Australian Centre
for Agricultural Health & Safety

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Rural Noise Injury Factsheet

Farming is a noisy industry, with a large number of activities undertaken involving exposure to noise levels which can cause permanent hearing loss. The degree of hearing loss depends on the length of time exposed to the noise and the intensity (loudness) of the noise (see *Farm Noise & Hearing Loss* pamphlet).

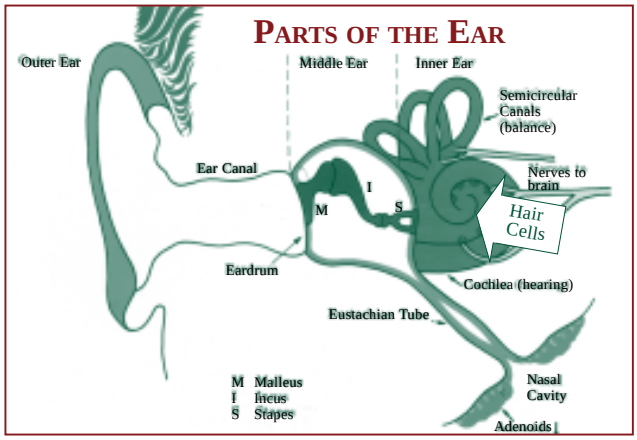
Noise is measured in decibels (dB) and each 3dB increase in noise level results in a doubling of the intensity of that noise so the exposure time has to be halved. Noise levels greater than 85dB(A) averaged over an 8 hour period, places the human ear at risk of hearing loss.

Example:

Noise level in dB(A)	Max. exposure time
82dB(A)	16 hours
85dB(A)	8 hours
88dB(A)	4 hours
91dB(A)	2 hours
94dB(A)	1 hour
97dB(A)	30 minutes
100dB(A)	15 minutes

How does noise destroy hearing?

Sounds enter the ear and travel to the cochlear where about 30,000 tiny hair cells receive and transmit them to the brain where they are interpreted. Exposure to noise results in destruction of these hair cells. The damage is painless and often not noticed until a significant number are destroyed. They are not replaced.



Noise initially destroys the hair cells which describe the soft sounds of speech to the brain, such as ***t f v s sh ch p.*** This results in a person being able to ***hear,*** but not always ***understand*** what is being said. In background noise, such as a social gathering, or when the television is on, hearing and understanding becomes difficult.

Tinnitus (noises in the head or ears) can also be caused by exposure to loud noise. For many people, the tinnitus does not interfere with their life, but for others, it can be quite annoying.

What are the farm noise hazards?

There are many farm activities and equipment which are hazardous to hearing including tractors, chainsaws, firearms and workshop tools (see *Farm Noise & Hearing Loss* pamphlet). As well as machinery operators, others in the work area may also be at risk of hearing damage, especially those accompanying shooters. Radios can increase risk of hearing damage if the volume needs to be increased to be heard over machinery noise (e.g. older tractors and harvesters.)

Ways to Reduce Farm Noise and Hearing Risks

1. **Eliminate the hazard**
   automatic vs manual process
2. **Buy quiet**
   when replacing machinery
3. **Engineer out the noise**
   regular maintenance, rearrange workshop, insulate cabins
4. **Improve work practices**
   move away from the noise where possible – limit time exposed (rotate work tasks), limit use of radio
5. **Wear personal hearing protection**
   PHP – ear plugs or ear muffs

How do you know when to use Personal Hearing Protection?

- If, when in noise, you have to raise your voice to be heard at a distance of 1 metre.
- When the noise level is greater than 85dB(A) (see *Farm Noise & Hearing Loss* Pamphlet).

If unsure about the noise levels on your farm, arrange for a noise survey to be done.

Typical farm activities and machinery noise levels

Activity	Range dB(A)
Tractor < 10 yrs (cab) > 10 yrs (cab)	 75-78 77-84
Tractor (no cabin)	90-93
Harvester	75-91
Auger	89-96
Angle grinder	96-100
Pig shed (feeding)	75-100
Chainsaw	105-110
Shotgun (at shooter's ear)	Instant damage

What to look for when selecting Personal Hearing Protection (PHP)

The choice of PHP will depend on personal preference; either ear plugs or earmuffs are appropriate. There are a few things to consider when deciding on PHP.

- ***Comfort*** – unless they are comfortable, they will not be worn
- ***Compatibility*** – able to wear with other safety equipment (e.g. welding mask)
- ***Australian Standards Approved*** – look for the "tick stack" symbol
- ***SLC$_{(80)}$ Rating or Class*** – this will be on the packaging of the device

Ensure ear muffs are in good order and replace pads when necessary.

Effectiveness of Personal Hearing Protection

It is important that the PHP reduces the noise to a safe level (< 80dB(A)).

Example:

Tractor without cabin = 93dB(A)

PHP SLC$_{(80)}$ rating 13dB(A) (Class 1)

93 – 13 = 80dB(A) received at the ear.

Conversations and warning signals can still be heard with hearing protection on / in.

For further information on noise and hearing protection, refer to AS / NZS 1269.3:1998.

How do you know if you have a Noise Injury?

You may have a hearing loss as a result of exposure to rural noise over time, if you:

- Need to ask people to repeat what they said
- Need to have the television up louder than the rest of the family find comfortable
- Do not always hear the telephone ring
- Have difficulty following conversations in the presence of background noise
- Experience tinnitus in the ears or head after a day's work

If you experience the above difficulties, you should have your hearing fully assessed.

Hearing assessments can be conducted at most Community Health Centres. See 'Hearing Aids and Services' in the yellow pages for other hearing assessments, products and services.