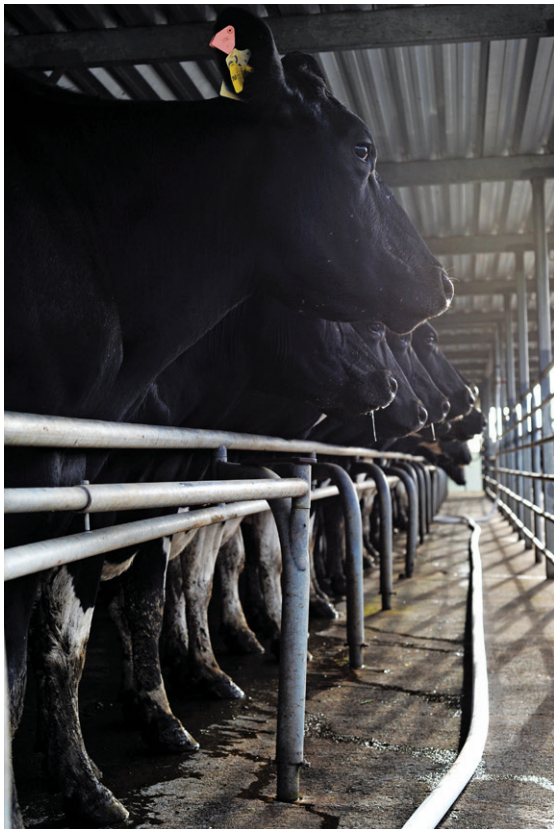
> children in unsafe working areas
> children getting into chemicals, machinery, effluent ponds and very hot water
> children near moving vehicles or cows
> children doing work beyond their ability.

MANAGING THE HAZARD:

Stop small children from going into work areas. Design the farm dairy, other buildings and equipment to minimise hazards for children. Set a good example; children follow what their parents and other adults do.

You can help improve the safety of children on dairy farms by:

- designing a safe play area for young children at the house that is fenced off from the farm dairy and traffic areas. Make sure to use child-proof fencing and self-closing gates
- creating an enclosed or separate area for children in the farm dairy. If designing a new farm dairy, think about building a glassed-off office area away from the milking area that can also double as a children's play, TV or homework area
- fencing around the house to make it difficult for young children to escape
- covering fixed ladders to stop children climbing onto machinery, buildings and equipment, like silos (milk and feed) and water tanks
- covering or fencing effluent pits and ponds
- securely storing heavy equipment and hay to stop them falling on children
- visually checking that children are in the fenced off area when traffic is present – particularly when moving or reversing vehicles
- always supervising children
- making sure visitors supervise their children when visiting the farm – make sure there is a designated carer and that all those working know who it is
- teaching older children, who help out on the farm, to work safely. Give them jobs to suit their age, size and ability
- keeping animals away from play areas and pathways
- storing ladders in a locked shed to stop children using them to climb onto roofs, silos and trees
- stopping children from using or playing with machinery, equipment or vehicles
- having designated 'no go' areas that all children know about
- locking chemicals away
- locking the plant room
- locking vehicles, removing the keys and storing them out of reach of children
- locating very hot water taps out of children's reach
- identifying and labelling hot water taps
- installing childproof tap locks
- installing removable handles on very hot water taps
- having an emergency plan and making sure first-aid kits are available
- training at least one person in the farm dairy in first aid.



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EFFLUENT MANAGEMENT

IN THIS SECTION:

Poorly managed waste and effluent systems affect everyone's health on the dairy farm. It's important to design and set up an effective waste and effluent system, including managing dairy effluent ponds.

3.1 HAZARDS AROUND EFFLUENT PONDS

Poorly managed effluent ponds expose people (especially young children) to the risk of drowning. A crust, followed by weed growth, builds up on effluent pond surfaces. The crust might look like solid ground, but it won't take a person's or animal's weight and they can fall through the crust into the effluent pond.

Poorly drained areas increase the risk of slips and falls for livestock and workers. Poor waste management also increases the health risks associated with flies and insects.

Check your local authority's rules and regulations for guidance on pond construction and use.

To avoid problems with effluent systems:

> Upgrade the effluent system whenever there are significant changes on the farm.
> Clean solids traps and sumps regularly.
> Empty ponds regularly.
> Stir and de-sludge ponds frequently.
> Contain runoff from manure stockpiles.
> Move irrigators regularly and use a large application area.
> Locate and build ponds well to ensure a safe work area.
> Keep up regular maintenance.
> Reduce water use around the farm dairy.

3.1.1 STAFF, CHILDREN AND ANIMALS FALLING INTO PONDS

MANAGING THE HAZARD:

To keep people safe who work on effluent ponds and pontoons, or live close to effluent ponds:

> Fence the pond and put up warning signs to stop people entering.
> Make sure at least two staff are present during maintenance.
> Make sure staff wear life jackets or similar buoyancy devices when working on top of floating pontoons.
> Have rescue lines and a lifebuoy close to the pond.
> Make sure children and others are not around when you wash the flood or hydrant.
> Guard the effluent pump's exposed moving parts so children can't get to them.
> Carry out servicing when the pond level is low and the risk of capsizing is eliminated.
> Fit automatic greasing components to reduce how often you need to access the pump.
> Ponds with synthetic liners should have exit devices.
> Do not enter manure pits without a respirator and a rescue plan. An observer, who understands safe rescue procedures, should supervise manure pit work.

3.1.2 INCREASED DISEASE RISK FROM FLIES AND MOSQUITOES

MANAGING THE HAZARD:

> Empty the solids trap regularly and make sure it drains properly.

> Supply appropriate clothing and protective equipment like gloves, aprons, rubber boots, goggles and other skin protection and make sure workers wear it when in contact with animal wastes.

3.1.3 POOR ENVIRONMENTAL HYGIENE

MANAGING THE HAZARD:

> Locate effluent ponds as far away from the farm dairy as possible.

> Make sure staff wash thoroughly before leaving the effluent site.

> Provide appropriate clothing and protective equipment and make sure workers wear it (like gloves, aprons, rubber boots, goggles and other skin protection) when coming into contact with animal wastes.

> Regularly maintain personal protective equipment and replace it when needed.

> Vaccinate livestock for leptospirosis.

3.1.4 HIGH-PRESSURE HOSES AND HIGH-VOLUME FLOOD WASHING

MANAGING THE HAZARD:

> Empty the trap drains regularly and make sure they drain properly.

> Reduce the water needed to wash down areas. Regularly pump out effluent ponds.

> Secure high-pressure hoses when turning them on. Store them out of the way when not in use.

> Large diameter wash-down hoses can whip around and be hard for small workers to hold. Ensure workers have the size and strength necessary to manage the hoses, or install hoses with a smaller diameter.

> Remove sharp edges and clamps from hand-held hoses.

> Supply appropriate clothing and protective equipment like gloves, aprons, rubber boots, goggles and other skin protection and make sure workers wear it when in contact with animal wastes.

3.1.5 INCREASED RISK OF SLIPS, TRIPS AND FALLS

MANAGING THE HAZARD:

> Avoid unstable, steep batters.

> Route tracks away from effluent areas and dams.

> Empty the trap regularly and make sure it drains properly.

3.1.6 EXPOSED MOVING PARTS OF EFFLUENT PUMPS

MANAGING THE HAZARD:

> Guard exposed effluent pump moving parts and make sure children can't access them.

3.1.7 MANURE GASES

Decaying manure releases large amounts of gas when it's stored, pumped, mixed, spread and cleaned out. There are four unsafe gases:

> **Hydrogen sulphide** is a highly toxic, heavier-than-air gas. It causes dizziness, unconsciousness and death. It smells like rotten eggs at low concentrations, but it deadens your sense of smell at higher concentrations. This means you can't detect the smell.

> **Carbon dioxide** is a tasteless, heavier-than-air gas with no smell. It pushes oxygen out of confined spaces, causing suffocation.

> **Ammonia** is a lighter-than-air gas. It has a strong smell and irritates the eyes, nose, mouth, throat and lungs.

> **Methane** is also lighter than air. Its main hazard is explosion if it makes up between 5% and 15% of the atmosphere. It can reach explosive levels during agitation or when the gas is trapped in a poorly-ventilated space. Methane has no smell, so you can't detect an explosive situation by smell.

MANAGING THE HAZARD:

> If pit and platform wash pipes go straight to the effluent pond, install a water seal or gas trap to prevent gas entering the farm dairy.

> Do not smoke, weld, grind or use an open flame in a poorly-ventilated area.

> Do not enter manure pits without a respirator and a rescue plan. An observer who understands safe rescue procedures should supervise manure pit work.

3.2 SEPARATING SURFACE WATER FROM DAIRY SHED EFFLUENT

Separate uncontaminated surface water from the effluent system. You can collect it to use in the shed or direct it to rivers and streams to maintain environmental flows and recharge aquifers. Separating surface water from effluent reduces the amount of effluent you have to deal with.

Send contaminated surface water to effluent collection ponds, if the ponds can handle the extra volumes. If the effluent ponds can't handle the volume, design the shed to allow for separate contaminated surface water collection.

Reduce contaminated and uncontaminated surface water by building surface water diversion systems to reduce flow on to the milking site, effluent application sites and other sensitive areas.

04/

ZOONOSES

IN THIS SECTION:

Zoonoses are diseases that humans can catch from animals. They cause mild to life-threatening human health problems. People working with livestock, including those working in the farm dairy, may be exposed to these diseases.

4.1 RISKS OF ZOONOSES

Humans can catch the following diseases from cattle: acariasis, campylobacter, cryptosporidiosis, E. coli, leptospirosis, listeriosis, milkers' nodules, ringworm, salmonella and streptococcus.

You can be exposed to zoonotic diseases by:

> getting animal blood, urine or feces splashed in your eyes, nose or mouth
> having bugs enter your bloodstream through cracked skin or open cuts
> breathing in dust or micro-organisms
> eating or drinking infected animal products
> being bitten by a fly, mosquito, tick or flea that has also bitten an infected animal
> rats, possums and other pests
> bird droppings.

MANAGING THE HAZARD:

Avoid catching diseases from animals through good health and hygiene practices.

> Run vaccination and parasite control programmes (especially for leptospirosis – refer to *Guidelines for the Control of Occupationally Acquired Leptospirosis for more information).*
> Teach workers about health and hygiene on dairy farms and supervise them.
> Hands should be covered, especially if there are cuts or other skin openings.
> Make sure workers have a clean place to wash their hands. It should include running water, liquid soap and a way to dry their hands, such as paper towels. Buckets or troughs of water used by several people are not suitable. Waterless alcohol-based hand rubs can sanitise visibly clean hands.
> Tell workers to wash their hands:
  – after touching cattle, removing PPE and on leaving animal areas
  – before eating and drinking
  – following accidental contamination with a cow's blood and body fluids.
> After washing, it's just as important to thoroughly dry your hands to avoid getting sick.
> Make sure children wash their hands properly.
> Provide eating areas away from animal areas and stop workers eating, drinking and smoking in animal areas.
> Keep the farm dairy and yards clean. Reduce manure build-up.
> Provide PPE to protect clothing, exposed skin and faces from contact with animal blood and body fluids. For example: disposable gloves to examine a cow's wound or perform drenching.
> If using sharps, like needles and syringes, use them safely and carefully dispose of them in a rigid-walled, puncture–resistant sharps container.

- Tell workers not to touch areas, such as the muzzle, where a cow's saliva or snot can be transferred to a worker's face.
- Tell workers to cover cuts with a water resistant dressing. If people are wounded at work, properly clean the wound and cover it with a water-resistant dressing.
- Cuts or other skin openings on the hands should also be covered with gloves.
- Injured people should seek medical advice if they have a serious and/or open wound, or if they have a health condition that makes them more likely to become infected.
- Isolate cattle showing signs of illness from people and other animals, get them veterinary treatment as soon as practical.
- Carry out a pest control program to discourage rats and other pests.

05/

TRAINING REQUIREMENTS

IN THIS SECTION:

TO BE UPDATED TO REFLECT LATEST LEGISLATIVE CHANGES

Training shares knowledge and develops good skills and attitudes. It influences behaviour and improves health and safety on the farm.

5.1 GENERAL REQUIREMENTS

The Health and Safety in Employment Act 1992 says employees must be trained and supervised to carry out their work safely.

Many serious injuries happen to young workers, new employees, people doing new or different work, and after a long period of leave.

Farm owners, managers and employers should make sure that dairy farm workers either have enough experience, or are trained and supervised so they won't put themselves or others at risk.

Train milkers and other people working on dairy farms so they can care for the cattle, maintain animal welfare and production standards, and avoid getting hurt.

In general, farmers need to:

- give new employees an induction – show them around the farm and tell them about hazards and safety procedures
- identify what skills, knowledge or competencies employees need to do each task
- provide ways to train employees – for example, use external training providers or do on-farm instruction
- make sure people only do the work if they're trained and/or properly supervised
- keep records of employee training and instruction, identifying which jobs each employee can and can't do.

5.2 TRAINING FOR HEALTH AND SAFETY REPRESENTATIVES

The Health and Safety in Employment Act 1992 gives employees the right to be involved in workplace health and safety matters. One way to do this is by electing a health and safety representative. This is someone employees can go to when they have any concerns or suggestions about health and safety in the workplace. The representative will work with the employer in good faith to find a solution.

This representative can take two days paid leave each year to do approved health and safety training.

06/

REFERENCES

IN THIS SECTION:

6.1 GLOSSARY

TERM	DEFINITION
Acariasis	A rash caused by mites. It sometimes has bumps and is usually very itchy.
All Practicable Steps	Section 2A Health and Safety in Employment Act 1992: 'The steps taken to achieve the result that it is reasonably practicable to take in the circumstances, having regard to: 1. the nature and severity of harm that may be suffered if the result is not achieved; and 2. the current state of knowledge about the likelihood and severity of harm that will be suffered if the result is not achieved; and 3. the current state of knowledge about harm of that nature; and 4. the current state of knowledge about the means available to achieve the results and about the likely effectiveness of each of those means; and 5. the availability and cost of each of those means. 'To avoid doubt, a person required by the Health and Safety in Employment Act 1992 to take all practicable steps is required to take those steps only in respect of circumstances that the person knows or ought reasonably to know about.'
Asymmetrical Posture	A posture that requires the body to twist or bend to one side or to bear the weight unevenly on the feet.
Auger	A mechanism that uses a rotating helical screw blade, called a 'flighting', usually within a tube, to move liquid or granular materials.
Campylobacter	A type of bacteria that usually causes diarrhoea, cramping, abdominal pain and fever. It is one of the main causes of food poisoning in many developed countries.
Control or Control Measure	A way of eliminating, isolating or minimising the risk of harm for any job.
Confined Space	AS 2865 Confined Spaces: 'An enclosed or partially enclosed space that is not intended or designed primarily for human occupancy, within which there is a risk of one or more of the following: a. An oxygen concentration outside the safe oxygen range. b. A concentration of airborne contaminant that may cause impairment, loss of consciousness or asphyxiation. c. A concentration of flammable airborne contaminant that may cause injury from fire or explosion. d. Engulfment in a stored free-flowing solid or a rising level of liquid that may cause suffocation or drowning.'
Contributory Factors (Manual Handling)	The factors of load, environment, people, task and management that can contribute to the incidence and severity of manual handling hazards.
Cryptosporidiosis	A microscopic parasite that can live outside a host for a long time. It causes diarrhoea. It is usually picked up from contaminated water.

TERM	DEFINITION
E. Coli	A bacteria that causes illness. Most E. coli strains are harmless, but some types can cause serious food poisoning.
Ergonomics	Ergonomics (or human factors) aims to understand how people and other elements of a system interact. It is the study of human behaviour, abilities, limitations and other characteristics. This information is applied to the design of tools, machines, tasks, jobs, environments and systems.
Hazard	Section 2(1) of the Health and Safety in Employment Act 1992: "An activity, arrangement, circumstance, event, occurrence, phenomenon, process, situation or substance...that is an actual or potential cause or source of harm".
Hazardous Manual Handling	The presence in a manual handling task of one or more of the following: > twisted, stooped, awkward, asymmetrical postures > fixed, sustained, rigid, prolonged postures > unvaried, repetitive movements > sudden, uncontrolled or jerky movements > handling or reaching away from the body > using high or sustained force > handling heavy or awkward loads > whole body vibration or upper limb vibration > handling that goes on for too long without a break.
Leptospirosis	A disease caused by bacteria (Leptospira). It affects both humans and other animals. Leptospiral infection in humans can cause a range of symptoms, some very serious. But some infected people may have no symptoms at all.
Listeriosis	A bacterial infection. Infected people often get diarrhoea or other gastrointestinal symptoms followed by a fever and muscle aches.
Load	The object being handled or the forces being applied.
Manipulative Tasks	Tasks that require an object of some sort to be held and worked on at the same time.
Manual Handling	Any activity requiring a person to interact with their environment and use any part of their muscles or skeletal system to lift, lower, push, pull, carry, throw, move, restrain or hold any object, whether inanimate or not.
Manual Handling Task	Specific manual handling action or activity. It may be one part of a job.
Milkers' Nodules	A skin condition that is usually caught from the udders of infected cows. Milkers' nodule is caused by Paravaccinia virus. It looks like the orf (scabby mouth) skin disease in humans.
Musculoskeletal Disorders (Work Related)	A collective name for a range of conditions that affect the muscles, tendons, bones and joints. This term includes occupational overuse syndromes, back injuries and acute low back pain.

TERM	DEFINITION
OOS	Occupational overuse syndrome. An umbrella term for a range of disorders characterised by pain and/or other sensations in muscles, tendons, nerves, soft tissues and joints with evidence of clinical signs. Overuse syndromes are musculoskeletal disorders.
Personal Protective Equipment	Items of personal equipment worn for protection of some sort: ear muffs, gloves and boots are examples.
Pit	The pit or milking pit is a sunken area that houses both the milker and some milking equipment during milking. This puts the milker at shoulder level with udders and reduces physical demands.
Plant	Any appliance, equipment, fitting, furniture, implement, machine, machinery, tool or vehicle (and any part, controls or anything connected to that plant).
Resiliency	Less resilient people are those who are more at risk (in this context of harm from manual handling) than others for some reason. This may be because they are, for example, younger, older, different in size or strength or disabled. Each situation requires evaluation on its own merits.
Ringworm	A fungal infection of the skin in humans, pets (such as cats) and stock (such as sheep and cattle).
Safe	Section 2(1) Health and Safety in Employment Act 1992: 'Not exposed to any hazards or free from hazards'.
Salmonella	A type of bacteria found in the gut of humans and animals. Many salmonella infections are caused by eating contaminated food.
Serious Harm	As per the first Schedule to the Health and Safety in Employment Act 1992: > Any of the following conditions that amounts to or results in permanent loss of bodily function, or temporary severe loss of bodily function: respiratory disease, noise-induced hearing loss, neurological disease, cancer, dermatological disease, communicable disease, musculoskeletal disease, illness caused by exposure to infected material, decompression sickness, poisoning, vision impairment, chemical or hot-metal burn of eye, penetrating wound of eye, bone fracture, laceration, crushing. > Amputation of body part. > Burns requiring referral to a specialist medical practitioner or specialist outpatient clinic. > Loss of consciousness from lack of oxygen. > Loss of consciousness, or acute illness requiring treatment by a medical practitioner, from absorption, inhalation, or ingestion, of any substance. > Any harm that causes the person harmed to be hospitalised for a period of 48 hours or more commencing within 7 days of the harm's occurrence.

TERM	DEFINITION
Significant Hazard	Section 2(1) of the Health and Safety in Employment Act 1992: 'Significant hazard means a hazard that is an actual or potential cause or source of— a. serious harm; or b. harm (being harm that is more than trivial) the severity of whose effects on any person depend (entirely or among other things) on the extent or frequency of the person's exposure to the hazard; or c. harm that does not usually occur, or usually is not easily detectable, until a significant time after exposure to the hazard.' (For example, deafness from prolonged exposure to noise in the workplace.)
Strains and Sprains	These terms are used in the sense of their normal meanings in a medical diagnosis.
Streptococcus	A type of bacteria. It causes illnesses such as strep throat, pink eye, meningitis, bacterial pneumonia, endocarditis (an inflammation in the heart), erysipelas (a skin infection) and necrotising fasciitis (a 'flesh-eating' skin infection).
Workplace Design	The design of the workplace – by implication in relation to the characteristics of the people who will use the workplace and the work that will be done in it.
Zoonoses	A disease that can pass between species, from cattle to humans or the other way around.

TO BE UPDATED TO REFLECT LATEST LEGISLATIVE CHANGES

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Notes

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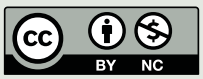

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