TO BE UPDATED TO REFLECT LATEST LEGISLATIVE CHANGES

GOOD PRACTICE GUIDELINES

Preventing noise induced hearing loss on farms

JULY 2014

New Zealand Government

WORKSAFE NEW ZEALAND | MAHI HAUMARU AOTEAROA

On Monday 4 April 2016, the new Health and Safety at Work Act 2015 (HSWA) came into effect. HSWA repeals the Health and Safety in Employment Act 1992, with immediate effect. All references to the 1992 Act within our guidance will be progressively removed.

This guidance still sets out relevant information and practices that people can follow to help keep their farms healthy and safe.

HSWA has new terms and areas of emphasis including:

> Persons conducting a business or undertaking (eg a business or company), Officers (eg a company director or chief executive) and Workers (eg an employee or contractor).
> Worker engagement, participation and representation practices.
> Planning and managing risk.

For more information about these changes and your health and safety obligations under HSWA see the *Keep Safe, Keep Farming* toolkit available on our website www.saferfarms.org.nz

ACKNOWLEDGEMENTS

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The guide is also based on information from other, similar countries. We acknowledge the following organisations for providing information:

> Safe Work Australia
> Health and Safety Executive (UK).

This guide contains public sector information published by the Health and Safety Executive (UK) and licensed under the Open Government Licence v1.0.

The purpose of these guidelines is to help reduce the risk of hearing loss by providing practical guidance on how to manage loud noise on farms.

NOISE INDUCED HEARING LOSS: KEY POINTS

Keep noise levels below 85dB(A) on average and 140dB at peak

If possible replace machinery that creates noise above these levels

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If you can't replace the machinery reduce exposure to it

Wear hearing protection if noise levels are still too high

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INTRODUCTION

IN THIS SECTION:

1.1 Purpose
1.2 Scope
1.3 Development

Studies show that people who work or live on farms have higher rates of hearing loss than the rest of the population.

1.1 PURPOSE

Farmers are often exposed to loud noises from machinery and animals, which can lead to hearing loss over time.

They are also exposed to other hearing loss causes, such as:

> hazardous substances
> recreational noise
> aging
> disease
> ototoxic drugs (drugs that harm your hearing)
> trauma.

Hearing loss is expensive. It affects the productivity of farm operations and is linked to increased rates of accident and injury. It also affects the social and personal lives of farming families.

This guide can help you reduce the personal, social and financial costs of noise-induced hearing loss (NIHL). It identifies hazards that can cause NIHL on farms and suggests ways to eliminate, isolate or minimise them. WorkSafe NZ accepts these recommendations as current industry good practice. They will help you comply with the Health and Safety in Employment Act 1992 (the HSE Act).

1.2 SCOPE

This guide applies to farmers, farm employers, farm employees, agricultural contractors and anyone else working on farms or in agricultural operations.

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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ABOUT NOISE INDUCED HEARING LOSS

IN THIS SECTION:

2.1 How does noise damage hearing?

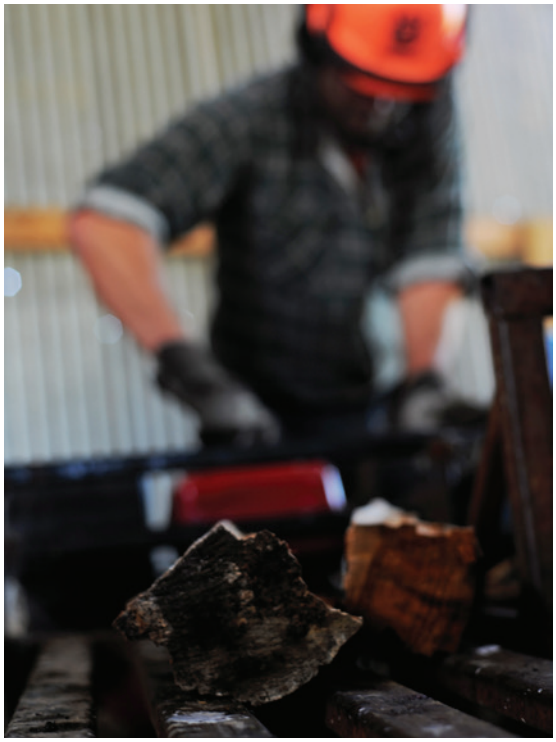
2.2 The costs of NIHL

Noise induced hearing loss (NIHL) is one of the most common work-related injuries.

2.1 HOW DOES NOISE DAMAGE HEARING?

Small hairs in your inner ear react to sound. If they experience very loud sounds, the hairs flatten and collapse for a short time, making you temporarily deaf. This is called temporary threshold shift. (A person's hearing threshold level is the quietest sound a person can hear at a particular frequency.) It can last for hours or longer, depending on how much noise you were exposed to. You can also have a ringing or hissing sound in your ear called tinnitus.

After working in very noisy situations over many years, the hair cells in the inner ear become permanently damaged. Once this happens, your hearing loss is permanent. This is called permanent threshold shift.



Permanent hearing loss can happen immediately if you experience very intense or explosive sounds (like gun shots or explosions). This is called acoustic trauma. In some cases, the sound punctures your eardrum.

The first sign of NIHL is finding it hard to hear high-pitched sounds like consonants (eg 't', 'd', 's'), and women's and children's voices. If more than one person is speaking, or there is a background noise, the problem gets worse.

The harmful effects of noise build up over time and don't just happen in the workplace. For example, people can damage their hearing by using iPods or going to clubs or concerts.

2.2 THE COSTS OF NIHL

NIHL causes health problems for many workers and causes significant social and economic costs to New Zealand.

The human cost is also high. People with NIHL can lose their jobs, take more time away from work, perform less well than others, miss promotions or other jobs, and have difficult social and family relationships.

Damaged hearing can contribute to a workplace accident if someone has trouble hearing warnings. People with hearing loss are less aware of their surroundings, which can also cause safety problems.

NIHL happens over a long time. Unfortunately, hearing loss is permanent and incurable. Hearing aids can help with understanding distorted messages, but they don't replace your lost hearing.

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THE LAW AND LOUD NOISE ON THE FARM

IN THIS SECTION:

3.1 What are my legal responsibilities?

The Health and Safety in Employment (HSE) Regulations 1995 say employers must make sure average work noise levels stay below 85dB(A). Employers must also make sure employees aren't exposed to peak noise levels of 140dB or more.

3.1 WHAT ARE MY LEGAL RESPONSIBILITIES?

Noise is measured in decibels (dB), or energy at the ear – written as dB(A).

If workers have to work in noisy environments where their eight-hour average exposure is over 85dB(A), or the peak noise level goes to 140dB or more, employers must use a noise management plan to keep the noise levels down.

A noise management plan must have:

- a noise control policy to eliminate noise hazards or reduce noise levels to below the legal maximums
- suitable ways to manage excessive noise (see below)
- an information and training programme for management, workers and contractors
- a hearing protection programme, including selecting personal hearing protectors and teaching workers about using and maintaining them correctly
- audiometric testing for workers regularly exposed to excessive noise, even if they use hearing protection.

HSE Regulations 1995 Regulation 11

'Every employer shall take all practicable steps to ensure, in relation to every place of work under the control of that employer, that no employee is exposed to noise above the following levels:

(a) a noise exposure level, $L_{Aeq,8h}$, of 85dB(A); and

(b) a peak noise level, L_{peak}, of 140dB.'

You can develop a noise management plan with your workers and a health and safety representative, if you have one.

The 'hierarchy of controls' outlined below shows how to manage excessive noise:

1. Eliminate (get rid of) the noise source.
   - Replace noisy machinery with quieter machinery ('buying quiet'). This is a cost-effective way to control workplace noise at its source.
2. Isolate the noise hazard.
   - Put controls in place to reduce the noise at the source or between the source and the worker (using sound dampeners or silencers, noise barriers and isolation).
   - Introduce noise control measures (training and education, job rotation, job redesign or designing rosters to reduce the number of workers exposed to noise).
3. Provide hearing protectors (earmuffs, earplugs) to minimise any harm.
   - Make sure staff fit them correctly – poorly fitted hearing protection doesn't work.

You get the best results if you use a number of these controls. Hearing protectors are the last resort when better control measures can't reduce noise exposure levels below legal limits. However, they can also be used temporarily while you investigate other controls.

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WHAT DO I HAVE TO DO?

IN THIS SECTION:

4.1 Employer responsibilities

4.2 Employee responsibilities

4.3 Self-employed responsiblities

4.4 Responsibilities of designers, makers and suppliers of plant

4.1 EMPLOYER RESPONSIBILITIES

1. EMPLOYERS MUST PROVIDE A SAFE PLACE OF WORK

Section 6 of the HSE Act 1992 says employers must provide a safe working environment and take all practicable steps to make sure employers work safely.

Regulation 11 of the HSE Regulations 1995 (as explained above) details how much noise is allowed in workplaces. It also says that hearing protection is only appropriate after you have taken all practicable steps to reduce noise to below the Regulation's maximum levels.

Employers don't meet their legal responsibilities if they provide hearing protection without taking all practicable steps to reduce noise exposure to a level below the stated levels.

Noise measurement can be technical and confusing to many employers. However, it helps you understand how noisy your work environment is and how to control your noise hazards.

When planning a new workplace or changing a work activity, think about what effect this will have on how much noise employees will face.

Sometimes, the only way some employers can control noise hazards is with hearing protectors (earmuffs or plugs). However, hearing protectors are often misused. Their effectiveness in protecting employees' hearing depends on:

> choosing the right hearing protection
> fitting the protection correctly
> how long the worker wears the hearing protector when they're exposed to excessive noise
> whether the worker keeps the hearing protector in good condition.

2. EMPLOYERS MUST IDENTIFY HAZARDS

Employers must carry out a preliminary assessment to identify noise hazards.

What is a preliminary assessment?

A preliminary (or walkthrough) assessment is a screening tool that identifies probable or possible noise exposures above the legal limits. It identifies work areas where noise levels will probably or actually exceed the legal limits.

Preliminary assessments often find sources of noise or work processes where you can introduce simple noise control measures. They are also used to identify which processes or areas need a detailed assessment.

Preliminary assessments don't need special equipment or qualified personnel. You're just looking for potential noise hazards, not doing a full noise assessment. Do a preliminary assessment when you haven't done one before, or it's been over five years since you've done one.

How should I do a preliminary assessment?

Walk through a work area and note where employees might face excessive noise.

Make notes of the plant and processes, and the noise they make. Use the table on page 20 of this guide to get an idea of whether the noise level could be harmful.

Did the preliminary assessment give you enough information to put in noise controls? If not, you can ask an expert to do a detailed assessment to get an accurate noise level reading and put controls in place.

For more information, see WorkSafe NZ's Approved Code of Practice for the Management of Noise in the Workplace.

3. EMPLOYERS MUST ASSESS IDENTIFIED HAZARDS TO DECIDE IF THEY ARE SIGNIFICANT

If a preliminary assessment shows noise levels might be near or above 85dB(A), employers must get someone to do a detailed noise assessment to find out if these noise hazards are significant. The person doing the detailed assessment has to be a competent person. "AS/NZS 1269: Occupational Noise Management" has more information and is summarised below.

Why do a detailed noise assessment?

Detailed noise assessments measure the noise in the workplace so you can see if your workers face excessive noise levels. These assessments involve the use of noise measuring instruments.

You need a detailed assessment if:

> there are a lot of sources of noise
> you're not sure the noise levels are over the legal limits
> you think (from preliminary assessment results) that noise levels are over the legal limits.

Detailed assessments will tell you:

> exactly how much noise employees face
> where noise is coming from
> ways to develop noise control plans
> what hearing protection you need.

Only competent people can do detailed noise assessments. The person should thoroughly understand:

> why they're doing the assessment
> how to use the noise measuring instruments correctly
> the instruments' limits
> what the assessment can't tell you
> how to interpret the results
> how to record the results
> the HSE Act 1992, AS/NZS 1269 and this guide.

Measurements and assessment methods must be done in line with AS/NZS 1269: Part 1 Measurement and Assessment of Noise Emission and Exposure.

Appendix E of AS/NZS 1269.1 tells the competent person how to work out noise levels and noise exposures from the results of the detailed assessment. The person has to follow these procedures.

Get a detailed assessment done:

> every five years
> after workplace or process changes that are likely to change the employees' noise exposure, such as:
  - installing or removing plant and equipment
  - changes in workload or machine speed that significantly alter noise levels
  - changes in building structures that significantly alter noise levels
  - a change to working hours that increases worker exposure to noise
  - changing working arrangements that increase the time employees spend in noisy places (such as work shift schedules and overtime)
> when you use a new workplace, plant or process
> when a health and safety inspector requires you to do one
> when an employee or (if applicable) health and safety representative reasonably requests one.

An employer should keep a record of all assessments for at least 10 years.

The noise limits in regulation 11 are based on an eight-hour working day. Any noise assessment must take extended shifts into account because workers are exposed to noise for longer and their ears have less time to recover before they're exposed again.

Sometimes, longer exposure time is a key reason for excessive noise exposure.

4. EMPLOYERS MUST CONTROL SIGNIFICANT HAZARDS BY ELIMINATING, ISOLATING OR MINIMISING THEM

Noise control solutions

AS/NZS 1269.2 Occupational Noise Management – Noise Control Management outlines how you need to control and reduce noise in workplaces.

It covers the following:

> noise control planning and design for new workplaces
> noise control management in existing workplaces
> basic noise control techniques.

The best time to think about reducing noise is at the design stage. Plan to reduce noise when designing new workplaces or changing existing workplaces (like installing new equipment or new processes).

Every noise problem has three parts:

> a source: where the noise starts from
> a path: where the noise travels – this can include through the air, or along/through a wall or pipe
> a receiver: the person hearing the sound.

When trying to control noise, start at the source then look at the sound path. If these don't work, use hearing protectors as the final option.

Noise control options are based on:

> engineering controls: eg changing processes or equipment
> administrative controls: eg reducing the time a person is exposed to excessive noise
> personal protection: eg, providing hearing protectors.

The cost of not controlling noise at its source

Employers might think the cost of noise control is high. But they should think about the ongoing costs of exposing employees to excessive noise and giving employees hearing protection.

These costs include:

> The costs of hearing loss. Wearing the correct hearing protectors all the time doesn't protect 100% of workers. The amount of time employees wear hearing protectors is critical to their success. Workers that don't wear hearing protectors even for short periods have a high risk of getting NIHL.
> Costs of hearing protectors (plugs and muffs) and replacements.
> Administration/compliance costs for regular noise assessments, making sure workers wear hearing protectors and paying for audiometric tests.

Providing hearing protectors

Where necessary, give workers suitable hearing protectors and make sure they wear them. They are not a substitute for noise control. They are a short-term fix while you work out how to control excessive noise. Removing hearing protectors for even very brief periods dramatically reduces their effectiveness. If a worker doesn't wear hearing protection for even 30 minutes a day, it reduces protection by half over the entire day.

When noise levels exceed, or are likely to exceed the legal limits, designate the area as a hearing protector area.

Clearly mark the noisy areas or machinery. Mark the boundaries where the noise hazard exists. If needed, put up signs that show these places are hearing protector areas. The signs (construction, location and maintenance) should meet NZS/AS 1319: Safety Signs for the Occupational Environment.

If it's not practical to post signs, work with employees to make sure they and other people know where hearing protectors are needed.

> Put warning notices on tools and equipment saying workers must wear hearing protectors and where to get them from.
> Train employees to recognise when they have to wear hearing protectors.
> Supervise high-noise areas.

Every person in a designated hearing protector area must wear the appropriate class of hearing protector.

This includes people working full or part-time, and people passing through or spending a short time there.

The type of hearing protection needed by each worker depends on the work they're doing and the levels of exposure. Hearing protectors come in a variety of classes, each class appropriate for a different maximum noise level.

HEARING PROTECTOR CLASS	MAX NOISE LEVEL (DB(A))
Class 1	Less than 90
Class 2	90 to less than 95
Class 3	95 to less than 100
Class 4	100 to less than 105
Class 5	105 to less than 110

Table 1: Hearing protection class

Within each class there are various types of hearing protective devices:

> earplugs
> earmuffs
> communication earmuffs
> ear muff/helmet combinations.

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

5. EMPLOYERS MUST TELL, TRAIN AND SUPERVISE STAFF ABOUT WORKPLACE HAZARDS

See the 'Training requirements' section later in this document for more information.

4.2 EMPLOYEE RESPONSIBILITIES

Farm employees must comply with employers' policies and procedures to reduce noise exposure. You must look after your own health and safety and not harm anyone else through your work.

4.3 SELF-EMPLOYED RESPONSIBLITIES

Self-employed farmers must take all practicable steps to stay safe and healthy at work. Don't harm anyone else through your work.

4.4 RESPONSIBILITIES OF DESIGNERS, MANUFACTURERS AND SUPPLIERS OF PLANT

The law recognises the best way to manage noise exposure is to control it at the source. Designers, manufacturers and suppliers of plant should make sure they design and build plant to keep noise emissions as low as possible when the machine is installed and used in a workplace.

Employers should 'buy quiet'. Check, before buying new equipment, what information the manufacturer or supplier has about its noise emissions. Also get information about how to install, maintain and use the equipment to keep noise levels as low as possible.

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SPECIFIC HAZARDS AND CONTROLS

IN THIS SECTION:

5.1 Noise created by farming machinery

5.2 Tractors

5.3 Cabin radios

5.4 Noise in the farm dairy

5.5 Livestock

5.6 Shed and process machinery

5.7 Workshop/woolshed

5.8 Shooting

5.9 Ototoxic drugs and solvents

5.10 Typical noise levels of farm equipment/processes

The most common noise hazards on farms are set out on the following pages. Guidance is provided on how to control these hazards.

5.1 NOISE CREATED BY FARMING MACHINERY

Most farm machinery is noisy. The louder the noise, the less time you can be exposed before your hearing is damaged. Risks are increased when machinery is old and worn.

MANAGING THE HAZARD:

Regularly maintain farm machinery.
When replacing machinery, 'buy quiet'.

Regular maintenance is often easier, cheaper and more effective than replacing old machinery.

Check for these when you service your equipment:

> Worn or chipped gear teeth that won't mesh properly – you can often see shiny wear marks.
> Worn bearings – these create vibration and noise.
> Slackness between worn or loose parts – these create rattling noises, squealing drive belts, 'piston slap' in motors, air leaks, etc.
> Poor lubrication – this creates squeaking noises through friction or excess impact noise in dry and worn gears, bearings and universal joints.
> Imbalance and poor alignment of rotating parts – any imbalance in a fan impeller or motor shaft creates excess vibration.
> Blockages in airways – dirt build-up or a bent/damaged piece of metal in an airway or near a moving part (eg a bent fan guard) causes whistling or other 'air' noises.
> Blunt blades or cutting faces – blunt or chipped saw teeth, drill bits, router bits, etc make the job noisier and slower.
> Damaged silencers – silencers for air-driven machines or engine mufflers get clogged with dirt, rusted out or damaged, which means they stop absorbing noise.
> Removing a noise-reducing attachment – never (apart from during maintenance) remove mufflers, silencers, covers, guards, vibration isolators, etc that reduce noise.
> Poor seals – reduced door and window seal effectiveness and insulation in general (eg too much clearance around cables) can increase noise exposure.

5.2 TRACTORS

Most modern tractors have sound-reducing cabs, so noise levels are probably below 85dB(A). In older cabs and tractors without cabs, levels can get as high as 95–100dB(A).

Remember, how much noise the operator hears also depends on the tractor's equipment:

> Tractors working near maximum power or with other mounted or trailed machinery make more noise, especially powered equipment like forage harvesters, mowers, vacuum tankers, straw choppers and balers.
> Poorly maintained tractors make more noise (eg if they have holes in their mufflers).
> Non-powered (towed) work equipment is also noisy.
> Don't forget noise levels when working with stationary tractor-powered equipment like portable grain dryers, grain blowers and saw benches.

MANAGING THE HAZARD:

Make sure the tractor cab is sound-proof. If it is not, or there is no cab, wear hearing protection.

> Keep doors and windows closed to get the lowest noise levels.
> Use the opening on tractor cabs for cable and electrical controls instead of running cables through the rear window.

Think about adding other protective materials to your tractor to reduce noise emissions like:

> Materials that soak up noise inside tractor cabs. They reduce reverberation (the 'tin can' effect). Examples are soft foam, porous materials, fibreglass and rockwool. Put these on cab tops, sides and around seats.
> Damping compounds that reduce noise by absorbing vibration. Examples are foam, rubber, soft wood, paint on/trowel on compounds. Use these inside the engine hood, instrument cover and instrument side panels.
> Barrier materials that reduce external and engine noises getting into the cab. Examples are sheet metal, timber and vinyl. Use these on the back of the firewall and under the operator's platform.
> Isolation materials that stop vibrations passing from one point to another. Examples are rubber mounts, fibreglass, air cushions. If the cab does not have isolation mounts the noise goes straight into the cab enclosure.

Take care to cover holes around the seat, brakes, clutch and other openings to stop noise leaking into the cab. Use a gunned sealant and rubber grommets to seal around electrical cables.

Perform regular maintenance on your tractor to repair any problems that could create excess noise (eg holes in the muffler).

5.3 CABIN RADIOS

Using a radio in machinery with cabins increases the noise in the cabin by 1-3dB. This is normally okay, but using a radio with older machinery can expose operators to average noise levels over 85dB(A). The risk of hearing damage also increases when working long days (eg on the tractor) during peak seasons.

MANAGING THE HAZARD:

Make sure the radio is not turned up too loud.

5.4 NOISE IN THE FARM DAIRY

Dairy farms are noisy workplaces. A milking shed has many loud and continuous noises, and usually a radio is cranked up to be heard above them. If this noise is not controlled it can cause serious and permanent hearing damage. How much hearing loss happens depends on how loud the noise is and how often people are exposed to it.

Risks include:

> high noise levels from vacuum pumps and milking equipment components
> 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).

MANAGING THE HAZARD:

Design the milking shed, plant and equipment to reduce noise levels. Take steps to minimise noise as part of regular maintenance.

- Ask about plant noise levels before buying. Manufacturers should include a noise rating or decibel level in manuals or on equipment labels.
- When buying new plant and equipment, choose models that run quietly.
- Use sound absorption panelling.
- Enclose noisy plant and equipment.
- Put the vacuum pump in a separate insulated enclosure.
- Keep noisy equipment away from the working area or away from metal, especially corrugated iron and walls.
- Turn exhausts away from working areas or dampen them.
- Make sure you're running the pumps as the operating manual says.
- Have a regular maintenance routine in line with the operating manual's recommendations.
- Measure noise levels in noisy work areas. If you think there's a problem, get professional help.
- Provide and use hearing protection when other solutions don't reduce noise exposure enough.
- Put up signs to show where hearing protection is needed.
- Give the right information, training and supervision so people can work safely.

5.5 LIVESTOCK

Large numbers of stock in a building create a lot of noise. Pigs in a building, for example, can create noise levels of 100dB(A) or above, especially at feeding time. Even short-term exposure in this workplace is harmful, especially if workers are exposed to other noise during the day.

MANAGING THE HAZARD:

Use mechanical or automated feeders to reduce the need to enter the building when it is noisiest, eg at feeding time. If you do have to enter, wear hearing protection.

- Make sure any work done inside the building is done during quieter times.
- Fit controls for the feeder away from the noise or in a protected area.

5.6 SHED AND PROCESS MACHINERY

Machinery (like milling, mixing and grain drying plant) and transportation equipment are noisy. Running them inside buildings makes the noise worse.

MANAGING THE HAZARD:

Try to reduce the noise at source. If you can't do this, use these controls:

- Use acoustic enclosures, screens and sound-insulating panels to stop the noise travelling.
- Fit controls in separate rooms or away from the noise.
- Fit silencers on exhausts.
- Remove the need for operators to be present with the equipment running, eg by rearranging the work so no-one needs to be in the noisy area, or restricting the time workers are exposed to the noise.
- Maintain machinery properly. Worn parts, poor lubrication and loose panels increase noise.

5.7 WORKSHOP/WOOLSHED

Shearing machines, farm tools and processes (like hammering in nails or using angle grinders) expose workers to prolonged low-level and occasional high-level noise.

MANAGING THE HAZARD:

Buy low-noise machinery. Locate it away from work areas if possible.

> Make sure you buy or hire low-noise shearing machines, tools and machinery so you don't have to add noise controls to machinery afterwards.
> Mufflers or silencers reduce noise transmitted along pipes or ducts, eg fit exhaust and intake silencers on engines. Put movable acoustic screens between the noise source and workers, eg when using abrasive wheels or portable grinders. Cover the screen with noise-absorbing material on the side facing the noise source to reduce the noise reflected where work is done.
> Increase the distance between the noise source and workers, eg put air compressors in separate rooms.
> Make sure the radio is not turned up too loudly.

5.8 SHOOTING

Guns produce pulses of noise that immediately damage hearing. Even people who only occasionally use guns can suffer permanent hearing damage.

MANAGING THE HAZARD:

Shooters and people nearby must wear suitable hearing protectors.

5.9 OTOTOXIC DRUGS AND SOLVENTS

Ototoxic drugs are those which are toxic to the ear. Some prescription medicines are ototoxic: they, and hazardous substances like solvents, pesticides and asphyxiants can cause hearing loss and make people more sensitive to noise. An ototoxic drug can cause some people's hearing to be damaged at lower noise levels. This is one reason why some workers will lose their hearing even if noise is kept below 85dB(A).

MANAGING THE HAZARD:

Follow doctors' recommendations about noise exposure for anyone taking ototoxic drugs. Eliminate or reduce potential exposure to solvents, pesticides and asphyxiants.

Encourage employees to talk to their doctor about side effects (including hearing or susceptibility to noise damage) of any prescription medication they take. They should tell the employer so this can be taken into account when assigning work or when controlling noise. Control exposure to solvents, pesticides and asphyxiants to levels as low as practicable below the workplace exposure standards published by WorkSafe NZ.

TO BE UPDATED TO REFLECT LATEST LEGISLATIVE CHANGES

5.10 TYPICAL NOISE LEVELS OF FARM EQUIPMENT/PROCESSES

NOISE SOURCE IN TYPICAL OPERATING CONDITIONS	INDICATIVE NOISE LEVEL AT THE EAR (AVERAGE & RANGE)
Quad bikes	86dB (84dB–87dB)
Motorbikes – two-wheel	81dB (70dB–92dB)
Tractors without cabins	92dB (90dB–93dB)
Newer tractors with cabins	76dB (75dB–78dB)
Older tractors with cabins 10+ yrs	81dB (77dB–84dB)
Harvesters	83dB (75dB–91dB)
Bulldozers	99dB (97dB–100dB)
Farm trucks	85dB (83dB–88dB)
Forklifts	84dB (81dB–88dB)
Avg. increase with cab radio on	1–3dB
Chainsaws	106dB (104dB–107dB)
Circular saws	99dB (98dB–101dB)
Bench grinders	99dB (94dB–104dB)
Angle grinders	98dB (96dB–100dB)
Air compressors	86dB (77dB–95dB)
Augers	93dB (89dB–96dB)
Firearms	Lpeak 140+dB
Dairies – herringbone (24-bay) pit	73dB (71dB–75dB)
Irrigation pumps	100dB (96dB–104dB)
Shearers	86dB (84dB–87dB)
Others in shed	80dB (77dB–83dB)
Pig sheds – manual feeding	87dB (74dB–99dB)
Pig handling – suckers	109dB
Packing shed workers	80dB (78dB–82dB)
Others in workshop	89dB (82dB–96dB)
Avg. increase with shed radio on	2dB

Table 2: Typical noise levels

Please note: this table should be used as a guide only. Each tool or activity can produce a range of different noise levels in different circumstances. When considering exposure, all noise exposures throughout the day or shift need to be considered to determine the overall exposure.

06/

TRAINING REQUIREMENTS

IN THIS SECTION:

6.1 Training for employees

6.2 Training for health and safety representatives

TO BE UPDATED TO REFLECT LATEST LEGISLATIVE CHANGES

Anyone working on a farm must be trained on how to manage noise related hazards.

6.1 TRAINING FOR EMPLOYEES

Train everyone on the farm who is exposed to noise or is helping manage noise hazards.

This includes:

> farm employees exposed to excessive noise at work
> managers and supervisors of these employees
> farm employees that buy plant
> farm employees that design, schedule, or organise work
> farm employees that buy and maintain hearing protectors.

The needs of each group are different, so the training methods used and information taught must meet the needs of each group.

Training aimed at preventing NIHL needs to cover:

> a brief overview of noise
> the ear and hearing protector programme
> reasons for wearing hearing protectors
> choosing suitable hearing protectors
> using and properly fitting hearing protectors
> the importance of exposure time and what happens if workers remove hearing protectors
> maintaining and storing protectors.

Before giving someone the responsibility for looking after their hearing protectors, train them how to clean and maintain hearing protectors and check them for defects.

6.2 TRAINING FOR HEALTH AND SAFETY REPRESENTATIVES

The HSE 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.

07/

REFERENCES

IN THIS SECTION:

7.1 Glossary
7.2 Bibliography

7.1 GLOSSARY

TERM	DEFINITION
Age-Related Hearing Loss	Loss of hearing that progresses with age, also called presbycusis.
Audiometry	A test to measure what a person can hear.
Buy-Quiet Policy	Policy to buy equipment that is the quietest practicable.
Decibel	The unit used to indicate the how loud a noise is (it includes sound pressure level and other acoustic quantities), 'dB' for short.
Effective Noise Control	An action, procedure or device to eliminate noise from the workplace or reduce noise to safe levels.
Hearing Impairment	Hearing loss that causes some degree of disability.
Hearing Loss	Reduced ability in a person to detect sound.
Hierarchy of Controls	A hierarchy of risk control measures: first try to eliminate the hazard (can the job be done without putting someone at risk?). If that can't be done, then isolate the hazard (put a barrier between the worker and the harm). Lastly, take every action to minimise the harm potential harm.
Noise	Any unwanted or damaging sound.
Occupational Noise	Noise experienced in the workplace.
Ototoxic	Toxic to the ear: specifically the cochlea or auditory nerve and sometimes the vestibular system. Some medications are ototoxic.
Personal Hearing Protectors	Devices worn over the ears or put into the ear canals to help protect a person's hearing against noise.
Plant	Any tool, equipment, machinery or fitting used in the workplace.
Sound	Energy in the form of pressure waves that move through air and other media and is capable of giving a listener the sensation of hearing.
Sound Pressure Level	The relative magnitude of sound pressure expressed in decibels referenced to 20 micropascals.
Temporary Threshold Shift	Temporary hearing loss, usually from short-term exposure to loud noise.
Tinnitus	Ringing, buzzing or other noises in the ear or head without an external sound source.

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DISCLAIMER

WorkSafe New Zealand has made every effort to ensure that the information in this publication is reliable, but makes no guarantee of its completeness. WorkSafe New Zealand may change the contents of this guideline at any time without notice.

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