

# DAIRY SAFETY: A PRACTICAL GUIDE

2ND EDITION

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## AGRICULTURE



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WorkSafe Victoria is a division of the Victorian WorkCover Authority.

The information presented in this guidance material is intended for general use only. It should not be viewed as a definitive guide to the law, and should be read in conjunction with the *Occupational Health and Safety Act 2004*. Whilst every effort has been made

to ensure the accuracy and completeness of this publication, the advice contained herein may not apply in every circumstance. Accordingly, the Victorian WorkCover Authority cannot be held responsible, and extends no warranties as to:

- the suitability of the information for any particular purpose;
- actions taken by third parties as a result of information contained in this publication.

# INTRODUCTION

The dairy industry is one of the most important contributors to the Victorian economy.

Victorian dairy farmers are renowned for their world class product, and they have demonstrated their capacity over many years to respond to challenges and initiate change to ensure they remain a significant contributor.

Dairy farming can be dangerous, and safety is one of the key factors that will keep the industry competitive into the future.

This guide has been developed in response to requests from farmers seeking straightforward, relevant and useful information on health and safety.

The Victorian Farmers' Federation, National Milk Harvesting Centre, Murray Goulburn Co-operative Co. Limited, Australian Milking Machine Trades Association, WorkSafe Victoria, Victorian Farm Safety Centre (University of Ballarat), and, most importantly, operational dairy farmers were represented on a Dairy Safety Working Party established to support this publication.

Accidents and injuries are costly – they can affect productivity, quality, and the operation of the dairy. The health and well being of everyone working, visiting and living on the farm can also be affected.

Getting safety right will ensure accidents are minimised, productivity is enhanced and the full benefits of the farm are realised.

As with most farms, dairy farms are often isolated. Government and the dairy industry need to provide, and make accessible, vital safety information to everyone working and living on the farm.

This publication is a practical guide to addressing the challenges of improving health and safety in and around dairies, and making them safer workplaces.

WorkSafe acknowledges the contribution to this publication by the members of the working party, and the many other dairy farmers and dairy service providers who gave valuable feedback.

While this guidance material seeks to raise the awareness of health and safety it also seeks to provide practical solutions for controlling the hazards in and around the dairy.

This publication will complement other excellent safety initiatives of the dairy industry.

Everyone associated with the industry is encouraged to use this publication to improve the health and safety of all people working on or visiting dairy farms.

# 1

## SAFETY BASICS

This guide was produced with the dairy industry in response to requests from farmers for straightforward information to help them make working in the dairy safer.

It provides practical safety solutions to specific hazards, and information on how to control or eliminate safety hazards.

Making your farm safe requires planning, and farmers are encouraged to use this guide in the preparation of their own safety action plans that include detailed assessments of their specific safety hazards and actions to control or eliminate those hazards.

### Three Steps to a Safer Dairy

Dairy farming can be a hazardous occupation.

Farmers have large and sometimes unpredictable animals to control. They use heavy equipment and must deal with issues such as hazardous substances, zoonotic diseases, confined spaces, and working at heights and manual handling. Technological advances have reduced some hazards but created others. For example, rotary dairies have created very efficient milking but have also introduced crushing and trapping points.

As with any safety plan, making your dairy safer involves identifying hazards and the relative risk involved with each hazard so that control measures can be prioritised. Not all farms are the same and even though there are similarities in work practices and risks, you need to identify, assess and put in place your own risk control solutions to achieve the best safety outcome for your farm.

Many hazards can be reduced through regular housekeeping. Maintaining a clean and tidy dairy as part of everyday operations will result in a safer workplace.

While specific safety requirements for each farm will vary, there are three simple steps to achieving a safer workplace:

- Find the hazards
- Assess the risks
- Fix the hazards.

## Find the Hazards

It is important that you identify all hazards that exist in your dairy. Hazards can be more easily identified by involving your family, employees and others in a consultative process.

## Assess the Risks

After you have identified the hazards you need to assess the risk – that is, make a judgement about the seriousness of each hazard – and decide which hazard requires more urgent attention.

The risk level increases in relation to the type of work environment, (whether hot, cold, dusty or isolated), the frequency of the hazard, (is the hazard present all the time, every hour, every day or every month?), who does the task (adult, child, visitor, new worker, older person), and under what circumstances (fatigue, stress, pressure).

## Fix the Hazards

Once you have identified which hazards and risks to fix, it is easier to establish an action plan.

Some high priority risks need fixing immediately while others have less serious outcomes and can be allocated sufficient resources to be fixed at a planned time.

There are a range of control measures that could be used to respond to hazards in your dairy. The aim of any control measure should be to eliminate the hazard, but if this is not possible other control measures should be considered. This may involve engineering solutions, changing work practices or perhaps providing personal protective equipment. Some solutions may require a combination of control measures.

Often solutions can be found by talking to people who have had experience with these hazards before, such as other dairy farmers, consultants, contractors or WorkSafe Inspectors.

## Eliminate the Hazard

If a hazard can be eliminated there is no risk of injury. An easy way of eliminating hazards is at the first stage of purchasing or installing a piece of equipment, building a shed or purchasing a chemical.



*An example of good housekeeping. This image shows an uncluttered, spacious and light dairy without tripping hazards. Chemicals are returned to the chemical store and hoses are laid out of the way.*

# SAFETY BASICS

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Purchasing a machine that has had all of its hazards eliminated through safe design means that you have purchased something that not only does the job you want it to do but does the job safely.

For example, milk vats designed so they can be cleaned and serviced externally eliminates the potential risks associated with confined spaces.

## ***Substitute the Hazard***

If the hazard cannot be eliminated, it may be able to be substituted with one that is less harmful, e.g. install a quieter vacuum pump or use a less hazardous chemical.

## ***Engineering Controls***

If the hazard cannot be substituted or eliminated, engineering controls can be effective ways to reduce risks of hazards occurring. These controls include barriers to isolate people or animals from the hazard, such as a guard cover on a feed auger, a 'safety switch' on an electrical system, or the construction of a chemical storage shed.

## ***Administrative Controls/Work Practices***

If engineering controls cannot be applied, a mix of administrative controls should be considered.

A variety of information sources should be considered when developing safety action plans and procedures for use in the dairy. The information may be in the form of this guide, a training and induction program, a training video or safety signs on the dairy wall and the farm fence.

## ***Personal Protective Equipment (PPE)***

This is **always** the last control measure to be considered because there is still a potential risk of the individual being injured; the effectiveness relies on the individual wearing and using PPE properly. PPE is effective for personal control but provides no protection for other workers.

If you have controlled the risk by some other method you may not need to wear PPE such as faceshields/dust masks, earmuffs or gloves. PPE is often used in conjunction with other risk controls measures.

## **Wellbeing**

Over recent years there has been a growing awareness of the real impact of psychological hazards within work places.

Specifically, these are hazards of stress, fatigue, bullying and other tensions from social interaction with others. Farmers struggle through many issues – drought, market downturns, fire and continually increasing costs. The economic difficulties are being reflected in occupational safety choices. During difficult times, it is tempting to take short cuts at work and not invest sufficiently in safety equipment, training or safe work practices. It is important that the reality of stress, bullying and fatigue is recognised by dairy farmers and control measures for psychological hazards are considered in safety action plans.

## **Cow Behaviour**

Cows can be unpredictable so an understanding of cow behaviour is important to maintaining a safe dairy.

Good stock handling skills and the gentle treatment of heifers and cows will help to reduce kickers and result in a more relaxed and productive herd. Cows that are mistreated or are bitten by dogs are more likely to kick or lash out at farmers. Farm managers should provide training on stock handling skills to employees. Supervision of employees may be necessary to ensure that mistreatment does not occur.

Training should include how to approach cows with knowledge of the cows' flight zone and point of balance. Bulls should never be trusted. 'Dangerous' bulls should not be moved on foot or handled on your own.

# 2

## SAFE DESIGN

The most effective way to develop a safe dairy is to design it that way from the very start. Dairies need to be safe places for farmers, workers, families and cows. Safety benefits can be achieved when the needs of cows and people are integrated into the dairy design.

Existing dairies can have many safety features incorporated into refits, milking shed expansions and dairy upgrades. The safe design suggestions below are only some that are available. Others can be found throughout this guide.

### RISK FACTORS

- Exposed platform rollers on rotary platforms.
- All slippery surfaces including holding yards, walkways, herringbone pits and cups-on and cups-off positions in rotary dairies.
- Projections at head height such as receivers, interceptors, pipes and rails.
- Unguarded herringbone rapid exit mechanisms.
- Moving rotary platforms passing fixed rails can potentially trap or crush a person.
- Carrying out cattle husbandry, AI and pregnancy testing on rotary platforms.
- Cows going down and/or entering the pit.
- Cracked or leaking pipe joints on milk lines.
- Contact with unguarded equipment.
- Kicking cows.
- Distressed cows.
- Extremely hot water.
- Poorly designed cow entries and exits that have turns, ramps or steps, or that are too steep.
- Inadequate drainage.

# SAFE DESIGN



*A strategically located 'escape'.*



*A 'banana rail' reduces the risk of entrapment. Emergency stop lanyard/cord is located above the top rail.*



*This herringbone dairy has been refitted with new milk lines and upgraded with Automatic Cup Removers.*

## RISK CONTROLS

- Provide a skirt around the platform or guards on the rotary dairy platform rollers.
- Use rubber non-slip matting or concrete grooving on surfaces to increase traction.
- Remove head-high obstacles and hazards, especially pipes and rails.
- Rapid exits in herringbone dairies should be guarded to prevent human entrapment in both the shed and yards.
- Fit a 'banana' rail between the backing and kick rails of rotary platforms.
- Fit purpose built artificial insemination/pregnancy testing platforms with steps and rails.
- Construct a separate AI/pregnancy test race alongside the dairy.
- Emergency stop mushroom buttons should be installed.
- A lanyard (cord) operated emergency stop system is recommended instead of the forward/stop reverse lanyard. Do not disconnect these lanyards for any reason.
- Quick release systems should be in place to allow cows to be released if they go down in the bail.
- Installation of kick rails.
- Replace the hot water pipe jointing to ensure there are no leaks or weaknesses. Ensure the joins meet the Australian Milking Machine Trades Association guidelines.
- Position extremely hot water taps used for cleaning in a place not easily reached by children.
- Place lids on drums in cleaning systems.
- Extend pipes and hoses deep into the drums to minimise splashing of extremely hot water.
- Label water pipes and taps with safety signs that indicate:
  - Extremely hot water;
  - Water that is not suitable for drinking; and
  - Wastewater.
- Installation of suitably sized personnel escapes or refuges in yards.
- Cow entries in a straight line.
- Design a cow entry that has a slope of less than 6% and that slopes up to the dairy.
- Allow at least 2.5 metres width in the exit lanes.
- Install dairy and yard drainage that will meet current Environment Protection Authority (EPA) water management standards, and expected volume of runoff.



*Rapid exit guards reducing the risk of entrapment.*



*The skirt around the base of this rotary dairy is an effective guard for rollers and nip points.*

## MACHINE GUARDING

In the dairy the following machinery parts can present serious risk of injury if not guarded:

- Belts and pulleys as found on vacuum and milk pumps and auger motors;
- Flywheels and gear wheels on generators;
- Shafts and spindles on vacuum pumps and milk pumps and also on the tractor Power Take Off (PTO) drive when the tractor is the alternative source of power;
- Chain and sprocket gears as on some backing gates and grain crushers;

The hazardous parts of these machines can be described as:

- 'Drawing in' points or 'nip points'. These can occur where a belt makes contact with a pulley. These points can grab at fingers and draw in the operator causing serious injury;
- Shear points. Shear points are items or parts of a machine that move against each other and can cut by pinching. Often this hazard occurs on machines such as exposed flights on augers;
- Impact and crushing areas. These are similar to shear points but they don't cut. These points will crush a limb or person such as rotary platform rollers, between fixed rails and the moving stalls on a rotary, hydraulic or pneumatic gates as found on cow entrance and exits on all dairy types;
- Entanglement areas. These are areas that can catch clothing and hair, such as exposed rotating shafts on pumps.

Further information on guarding can be obtained from WorkSafe and Standards Australia.

# 3

## CONFINED SPACES



*Silos with steep cones that ensure complete emptying and bottom inspection.*



*Each silo should have appropriate signage that meets any relevant Australian Standard.*

There are several areas on dairy farms that may be classified as confined spaces including milk vats, silos and water tanks. In each of these cases there are ways for eliminating the confined space hazards through safe design. Removing the need or possibility of ever entering these spaces eliminates the risk.

It is vital that you determine whether any of your work areas in and around the dairy are confined spaces. The definition of 'confined space' in the Confined Spaces Regulations should be used in order to determine whether something is, or is not, a confined space.

Confined spaces are defined in the Regulations as a space in a vat, tank, pit, pipe, duct, flue, oven, chimney, silo, container, reaction vessel, receptacle, underground sewer, shaft, well, trench, tunnel or other similar enclosed or partially enclosed structure, if the space meets certain conditions.

A confined space is determined by the hazards associated with a set of defined circumstances (restricted entry or exit, hazardous atmospheres or risk of engulfment) and not just work performed in a physically restrictive location.

The presence of physical or chemical agents acting alone or in combination may be exacerbated in a confined space.

*Source: Code of Practice for Confined Spaces 1997.*

### Risk Assessment Criteria

**In assessing your dairy for any confined spaces (including grain silos and milk vats) ask the following questions:**

- 1. Is the space likely to be entered by any person?**
- 2. Does the space have a limited or restricted entry or exit?**
- 3. Will the space have a normal atmospheric pressure when someone is inside?**
- 4. Is the space likely to contain:**
  - An atmosphere that has a harmful level of contaminant?**Or**
  - An atmosphere that does not have a safe oxygen level?**Or**
  - Any non-liquid substance that could engulf someone?

If you answered YES to **ALL** of the four questions above then your grain silo or milk vat is a confined space and the Confined Spaces Regulations apply. You need to keep in mind that if you answered NO to any of the four questions above, it does not necessarily mean that the space is safe. For example, the use of an LPG forklift in a coolroom is not a confined space situation but it can be dangerous because of carbon monoxide fumes.



When upgrading milk vats purchase one that does not require entry for cleaning.



Modern closed cleaning systems reduce the need to enter the vat for cleaning and minimise the handling of chemicals.



A bottom access hatch on a milk vat.

## POTENTIAL CONFINED SPACES – MILK VATS

Under certain conditions milk vats and milk silos could be regarded as 'confined spaces' and come under the Confined Space Regulations. This may be the case where there is a likelihood that refrigerant may leak into the vat or a chemical is used (e.g. cleaning) inside the vat that may be harmful to health.

Refrigerant or chemical vapours in a vat or milk silo may displace oxygen, leading to the high risk of suffocation. Structured cleaning, venting and other routinely implemented procedures can reduce the risks to personnel working in these areas. However there are associated hazards outside the vat that should be considered such as accessing the top of the vat from a height of more than 2 metres.

(Refer page 34 – Working at Heights.)

### RISK FACTORS

- Low oxygen levels inside the milk vat due to oxygen displacement by chemicals and refrigerants.
- Exposure to chemicals introduced into the vat.
- Injury from agitators within the vat.
- Heat stress generated from working inside the milk vat.
- Rescuing someone from a milk vat.

### RISK CONTROLS

- Assess the risk of accessing the vat from a height of over 2 metres. (Refer to page 34 for more information on working at heights.)
- Install a vat that does not require entry at all.
- Clean vats from outside with pressure washer and/or detergents rather than entering the vat.
- Restrict access by using a suitable lock-out system.
- Indicate with signage that there is 'Authorised Access Only'.

If you have to enter the milk vat:

- After the wash cycle a cold rinse should be put through the vat and ventilation carried out prior to entry.
- Turn off and isolate all power to the vat before entry. A mechanism must be in place to make sure that the agitator is electrically isolated prior to maintenance or cleaning.
- You may need to use mechanical ventilation to vent the space when you are inside.
- Use any available internal and fixed ladder access.
- Clean vats with inert chemicals only.
- Ensure the access hatch remains open while you are inside to provide ventilation.
- To avoid accidental closure the access hatch may need to be fixed open when in use.

If you are dealing with a confined space, you need to have an entry permit system and warning signs to prevent unauthorised access.

Always have a responsible second person on site with you when you work inside a vat or milk silo. This needs to be a person who can see what you are doing and someone who is capable of implementing emergency procedures if required in case of collapse or injury within the vat. (Refer Emergence Response page 36.)

More information on working in confined spaces is available from WorkSafe. (Refer rear cover.)

# CONFINED SPACES



*Silos should have a bottom access hatch.*



*Adding canola oil or other vegetable oil to grain will reduce dust.*



*Steep coned silos empty completely and eliminate the need to enter them to remove grain.*

## POTENTIAL CONFINED SPACES – GRAIN SILOS

Silos may also be potential confined spaces and present a range of hazards. Most silos continue to have an elevated access point which is reached by fixed or removable ladders. This complicates the confined space risks and includes the real risk of falling from heights.

Victorian Prevention of Falls Regulations requires farmers to address falling risks when working above 2 metres. (Refer to page 34.)

Grain blockages can occur and the temptation is to enter the silo to loosen the blockage. Blockages should be removed or loosened from outside the silo, eliminating the risk of being trapped in the silo, or being injured through coming into contact with the grain auger.

### RISK FACTORS

- Exposure to dusts and chemicals.
- Being engulfed in grain and suffocating.
- Loosening grain build up from inside the silo.
- Low oxygen levels inside the silo due to unusual circumstances.
- Unguarded auger flights.

### RISK CONTROLS

- Use steep-coned silos.
- Attempt all jobs from outside the silo to avoid entering a silo.
- Ensure silos are sealed to prevent moisture getting into the silo.
- Clear the grain buildup from the outside through a bottom access.
- Add vegetable oils to grain to reduce dust in the dairy.
- Install a mesh guard over exposed auger flights in and out of silo.
- Install signage that indicates 'authorised entry only'.

If you have to enter the silo:

- Ventilate silos before entering by opening lids and, possibly, the bottom access.
- Switch off augers before entering a silo and make sure that no-one can start filling or emptying the silo while you are inside (install isolation or lock-out switches).
- Install isolation switches to the feeding system to allow the plant to be locked out when conducting silo maintenance (an isolation switch can prevent another person inadvertently switching on the feeding system when someone else is working on it or inside the silo).
- Use bottom access only.
- Make sure that sparks and flames are kept away from grain storage areas to avoid a potential dust explosion.
- Avoid or reduce exposure to chemical additives such as phosphine.
- When applying chemicals such as phosphine to grain refer to the silo manufacturer's guidelines and chemical MSDS.
- Put in place and practice emergency rescue procedures.
- If there is a person who may be in difficulty, do not follow them in unless you are sure that the area has enough oxygen and sufficient access.

If you are dealing with a confined space, you need to have an entry permit system and warning signs to prevent unauthorised access.

Always have a responsible second person on site with you when you work inside a silo. This needs to be a person who can see what you are doing and someone who is capable of implementing emergency procedures if required in case of collapse or injury within the silo. (Refer Emergence Response page 36.)

More information on working in confined spaces is available from WorkSafe. (Refer rear cover.)

# 4

## EFFLUENT

Ineffectively managed waste and effluent systems can affect the health of all people in the dairy, so it is important to design and implement an effective waste/effluent system, including the management of dairy effluent ponds.

Poorly managed effluent ponds, dairy sheds and yards can help disease to spread and can lead to young children being exposed to the risk of drowning. Effluent ponds can allow a build-up of a crust and subsequent weed growth over the surface of the effluent pond. The crust may look like solid ground but it will not stand the weight of a person or animal and they may fall through the crust and into the effluent pond. Ineffectively drained areas can increase the risk of slips and falls for livestock and workers. Inadequate waste management also increases the health risks associated with flies and insects.



*Fenced off effluent pond in paddock near the dairy.*

# EFFLUENT



*Fenced off solids trap by the dairy.*



*A hydrant hose will eliminate the dragging of hoses however care should be taken to ensure children are not around when they are in use.*

## RISK FACTORS

- Children and cows falling into ponds.
- Increased disease risk from flies and mosquitoes.
- Poor environmental hygiene.
- High pressure hoses and high volume flood washing.
- Increased risk of slips, trips and falls.
- Exposed moving parts of effluent pumps.

## RISK CONTROLS

- Provide adequate supervision of children visiting the dairy.
- Ensure that solids traps are fenced off or covered to prevent children from falling in. In some cases standard swimming pool fencing could be used.
- Locate effluent ponds as far away from the dairy as practical.
- Avoid unstable steep batters.
- Signage warning of the risks of drowning.
- Make sure that children and others are not present when flood or hydrant washing.
- Separate tracks from effluent areas and dams.
- Empty regularly and ensure the trap drains properly.
- Ensure exposed moving parts of effluent pumps are guarded and that access by children is prevented.
- Minimise the amount of water that is used to wash down areas, and regularly pump out effluent ponds as required in late spring and late autumn.
- Secure high pressure hoses when turning on and store them out of the way when not in use.
- Remove sharp edges/clamps from hand-held hoses.
- Ensure appropriate clothing and protective equipment is provided and worn by workers, such as gloves, aprons, rubber boots, goggles and other skin protection when coming in contact with animal wastes.
- Maintain or replace all personal protective equipment regularly.

# 5

## CHEMICALS

Chemicals are used widely in dairies. These include cleaning chemicals, detergents (acid and alkaline), formalin, teat sprays (iodine), antibiotics, drenches (oral and backline), lice treatments and other veterinary medicines such as prostaglandins.

**Hazardous Substances** are chemicals that have a greater risk to a person's health than other chemicals. The Hazardous Substance Regulations impose a range of duties including:

- Setting up a hazardous substances register (i.e. list of products and copy of MSDS);
- Assessing the risk to health;
- Controlling or minimising the risk by putting safety measures in place.

**Restricted chemicals** can only be used by suitably qualified people and prescribed records must be maintained for their use, e.g. phosphine as a grain fumigant.

**Dangerous Goods** are classified on the basis of having immediate effects to people, the environment or to property, such as fire, explosion, poisoning or corrosion, e.g. acids and alkalines are classified as corrosives.

Many chemicals are classified as both **Hazardous Substances and Dangerous Goods**, e.g. formalin. In such cases, both the **Hazardous Substances and the Dangerous Goods Regulations** apply.

Classifications of individual chemicals can be found in the Material Safety Data Sheet (MSDS) that manufacturers and suppliers are required to provide and are often available on manufacturers' websites. MSDSs provide critical information about a chemical including:

- The physical properties of the chemical and the names of the ingredients;
- Hazards or health effects associated with the chemical;
- Precautions to be taken;
- Guidance for transport, use, storage and disposal;
- Withholding periods;
- First aid information; and
- Personal protective equipment to be used.

Chemical use can be dangerous at all times, but particularly when you are exposed to a chemical concentrate. Chemicals can be absorbed into the body through:

- Skin contact;
- Breathing fumes – when applying, cleaning, decanting or mixing; and
- Ingesting the substance – by accident or through poor hygiene.

Chemicals are most commonly absorbed through the skin especially around the head, neck, arms, hands and groin, due to splashing or spillage when decanting concentrates or using the chemical.

# CHEMICALS



*Teat Spray being applied with a long nozzle reducing the risk of inhaling aerosols and being kicked.*



*A power washer can be used as an alternative to chemicals to remove algae in the dairy.*

Chemicals can build up in the body over a period of time or the effects of poisoning can occur very quickly. Some farm chemicals are also known to cause cancer, while others can cause nervous or reproductive disorders, damage to internal organs and skin problems. Some chemicals are also flammable, which represents an added risk of explosion and fire.

Whenever chemicals are used, know what you are using, read the labels, read and understand the MSDS for the chemical involved and follow the safety precautions prescribed.

## RISK FACTORS

- Burns and other injuries from using dairy chemicals such as acids, alkalines (caustics), iodine teat sprays, formalin, antibiotics, vaccines, drenches, lice treatments and veterinary chemicals including hormones.
- Exposure to herbicides and insecticides.
- Exposure to farm chemicals while decanting, adding to feed, or spraying.
- Needle stick injuries from vaccinations and administering antibiotics.

## RISK CONTROLS

### Elimination or Substitution Controls

- Undertake a review of all farm chemicals to determine whether work processes require the use of chemicals.
- Remove all unwanted, out-of-date and banned chemicals from the dairy and dispose of in line with regulations and according to the MSDS.
- Determine whether there are other chemicals available that pose less risk to people. For instance, alternatives to phosphine for controlling insect pests in grain.
- Develop a plan for dealing with chemical emergencies or spillage that includes first aid and emergency contacts.



Secure and locked chemical storage in the dairy with concrete floor and bunding to contain spills.



Safety signage indicates that corrosive acid and alkaline dairy detergents (Dangerous Goods) are stored or are in use in this room.



Caustic cleaners in a locked and bunded enclosure.

## RISK CONTROLS

### Engineering and Isolation Controls

- Install a closed chemical delivery system that removes the need for direct contact with chemicals.
- Chemical storage should provide spill containment, be well ventilated and lockable.
- Chemicals in use should be isolated behind a child-proof barricade.
- All chemicals not in use should be stored and locked away in a purpose built chemical locker or shed. Do not store chemicals in a work area such as the vat room.
- Veterinary chemicals requiring refrigeration should be kept in a separate refrigerator that is not used for food and drinks such as a small lockable bar-type fridge.
- Have chemicals delivered to the farm whenever possible.
- Consider using pumps, siphons or gravity taps to extract drum contents.
- Use containers that have a pump action, rather than pouring from drums to prevent spills and reduce exposure during the decanting of chemicals.
- Mix chemicals in a ventilated area, on a non-porous surface that can be readily cleaned, and with close access to clean reticulated water for cleaning or first aid.

The area should be:

- Well-lit;
- Level;
- Uncluttered; and
- Away from children, pets and others.
- Chemical spills should be contained, cleaned up and disposed of according to the label and MSDS.
- Dispose of needles in chemical sharps containers. (Discuss the proper disposal procedure with your Vet.)
- Chemicals in use in the dairy should be inaccessible to children and others.
- Do not store or mix acids and alkalis together and segregate them from other chemicals.
- Provide an emergency shower and eyewash at the chemical storage area.
- Use coarse spray techniques to reduce exposure to spray mist.



*Emergency shower and eyewash outside a chemical store.*

## RISK CONTROLS

### Administrative Controls

- Develop a formal chemical management plan.
- An MSDS must be obtained, be available for every chemical used and be no older than 5 years.
- Make sure users of restricted chemicals are suitably qualified.
- Provide adequate training to all users of chemicals.
- Follow stated withholding periods for chemicals used for milk and meat.
- Keep a chemical register.
- Make sure that chemicals are loaded, transported and unloaded safely and securely – not in the passenger area or boot of a passenger vehicle.
- Make sure all chemical containers are labelled.
- Return chemicals including stock sprays to the locked store after use.
- Dispose of chemical containers according to the MSDS.
- Use drum recycling programs.
- Provide training on safe injecting procedures.
- Make sure workplace rules are in place for the use of chemicals and that all workers follow these rules.
- Ensure all fittings are secure before beginning the cleaning process.

### Personal Protective Equipment

- Use the appropriate personal protective equipment for the chemicals in use (check MSDS and label).
- Use Personal Protective Equipment (PPE) when decanting, mixing or using chemicals, according to the label and MSDS.
- Employers must supply and maintain PPE to their workers, which is suitable for the job and in good and clean condition.
- Employees have a responsibility to wear PPE and maintain it in good condition.
- PPE should be used to complement other protective solutions as mentioned in the Introduction to this guide.

**For all emergencies ring 000**

**Poisons Information Centre 13 11 26**

# 6

## ZOONOSES

Zoonoses are serious diseases that are transferable to humans from animals causing mild to life-threatening human health problems. People working with livestock, including those working in the dairy, may be exposed to these infections.

The effects of these diseases can vary in seriousness from severe flu-like symptoms (for example Leptospirosis, Q Fever), gastroenteritis (e.g. Salmonellosis), through to death (such as from hydatid disease), or the death of the developing human foetus during pregnancy (e.g. toxoplasmosis, a disease principally contracted from cats).



*Splashguard in a herringbone dairy.*

## RISK FACTORS

- Contact with blood, saliva, faeces and urine (e.g. Leptospirosis and Q Fever).
- Eating or drinking infected animal products (e.g. Salmonellosis).
- Inhalation of dust, aerosols or spores from infected animals (e.g. Anthrax).
- Handling infected animals (e.g. Ringworm).

## RISK CONTROLS

- Vaccination of livestock for leptospirosis.
- Vaccination of people for Q fever.
- Consult with your veterinary practitioner in relation to vaccinations.
- Make sure that animal wastes do not come into contact with human food and drinking water.
- Provide readily accessible hand washing facilities for all personnel.
- Mark taps clearly that are not suitable for drinking water.
- Reduce the amount of dust in the workplace, as dust can carry disease.
- Design the dairy shed so that it can be easily cleaned, has good airflow and lots of natural light.
- Follow good animal husbandry and good hygiene practices in all dairy operations.
- Wash your hands before eating, drinking or smoking.
- Avoid contact with animal wastes and especially animal carcasses, animal excretions and offal.
- Make sure that cuts, abrasions and animal bites are treated and disinfected immediately.
- Advise your local doctor of your occupation to assist in diagnosis.
- Try to avoid eating raw meats or non-pasteurised dairy products.
- Direct airborne contaminants and wastes away from the work area. For example install splashguards to protect workers from urine splashes.
- As part of induction, provide information on zoonoses and the correct procedures for vaccination.
- Provide appropriate clothing and protective equipment for workers, such as aprons, rubber boots, gloves, goggles and other skin protection and make sure that it is worn when coming in contact with animal by-products and wastes.
- Maintain your personal protective equipment in good condition and replace as required.
- Consider using needle stick-proof gloves when vaccinating.
- Remove dead animals.

# 7

## TRAFFIC



*Established speed limits in and around the farm and dairy.*



*Clear Tanker access is essential. Access should not be blocked by obstacles such as overhead powerlines, trees blocking visibility, or other machinery.*



*A good tanker access area with a well-maintained track and separate vehicle parking area.*

The presence of milk tankers, feed and fuel trucks can present a high risk of serious injury or property damage if the limitations of the vehicles are not considered when designing or maintaining the yard.

Many of the hazards for trucks are similar to vehicles such as forklifts, tractors, cars and all terrain vehicles.

### RISK FACTORS

- Being run over by trucks, tankers and other vehicles.
- Inadequate lighting in vat room for night pick-ups.
- Property damage through insufficient space for vehicles.

### RISK CONTROLS

- Design the road entry to the dairy according to VicRoads and milk factory guidelines.
- Consult with the milk factory to establish the requirements to allow the tanker driver to pick up without having to reverse.
- Make sure that there are no height obstacles for the vehicle access such as branches or powerlines.
- Locate car parks off the main track or tanker pick-up area and divert the track away from areas where children play.
- Physically separate pedestrian traffic from vehicles. For example, locate the entry of sheds on the opposite side of the driveway from the tanker pick-up point, or install a suitable safety barrier out from the shed wall to provide a walkway and pedestrian refuge.
- Avoid planting vegetation near traffic and pedestrian intersections or corners that is likely to restrict the view of the driver or the pedestrian.
- Install reverse beepers to tractors and trucks.
- Locate rail barriers between pedestrians and traffic.
- Maintain the tanker access track.
- Keep cattle off the vehicle track.
- Establish and indicate maximum speed limits in traffic/pedestrian zones.
- Install signs that direct vehicles to parking locations.
- Have signs that show visitors and others where to report.
- Access the dairy by using walkways and not the main traffic way.
- External light switch or sensor-light for the vat room.
- Provide clear and unobstructed access to the vat room.
- Have the tanker drivers and dairy workers wear high visibility clothing when in shared traffic areas.

# 8

## ENVIRONMENT – NOISE



*This handheld sound meter provides guidance on the noise level of vacuum pumps.*



*Sign indicating that hearing protection should be worn in this area.*

Dairies can be noisy workplaces. A dairy shed has many loud and continuous noises including vacuum pumps, feedshed augers, hammer or roller mills, clanging metal from the shed, and very often a radio that is cranked up to be heard above these other noises.

Some of these generated noises can either be eliminated (e.g. the radio) or reduced (e.g. by using quieter processes, enclosures, different materials or noise dampening). If this noise is not controlled it can cause serious and permanent damage to your hearing. The degree of hearing loss depends on the loudness of the noise and the amount of time exposed to that noise.

The occupational exposure standard for exposure to noise is an 8-hour average of 85 decibels (dBA) and a 'peak' noise level of 140dB(C).

In farming, hearing damage usually occurs over a long period of time as a result of:

- Exposure to noise above the recommended level; and
- A single loud noise, such as firing a shotgun without hearing protection, resulting in instant damage.

In all areas of the dairy personal protective equipment (PPE) should be the last solution to staying safe. But there are circumstances where the type of work makes it necessary to wear PPE, such as earmuffs or earplugs.

It is useful to establish whether you may already have some hearing loss. Audiometric testing is widely available and can accurately determine existing damage. There is a legislative obligation to provide regular hearing tests for employees exposed to high or persistent noise levels.

Noise is measured in decibels (dB) and each 3dB increase is a doubling of the noise intensity. This means that exposure to 88dB(A) for 4 hours is the same as exposure to 85dB(A) for 8 hours. Noise levels greater than 85(dBA) over 8 hours place the human ear at a greater risk of hearing loss.

The table below shows some examples of work tasks and farm noises that can cause noise-induced hearing loss.

### Farm Activities and Exposure Time Before Exposure Standard is exceeded.

|                              |                |                              |
|------------------------------|----------------|------------------------------|
| <b>Tractor (with cab)</b>    | 75 – 85dB(A)   |                              |
| <b>Grain Auger</b>           | 85 – 94dB(A)   | 8 hours – 1 hour             |
| <b>Angle Grinder</b>         | 85 – 94dB(A)   | 8 hours – 1 hour             |
| <b>Tractor (without cab)</b> | 94 – 100dB(A)  | 1 hour – 15 minutes          |
| <b>Chainsaw (cutting)</b>    | 105 – 120dB(A) | Approx 4 minutes – 7 seconds |
| <b>Shotgun</b>               | 140+dB(C)      | Instant Damage               |



*Isolated and insulated plant room.*



*Vacuum pumps are well guarded in a separate room with exhaust directed away from the dairy.*



*Feed processing external to a shed assists in dispersing noise.*

## RISK FACTORS

- Uncontrolled exposure to noise.
- Noise from augers, grain crushers and hammer mills.
- High noise levels associated with vacuum pumps and other components of milking equipment.
- Poorly maintained equipment.
- Loud and sustained noise in the work area (in the pit, at the cups-on and cups-off positions, feed shed plant room, etc.).

## RISK CONTROLS

- Ask about operating noise levels of plant and equipment prior to purchasing. Manufacturers of new equipment often include a noise rating or decibel level in manuals or on labels on the equipment.
- When purchasing new plant and equipment, choose models that operate quietly.
- Use sound absorption panelling.
- Enclose noisy plant and equipment.
- Locate the vacuum pump in a separate insulated enclosure.
- Place noisy equipment away from the working area or away from metal, especially corrugated iron, walls.
- Redirect exhausts away from working areas or dampen them.
- Ensure the correct operation of vacuum pumps as per the operating manual.
- Establish regular maintenance routines in line with the operating manual's recommendations.
- Display hearing protection signs where hearing protection is required to be worn.
- Measure the noise levels in noisy work areas. If a problem is suspected professional help should be sought.
- Provide and use hearing protection when other solutions do not sufficiently reduce exposure to noise. This can also support other protective measures.
- Ear muffs or plugs have different noise reduction capacities. Use the correct muffs and plugs that meet the relevant **Australian Standard (AS/NZS 1270:2002 : Acoustics – Hearing protectors)** and have a suitable noise reduction rating.
- Maintain or replace your hearing protection as necessary.
- Hearing protection should be effective and comfortable to wear.
- If an employee is required to wear hearing protection, the Noise Regulations require the employer to provide hearing (audiometric) testing within 3 months of the employee starting work and every 2 years thereafter.
- Provide sufficient information, instruction, training and supervision for people to work in a safe and healthy manner.

# 9

## ENVIRONMENT – EXTREME TEMPERATURES

Dairy farmers are exposed daily to a wide range of climatic conditions, including extreme heat and extreme cold.

Exposure to these temperature extremes can reduce your ability to work effectively and could potentially increase the risk of ill health and accidents.

Working in hot conditions can lead to heat stress. Heat stress can generate illness such as heat stroke. Increased sweating leads to loss of body fluid and then reduced heat tolerance which can affect the capacity to work. Tiredness, headache, nausea, loss of concentration, muscle cramps, and dizziness can all be symptoms of heat stress.

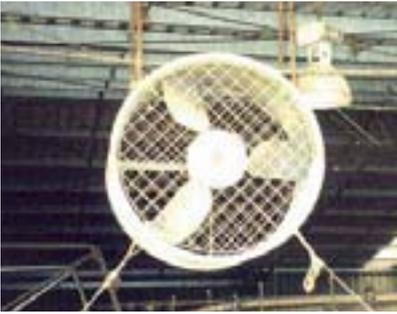
Ultraviolet (UV) radiation is another environmental risk factor. In Victoria, UV radiation is at its most intense between the months of September and April, especially during the middle of the day. Exposure to UV rays is the main cause of skin cancer and most skin cancers develop on the face, forearms and neck.

It is important to remember that sun damage can occur within 15 minutes of sun exposure during the summer months, and within a couple of hours in winter, even on an overcast day.



*Well ventilated dairy.*

# ENVIRONMENT – EXTREME TEMPERATURES



*Strategically located cooling fan in rotary dairy.*



*Fans are located in the end walls of this dairy for cooling in summer and are covered with black curtains to prevent drafts in winter.*

## RISK FACTORS

- Exposure to extremes of heat and cold.
- UV radiation.

## RISK CONTROLS

- Reduce the chances of physical stress by designing the workplace to allow for direct and indirect protection from the environment.
- Design a milking shed that provides protection directly from the wind and draughts but allows adequate ventilation.
- Install a water spray to cool the cows, reduce the amount of insects and cool the dairy.
- Provide some form of insulation to buildings and make sure that outside walls reflect sunlight.
- Have windows, blinds and doorways that can be opened and closed to provide control of direct sunlight and wind.
- Install air ducts/fans in the dairy roof or end walls.
- Provide shade/windbreak trees to protect the most exposed sides of the shed.
- Avoid working when conditions are very cold or hot.
- Provide fresh drinking water in work areas and don't let people work when dehydrated or unwell.
- Put in place a job rotation system to reduce each person's exposure to heat or cold.
- Promote fitness and health through regular exercise and proper diet.
- Ensure that your Personal Protective Equipment (PPE) is suitable for the working conditions and comfortable.
- Make sure that the PPE doesn't impede movement and become a hazard in itself.
- Provide suitable PPE against the cold, such as gloves, lined safety footwear, insulated or thermal clothing.
- Wear PPE that protects against skin cancer. Choose loose fitting, lightweight, long sleeved clothing. Wear a hat that shades your face, neck and head.
- Apply broad spectrum SPF 30+ sunscreen every 2 hours and wear close fitting wrap around sunglasses to protect your eyes.

# 10

## ENVIRONMENT – SLIPS AND TRIPS

Dairies are almost always wet areas. The mixture of water, milk spillages, algal build-up on concrete surfaces, oils in machine areas, feed in wet areas, and manure create potential hazards.

Slips generate a large number of injuries to dairy farmers, all of which substantially reduce the farmer's capacity for usual dairy-related tasks. An injury to arms or wrists will not only restrict the capacity for the farmer to work but will increase the work burden on other dairy workers.

There are many basic housekeeping, equipment and design processes that will reduce the likelihood of slips and trips in dairies. Tripping hazards include, different floor levels, broken concrete, poorly located pipes and hoses, and badly designed steps.

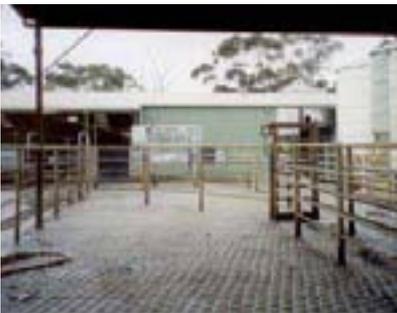


*Wide, solid steps that provide access to the pit.*

# ENVIRONMENT – SLIPS AND TRIPS



*Well constructed steps and handrails.*



*Non-slip yard surface for cows and people.*



*Non-slip step with handrails for yard entry from a rotary dairy.*

## RISK FACTORS

- Wet or slippery surfaces.
- Tripping over hoses, pipes and uneven surfaces.
- Falling down steps.
- Untidy and poorly maintained dairies.

## RISK CONTROLS

- Take measures to avoid spillage and leakage of oils, chemicals and feed onto floors and walkways.
- Make sure a system for cleaning spillages is in place and that it is followed.
- Properly construct pit steps.
- Fit suitable hand rails.
- Improve traction in yards for cattle and people through surface scouring and algae removal by high-pressure washing.
- Provide adequate light and ventilation to ensure floors dry.
- Lay hoses along walls out of the way of pedestrians.
- Relocate pipes along walls not on walkways.
- Remove unused fittings, such as bolt fasteners in floors.
- Relocate obstacles away from walkways and vat room entrances.
- Maintain floors and steps in a good condition.
- Clean up oil spills.
- Trim grass to expose potential tripping hazards.
- Return chemicals and equipment to storage areas.
- Make sure that footwear is slip-resistant.
- If tripping hazards cannot be removed, highlight them with yellow paint, tape, or suitable safety signage.
- If overhead obstacles cannot be removed, cover them with padding, highlight them in bright colours, and/or provide safety signage that identifies the hazard.
- Install non-slip matting in wet work areas.

# 11

## CHILDREN

The dairy farm is not only a workplace; it is a home and place of recreation. The life of a child on a farm can be greatly rewarding and their sense of adventure and interest should not be discouraged.

However, good dairy design can go a long way to making them safe for children. Children follow closely patterns set by their parents and other adults. If adults on the farm work safely, then children are more likely to follow their example.



*Closed cleaning system that restricts access to chemicals and hot water.*



*Restricting child access to the rapid exit system.*



*A safe play area within the house yard.*

## RISK FACTORS

- Children in unsafe working areas.
- Children accessing chemicals, machinery and effluent ponds.
- Children being near moving vehicles or cows.
- Children accessing extremely hot water.
- Children undertaking tasks beyond their capacity.

## RISK CONTROLS

- Design a safe play area for young children at the house that is fenced off from the dairy and traffic areas.
- Prevent children from being able to enter work areas, including the dairy.
- Create an enclosed or separate childcare area in the dairy shed and when designing a new dairy shed, consider including a glassed-off office area that is secured away from the milking area that can also double for a children's play, TV or homework area.
- Provide fencing around the house that will make it difficult for young children to escape.
- Cover fixed ladders to prevent children climbing onto machinery, buildings and equipment including silos (milk and feed) and water tanks.
- Cover or fence off effluent pits and ponds.
- Securely store heavy equipment and hay to prevent objects falling on children.
- Visually check that children are in the fenced off area when traffic is present.
- Provide children with appropriate and effective supervision at all times.
- Ensure visitors supervise children when visiting the farm.
- Train older children, who help out on the farm, to do the task safely and give them jobs to suit their age size and ability.
- Keep animals well away from play areas and pathways.
- Store ladders in a locked shed to prevent children using them to climb onto roofs, silos and trees.
- Prevent children from operating or playing with machinery and equipment.
- Have designated 'no go' areas that all children are made aware of.
- Lock chemicals away.
- Lock the plant room.
- Remove keys from stationary vehicles.
- Locate extremely hot water taps out of children's reach.
- Correctly label and identify hot water taps.
- Install childproof tap locks.
- Install removable handles from extremely hot water taps.
- Prepare an emergency plan and ensure that a first aid kit is available.
- Ensure that someone on the dairy is trained in first aid.

Further information on child safety on farms is available from Farmsafe Australia (Refer page 40.)

# 12

## MANUAL HANDLING



*Bulk handling of chemicals eliminates some manual handling issues.*



*A closed thirdline cleaning system can minimise the need to handle buckets of hot water and chemicals. The use of lids and the extension of hoses and pipes to the internal base of the drum substantially reduces splashing.*

Manual handling generally relates to an activity where a person is required to use force to lift, push, pull, roll, hold, restrain or carry an object or animal and includes repetitive tasks. With all these activities there is potential for injury to occur.

Manual handling tasks in the dairy may include a one-off event such as restraining a cow, lifting feed or additive bags, carrying buckets of milk/water or pulling calves. Injuries can also occur from repetitious movements with low force, such as putting cups on, teat spraying by hand or using hand tools.

It is important that any tasks that involve Manual Handling be assessed to identify ways of doing the same task in a less hazardous way. (WorkSafe Victoria has Manual Handling guides to assist in this process. Refer rear cover.)

Hazardous manual handling can result in musculoskeletal injury, which is damage to soft tissues of the body, such as muscles, tendon, ligaments, cartilage and nerves. Common areas of damage include the back, elbows, knees and fingers. These types of injuries can be very painful, sometimes take longer to heal than cuts and broken bones and have the potential to become chronic injuries. Severe damage can lead to permanent restriction of body movements such as bending down and even the inability to continue work. Musculoskeletal injuries can place an unnecessary and unfair work burden on partners, spouses, older children and other workers in the dairy.

In particular the following types of activities need to be carefully observed so that appropriate control measures can be applied to reduce the risk of injury:

- Repeated or a sustained use of force, such as pushing cattle into place or pulling a calf.
- Repeated or sustained awkward working position or movement that requires you to bend and twist at the same time, such as putting cups on in a shallow pit or washing buckets on the floor.
- Momentary use of a strong force, such as lifting a large chemical drum on to a shelf.
- Manual handling of animals, such as pushing cows into position in the dairy or lifting calves from one pen to another.
- Moving unstable loads, such as moving large part-filled drums.

Once a risk is identified and assessed it should be removed or reduced by:

- Altering the workplace;
- Altering the work system;
- Changing the objects used;
- Use of a mechanical aid;
- Training.

Substantial improvements in safety can be made when planning for a new dairy or an upgrade. In relation to manual handling in the dairy, an obvious hazard is often the mismatch between the people who work there and the depth of the pit, or the height of the rotary.

## MANUAL HANDLING – LIFTING AND CARRYING

### RISK FACTORS

- Handling fodder, 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.

### RISK CONTROLS

- Purchase products in bulk or pallet form that can be loaded using a forklift, front end loader or augers.
- When lifting bulk quantities mechanically, make sure that the bulk load is secure with straps, chains or other fixtures.
- Install automatic feed systems.
- Purchase infrequently used products in smaller, or ready-to-use quantities.
- Use powered equipment or mechanical aids to replace manual tasks.
- Use pneumatic-wheeled trolleys and ramps and other mechanical aids.
- Balance the load by carrying quantities in each hand, for instance, two buckets, one in each hand.
- Get assistance to lift bags and heavy objects.
- Maintain a safe lifting posture by keeping your back straight, the load close to your body and lift by bending your legs.



*This trolley is a simple mechanical aid for handling drums.*



*Test bucket on wheels.  
Photo: National Milk Harvesting Centre*



*This four wheeled trolley is a useful aid for a range of manual handling activities.*



*Bulk handling of calf milk.*

# MANUAL HANDLING



*A rotary dairy pit, with removable grate, can reduce manual handling hazards by allowing for workers of various heights.*



*The safety features in this pit include hoses laid down neatly, an uncluttered open design, fatigue matting, and suspended water hoses and teat sprays.*

## MANUAL HANDLING – MILKING

Milking cup handling is probably the most frequent and repetitive manual handling task that occurs in a dairy.

The location of clusters will vary in response to the dairy design. Manual handling risks relate also to the age and experience of the dairy operator and employees.

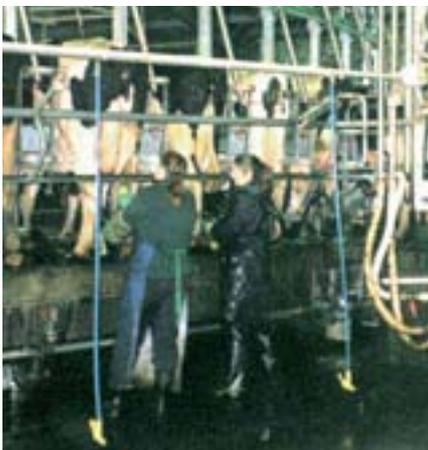
Current technology requires milking cups to be placed manually but the risk of injury can be minimised through design, training, supervision and maintenance.

### RISK FACTORS

- Handling milking cups.
- Putting on and removing cups while bent in an awkward posture.
- Releasing clusters from Automatic Cup Removers (ACRs).

### RISK CONTROLS

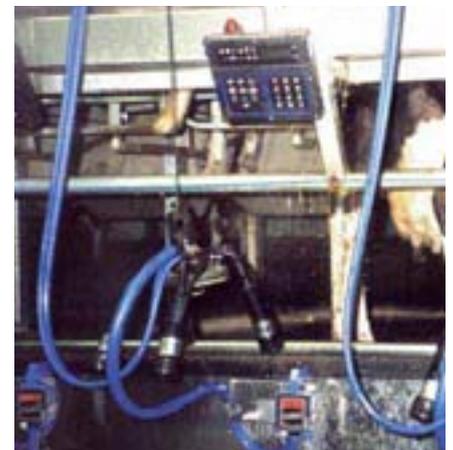
- Ensure that the dairy itself is designed to allow workers to milk in a comfortable position, that is, a position that lessens the need for over-reaching or continuous bending.
- Consider designing/modifying a cups-on/off area where the standing height of the worker can be altered to suit the height of the person. Milking is one of the most constant manual handling tasks on dairy farms. Keeping everything within reach between the shoulders and hips is a good start in minimizing this risk.
- Locate idle clusters on brackets, and jetties, at a height that reduces bending and reaching.
- Retrofit vacuum release valves on ACR rams.
- Use automatic cup removers wherever practical.
- Install rubber 'fatigue' matting in the pit to reduce the strain of standing for long periods.
- Provide a clear access to the udders by planning the height of kick rails or splash guards.
- Vary jobs to minimise repetitious manual handling tasks, including rotating between cups-on and cups-off positions.



*Working as a team at the cups-on position in a high throughput rotary dairy.*



*A pit depth and cow position that minimises bending and reaching.*



*The cluster height on this ACR matches the needs of the operators.*



*A herd sample flask located at a height that reduces bending.*



*A waist-high trough for washing buckets.*



*A tilted herd testing table that minimises bending and reduces reaching.*

## MANUAL HANDLING – OTHER HAZARDS

Herd testing can be undertaken by the farmer or a contractor. The process in itself is no more hazardous than milking but the collection of the samples and the transporting of them to a vehicle does generate some manual handling risks as does bending over to wash buckets on the floor, repetitive pulling down of feed levers or cow release mechanisms.

### RISK FACTORS

- Removing herd test sample flasks.
- Sorting sample flasks on a bench.
- Transporting trays of samples through the dairy to a vehicle.
- Washing buckets.
- Pulling feed levers.
- Bending using teat sprays.
- Relocating augers.

### RISK CONTROLS

- Design the workplace so that the sample taking is undertaken from a comfortable posture.
- Design a herd sample sorting table that minimises reaching and bending.
- Use a trolley to transport samples to the vehicle.
- Package samples in a suitable package at the point of collection.
- Limit the number of samples in each tray to a weight that can be comfortably carried.
- Clear the thoroughfare of obstacles on the floor and at head height.
- Remove tripping or slipping hazards.
- Minimise the repetition of transferring the samples into the trays.
- Ensure that the person taking the herd samples has a basic safety induction to the dairy.
- Make sure that the herd tester provides modern equipment such as mini-flasks. These flasks accept a smaller sample and so weigh less.
- Install a trough at working height in the dairy for washing buckets.
- Use a teat spray wand, with a long nozzle (also reduces risk of kicking and spray exposure). (Refer photo on page 14.)
- Fit jockey wheels to augers to minimise the effort required to move them. (Be aware of overhead powerlines when moving augers.)

# 13

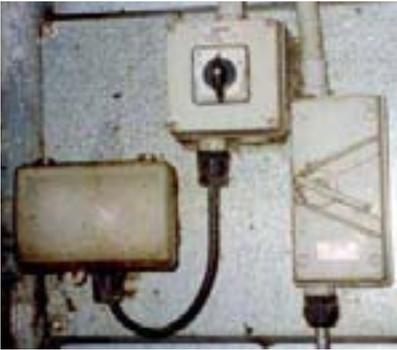
## ELECTRICITY

Electrical safety is a major issue for farming – especially dairy farming, where the risk is increased by wet conditions in the dairy.

Electrocution can result in death. Other electrical risks are fire or plant and machinery breakdowns. These risks can cause serious injury, destruction of property, damage to plant and equipment and loss of production. Problems surrounding electricity generally arise from poor electrical installation and maintenance, unqualified people carrying out repairs or alterations, a lack of electrical safety awareness and care, and limited information being accessed on electrical safety hazards.

### RISK FACTORS

- Electrical leads and power outlets in wet areas.
- Coming into contact with overhead power lines.
- Circuit board overload.
- Using damaged electrical leads.
- Repairs and installations by unqualified people.
- Contact with wet surroundings.



*Waterproof cover on power outlet in the dairy.*



*Residual Current Device (RCD) fitted to the dairy's power board. The RCD has its own blue test button.*



*The feed system in this dairy can be isolated by the switch on the left. A lock or tag can be placed through the switch to prevent accidental operation while conducting maintenance.*

## RISK CONTROLS

- Do not repair or alter electrical equipment yourself.
- Use a **QUALIFIED ELECTRICIAN**.
- Regularly check electrical wiring, switching and any electrical equipment for evidence of the breakdown of insulation, cracks or breaks in switch or controller casings.
- Avoid using leads in wet areas.
- Avoid using coiled or rolled up extension leads.
- Have a qualified electrician design the electrical system for the needs of the dairy. This should consider preventing access to wiring or power-points by small children.
- Provide accessible mushroom-shaped emergency stop buttons wherever necessary.
- Install weatherproof and waterproof switches.
- Ensure that low overhead wires are not near silos or areas where large vehicles travel, such as grain delivery trucks or livestock transports or near moving augers, tiptrucks and irrigation sprays/pipes.
- Install a circuit board that has a Residual Current Device (RCD), also known as a Safety Switch covering the dairy. (RCDs are also available for three phase applications.)
- Replace old and unsafe wiring with new and conduited wiring as required.
- Replace extension leads with a hard-wired system.
- Fit all lighting in work and outside areas with protective guards.
- Locate lighting in the vat room away from vat openings to avoid breakages and consequent milk contamination. Check regularly for faulty insulation.
- Replace blown fuses with the correct wire – **DO NOT** use oversized fuse wire. Blown fuses must be replaced with the same rated fuses or circuit breakers.
- Always use properly earthed powertools. Only use portable electrical tools that are double insulated.
- Test RCDs regularly.
- Test portable RCDs before each job.
- Have power appliance and extension leads checked and tagged by a registered electrician at least annually.
- If you do use an extension lead, make sure that it is connected to a fixed or portable RCD.
- It is better to remove any electrical extension leads from the workplace, especially around wet areas and store them away until use.
- Keep power leads off the floor by using droppers.
- Install emergency stop buttons on pumps and motors that can be reached easily without the need to reach over the pump or motor.
- Provide a dry powder extinguisher near the main switchboard in case of an electrical fire.
- Train all personnel in the correct use of fire extinguishers.
- Be aware of the location of underground power.
- Introduce a suitable lockout/tagout procedure that clearly indicates when it is safe to operate machinery.

# 14

## WORKING AT HEIGHTS



*Sight glass fitted to feed silo.*



*Restricted ladder access to milk silo.*

Fall prevention regulations require any work undertaken at a height of more than 2 metres to have the risks assessed to determine the appropriate risk control measures.

All areas of the dairy that are over 2 metres should be accessible from stable work platforms, or the task can be undertaken from ground level.

Some examples of poor work practices that could lead to a serious fall on a dairy farm include:

- Working on or near fragile surfaces such as badly rusted corrugated iron or fibreglass roofs, with no guarding, safety mesh, catch platforms, or alternative fall protection measures in place.
- Climbing on rails and pipelines to service equipment.
- Mezzanine levels used for extra storage space where there are no guards or hand rails installed.
- Work being done from the bucket on a front-end loader or tractor or from a pallet lifted by a forklift.
- Ladders set up on slippery or uneven surfaces and not secured to prevent them slipping forwards, backwards or sideways.
- Ladders being used inappropriately, for example, using an ordinary straight ladder as a horizontal working platform or subjecting a ladder to loads over the ladder's load rating.



Ground operated lid opener on feed silo.



Ladder cage that incorporates a locked restricted access panel.

## RISK FACTORS

- Falling from heights, including silos, ladders, tanks, roofs, pits and vats.
- Falling onto other objects.
- Using inappropriate equipment to reach heights.

## RISK CONTROLS

- Assess the risk of falling from heights for all farm buildings and equipment.
- Do not use portable ladders for accessing silos.
- Never work at heights alone.

### Silos

- Undertake a risk assessment to identify all potential fall hazards above 2 metres, including bottom access.
- Install remote ground opening silo lids.
- Install grain/feed level sight glasses in silos.
- Never use inappropriate equipment to access heights, e.g. front end loader buckets.
- Provide guards for silo ladders to prevent unauthorized access.
- Restrict access to heights.
- Consider installing handrails at the top of the silo.
- Consider installing a ladder cage.

### Portable ladders

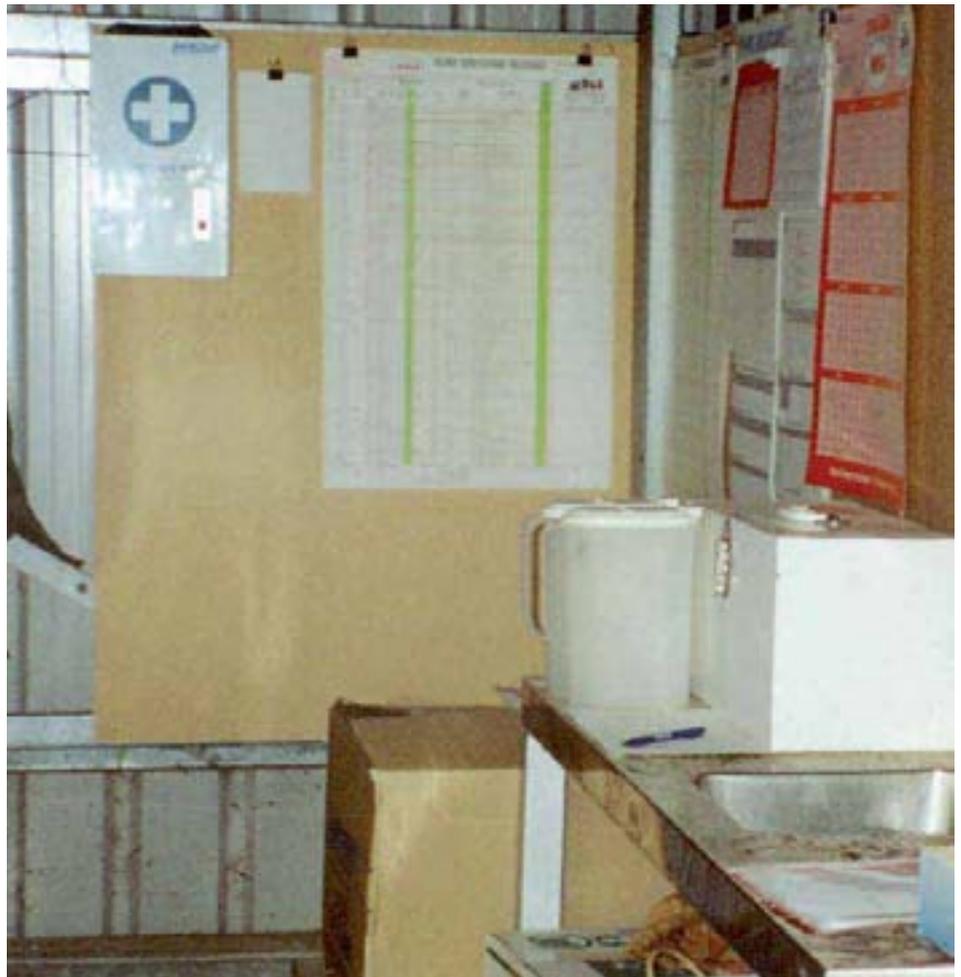
- Use portable ladders only as a last resort and if unavoidable.
- Tie off ladders or make sure they are secured.
- Keep the ground and floor around height access points clear of equipment and debris.
- Store ladders horizontally.
- Ensure that portable ladders meet the relevant Australian Standard.

# 15

## EMERGENCY RESPONSE

It is an essential part of providing a safe workplace that adequate first aid skills and equipment are readily available in an emergency. Fatalities and serious injuries can be reduced by having an effective emergency response plan and first aid resources in place.

These resources will vary depending on your distance from emergency medical assistance, the general physical health of the casualty, the first aid skill level of dairy workers, whether children or infants are present, and the level of your emergency communication, e.g. radio, phone and mobile telephone.



*A first aid kit is available to all workers.*



*Signage that shows the location of the first aid kit.*



*Eye wash facility for where acids and alkalis are used.*

## RISK FACTORS

- Use of machinery.
- General physical health of workers.
- Distance from medical assistance.
- Chemical exposure.
- Inadequate emergency response plans and first aid resources.
- Working in isolation.
- Inadequate communication systems.

## RISK CONTROLS

- Develop an emergency response plan.
- Regularly assess your dairy's first aid needs in line with the WorkSafe publication, First Aid in the Workplace.
- Avoid working alone.
- Provide eye wash facilities.
- Have readily accessible and working telephones or other communication systems in place.
- Make sure that the Material Safety Data Sheets (MSDS) are readily accessible and that the first aid resources reflect the treatment needs specified in the MSDS.
- Have all dairy workers trained in a basic level of first aid skills.
- Include emergency response in your safety induction.
- Report any injury or near miss.
- Record all injuries in the injury record book.
- Provide emergency response information by the telephone or in an accessible area of the dairy.
- Have a suitably-stocked and packaged first aid kit.
- Make sure that the kit is accessible, signposted and hooked on a wall.
- Make sure that the first aid kit can be carried easily to where the casualty is.
- The first aid kit should contain disposable resuscitation face shields and disposable gloves to provide an infection control barrier for the first aider and casualty.

# 16

## ASBESTOS

Many dairies are old enough to have a considerable amount of asbestos in roofs, walls or as lagging around some hot water pipes. The health effects of inhaling asbestos fibres are well established.

The Asbestos Regulations clarify the obligations of employers and occupiers. These regulations require employers and occupiers with fixed asbestos in their buildings or plant to undertake a process of:

- a) Identifying whether asbestos is present in the workplace (e.g. building, structure or plant);
- b) Assessing the risk to employees health;
- c) Controlling any risk of exposure.

Asbestos is very difficult to identify with the naked eye.

As a general rule, many building materials installed or used before the early 1980's may contain asbestos. The only way to be sure is to have the material identified by a qualified professional, such as analysts approved to identify asbestos types in bulk samples. Alternatively, you can assume that it is asbestos and treat it as such.

This should be carried out before any work (e.g. general maintenance, renovations, demolition) proceeds.

Every dairy, just like all workplaces, must determine if asbestos is present, assess its condition and assess whether it may present a risk to employees health.

If there is a risk to employees health, the employer is required to have the asbestos removed. If this is not practicable, then the risk must be controlled by enclosure and sealing it.

If you have asbestos on your property, it is recommended that you consult a professional removalist, who has a WorkSafe licence, to remove it.

Samples of material to be tested for asbestos, can be arranged through an analyst. The National Association of Testing Authorities (NATA) can be contacted on (03) 9329 1633, for a list of approved analysts.

Asbestos must only be disposed of at a site licensed by EPA to accept it.

Your local WorkSafe office has a list of licensed asbestos removalists.

# 17

## COOLING TOWERS

Many dairy farms use cooling towers as an energy efficient way of cooling milk in readiness for storage and delivery.

Cooling towers need to be considered as a potential health hazard due to both their potential to create Legionnaires' disease and the chance of the cooling mesh providing a breeding ground for insects and bacterial growth.

There is also a registration issue – if a tower is fan forced and if it recirculates water, it is defined as a cooling tower. Dairy farmers in Victoria who operate cooling towers that specifically use a fan and have recirculating water, must register their cooling tower with the Building Commission. This also involves undertaking a regular cooling tower maintenance program, developing a risk management plan within 12 months and a compulsory desktop audit carried out every 12 months thereafter.

Farmers need to consider the use of cooling towers and solutions to minimise the chance of Legionella exposure.

The ideal control measure is to design the refrigeration system so as to eliminate the risk of biological hazards. Many dairy farmers have existing cooling towers and the option to replace or redesign the tower is not always practical. Therefore, you will need to reduce the exposure of people on your property to Legionnaires' disease by making sure that you follow the Regulations for a safe system of work.

Specific information **Cooling Tower Risks in Dairies** is available from the Department of Human Services and at their website <http://www.health.vic.gov.au/environment/legionella/industry.htm>

If you have any questions about cooling towers, the VFF-UDV will be able to assist.

Contact the UDV office on 1300 882 833.

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## ACKNOWLEDGEMENTS AND FURTHER INFORMATION

This document would not have been possible without the participation and contribution of the Dairy Safety Working Party and their respective organisations. Special thanks go to the Chairman Frank Keegan who maintained his involvement and support throughout his illness, right up until his passing. The contributions, assistance and cooperation of the many farmers and their employees who participated in the workshops or allowed visits to their farms for photographs for this publication is gratefully acknowledged.

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#### EPA Victoria

[www.epa.vic.gov.au](http://www.epa.vic.gov.au)  
Ph: 03 9695 2722

#### VicRoads

[www.vicroads.vic.gov.au](http://www.vicroads.vic.gov.au)  
Ph: 131 171

#### Victorian Farmers Federation

[www.vff.org.au](http://www.vff.org.au)  
Ph: 03 9207 5555 or 1300 882 833  
[www.dairysafety.org.au](http://www.dairysafety.org.au)

#### Building Commission

[www.buildingcommission.com.au](http://www.buildingcommission.com.au)  
Ph 1300 360 380

#### WorkSafe Victoria

[www.workcover.vic.gov.au](http://www.workcover.vic.gov.au)  
Ph 1800 136 089

#### CowTime Project and National Milk Harvesting Centre

[www.cowtime.com.au](http://www.cowtime.com.au)  
Ph: 03 5624 2333

#### Australian Standards

[www.standards.com.au](http://www.standards.com.au)  
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#### Australian Milking Machine Trade Association

PO Box 219  
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#### Victorian Farm Safety Centre

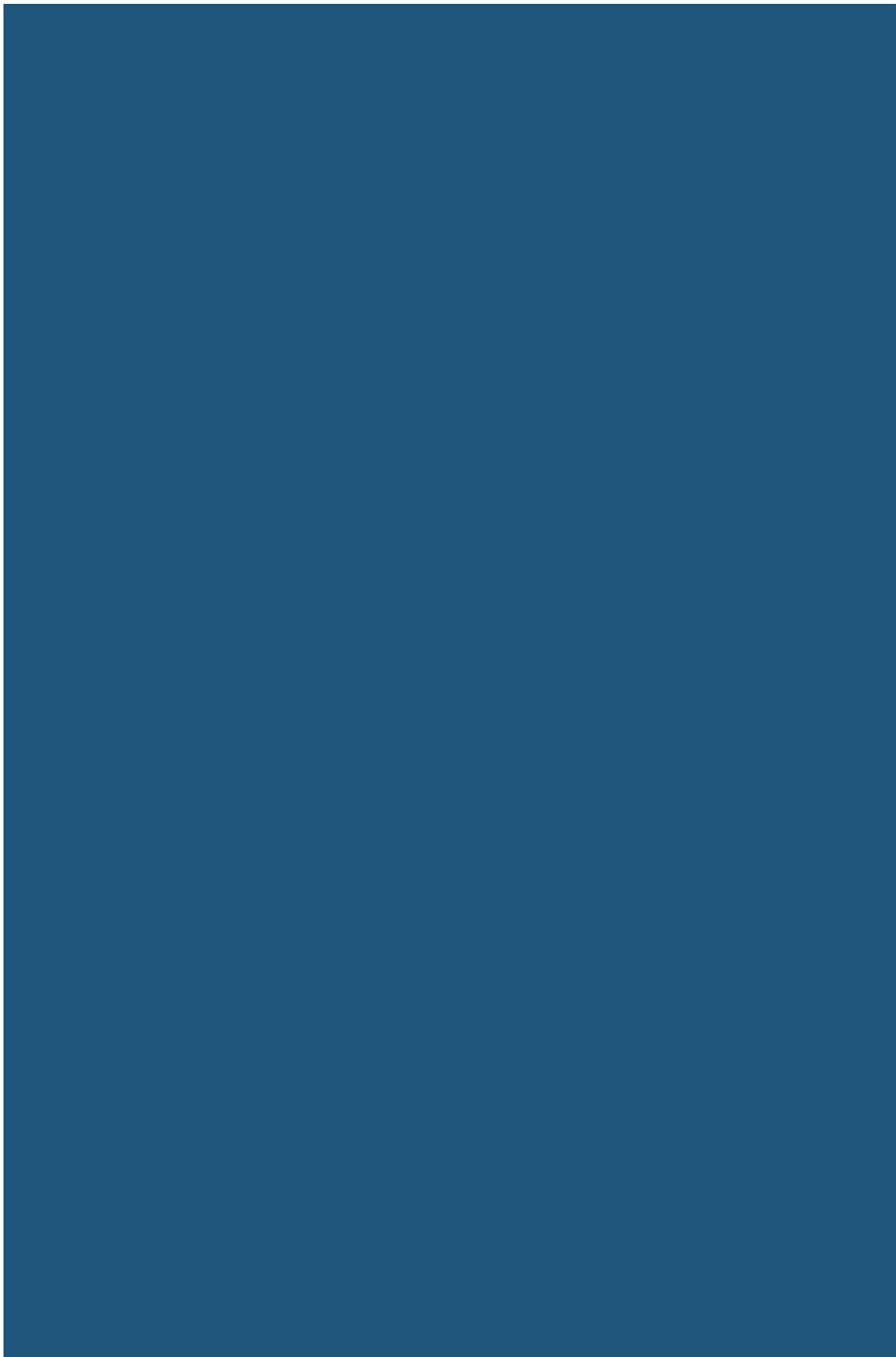
University of Ballarat  
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