

Noise in agriculture



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Introduction

Noise at work in agriculture or horticulture can cause hearing loss. There are many different sources of noise on farms, such as tractors, chainsaws, livestock, grain dryers and guns. Noise can also be a safety hazard at work, interfering with communication and making warnings harder to hear.

How can noise damage hearing?

You may experience temporary deafness after leaving a noisy workplace. Even though your hearing recovers within a few hours, this is a sign that if you continue to be exposed to the noise your hearing could be permanently damaged.

Hearing loss is usually gradual because of prolonged exposure to noise. People can get so used to excessive noise that they accept it as a natural part of their working life, but in fact they are beginning to lose their hearing. They may not realise until it is too late that their hearing is being damaged. Hearing damage is irreversible. Permanent hearing damage can also be caused immediately by sudden, extremely loud, explosive noises, eg from guns.

People may also develop tinnitus (ringing, whistling, buzzing or humming in the ears), a distressing condition that can lead to disturbed sleep.

What does the law require?

The Control of Noise at Work Regulations 2005 (the Noise Regulations) set out what has to be done to prevent or reduce risks to health and safety from exposure to noise at work. They require specific action at certain action and limit values. They apply to employers, employees and the self-employed.

What are the noise action and limit values?

Noise is measured in decibels (dB). The action levels are defined in terms of daily noise exposure (the average over the working day), and peak noise exposure (sudden noises).

The 'lower exposure action values' are 80 dB for daily exposure and 135 dB for peak noise. The 'upper exposure action values' are 85 dB for daily exposure and 137 dB for peak noise.

The limits, which must not be exceeded, are 87 dB for daily exposure, and 140 dB for peak noise – but note that in checking whether the limits have been exceeded, you can account for the effect of any hearing protection being worn.

Figure 1 gives examples of how noisy some agricultural activities are.

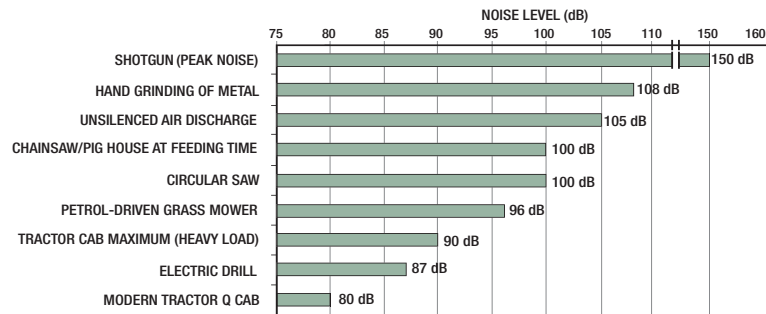


Figure 1 Typical maximum noise levels (dB)

What do employers have to do?

- Find out how much noise workers are exposed to at work and assess the risks to their hearing.
- Take action to reduce the amount of noise workers are exposed to that produces those risks.
- Provide workers with hearing protection if you cannot reduce the noise exposure enough by using other methods.
- Make sure the legal limits on noise exposure are not exceeded.
- Provide workers with information, instruction and training.
- Carry out regular hearing checks (as part of health surveillance) where there is a risk to health.

Assess and control the risks

Start with a risk assessment which should:

- identify who is at risk from noise, and why;
- contain a reliable estimate of those people's noise exposure;
- identify what you need to do to comply with the law, eg whether noise-control measures or hearing protection are needed;
- identify who needs to have hearing checks.

When estimating how much noise people are exposed to, make sure you use reliable information which is representative of what your workers do and the noise in your workplace and how it may vary from day to day. For example, use measurements from your own workplace, information from workplaces similar to yours, or from suppliers of machinery.

Record the findings of your risk assessment and record in an action plan anything you identify as being necessary to comply with the law, setting out what you have done and what you are going to do. Then put your plan into action.

What do workers have to do?

- Use any noise-control measures properly and follow any working methods that are put in place.
- Wear hearing protection when carrying out noisy work and when in 'hearing protection zones', where hearing protection is compulsory.
- Take care of hearing protection and noise-control equipment.
- Report any problems with hearing protection or other protective measures.

What do the self-employed have to do?

If you are self-employed you have legal duties. You will need to follow the advice in this leaflet and take action to comply with the Noise Regulations and protect yourself from noise risks.

Tractors

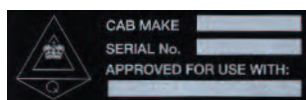


Figure 2 Tractor cab 'Q' plate

For new tractors, manufacturers are legally required to meet specific noise limits inside the cab, even when the windows are open (86 dB for normal conditions or 90 dB under heavy load). Most modern tractors are now fitted with approved 'Q' cabs (with a 'Q' plate inside the cab), so the levels are likely to be below 80 dB. In older cabs and tractors with roll bars, levels may be as high as 85 dB. Look in the operator's handbook for information on noise levels. Remember that how much noise the operator is exposed to will also depend on the equipment the tractor is using.

- Keep doors and windows closed to achieve the lowest noise levels.
- Use the opening provided on many tractor cabs for routing cable and electrical controls rather than leaving the rear window open.
- Tractors operating near to maximum power or with other mounted or towed machinery may generate higher noise levels, particularly when using powered equipment such as forage harvesters, mowers, vacuum tankers, straw choppers and balers.
- Non-powered (towed) work equipment can be noisy, eg cambridge rolls.
- Don't forget to take account of noise levels when working with tractor-powered stationary equipment such as portable grain dryers, grain blowers and saw benches.

New self-propelled machines such as combine harvesters and other agricultural machinery are also required to comply with standards relating to noise.

Estate management

Some of the noisiest working environments are found where woodworking machines are used. Noise levels can vary widely from machine to machine depending on conditions of use. Circular saws and band re-saws are likely to operate at 100 dB.

- Wood chippers can be noisy (up to 120 dB) when processing timber waste or cuttings.
- Woodworking machinery such as circular saws, bandsaws and planers need to be properly maintained. A well-maintained band re-saw may have a 10 dB difference between idling and cutting noise levels, but a poorly maintained machine may show hardly any difference.
- Cutter sharpness is important as dull knives and worn blades and bands exert more force on the timber and so make more noise.
- Out-of-balance tools create vibration, reduce cutting efficiency and increase noise levels.
- Don't forget to assess the noise from hand-held equipment such as brush cutters.
- Look for low-noise features when buying machinery. Always ask suppliers about noise levels.



Figure 3 Wood chipper



Figure 4 Chainsaw users need suitable hearing protection

Chainsaws

Always wear hearing protection when operating a chainsaw. Noise levels measured at the operator's ear can be as high as 100 dB and so a very high level of protection is required.

- Don't forget anyone working nearby may also need protection.
- Chainsaws should carry a prominent warning sign to remind users of the hazard.
- Make sure the silencer is in good working order.

Barn and process machinery

Machinery such as milling and mixing plant, grain drying (up to 95 dB) and transportation equipment is very noisy. Running it inside buildings can make the problem worse and intensify the noise. If possible reduce the noise at source, but if this cannot be done then use the following controls.

- Prevent noise being transmitted by using acoustic enclosures, screens and sound-insulating panels.
- Fit controls in separate rooms or away from the noise.
- Fit silencers on exhaust systems.
- Eliminate the need for operators to be present with the equipment running, eg by rearranging the work so that no one needs to be in the noisy area, or restricting the time workers are exposed to the noise.
- Ensure machinery is properly maintained as worn parts, poor lubrication and loose panels may increase noise.



Figure 5 Pigs housed indoors can generate high noise levels

Livestock

Large numbers of pigs in a building can create noise levels of 100 dB or above, especially at feeding time. So even short-term exposure can be harmful, particularly if workers are exposed to other sources of noise during the day.

- Use mechanical or automated feeding systems to reduce the need to enter the building when it is noisiest, eg at feeding time.
- Make sure any work requiring entry is done during quieter periods.
- Fit the controls for the feed system away from the noise or in a protected area.

Workshop



Figure 6 Farm workshop tasks may require assessment

- Mufflers or silencers can reduce noise transmitted along pipes or ducts, eg fit exhaust and intake silencers on internal combustion engines.
- Direct exhaust emissions well away from workers, eg by fitting a flexible hose to discharge several metres away from them.
- Place movable acoustic screens between the source of the noise and workers elsewhere in the workshop, 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 amount of noise reflected back into the area where the work is carried out.
- Increase the distance between the source of the noise and workers, eg by locating air compressors in separate rooms.
- Carry out quiet inspection tasks away from noisy repair areas.
- Make sure you buy or hire low-noise tools and machinery so that you do not have to apply noise controls to noisy machinery afterwards.



Figure 7 Shooting produces sudden, loud pulses of noise

Shooting

Guns produce pulses of noise that can damage hearing immediately. Even people who only use guns occasionally may suffer permanent hearing damage. For clay pigeon shooting, it is important that shooters and trap operators wear suitable hearing protection because of the prolonged and repetitive nature of the shooting.

Moderators are available for many types of rifle/shotgun. They reduce the peak sound without affecting the operation of the gun. If a moderator is available for the type of gun you are using, then you should fit one.

What do employers have to do about hearing protection?

You are required to:

- provide your workers with hearing protection if they ask for it and their noise exposure is between the lower and upper exposure action values;
- provide your workers with hearing protectors and make sure they use them properly when their noise exposure exceeds the upper exposure action values;
- identify hearing protection zones, ie areas where the use of hearing protection is compulsory, and mark them with signs if possible;
- provide your workers with training and information on how to use and care for the hearing protectors;
- ensure the hearing protectors are properly used and maintained.

Remember, you should **not** use hearing protection as an alternative to controlling noise by other methods.

Give HSE's pocket card *Protect your hearing or lose it!* to your workers to remind them to wear their hearing protection.

How to select and use hearing protection

Make sure the hearing protection selected is suitable for the working environment and compatible with any other personal protective equipment that needs to be worn, eg hard hats, dust masks, eye protection etc.

Whichever type of protector is used, it will only provide the assumed protection if it is in good condition, is the correct size and is worn properly. There are several types:

Earmuffs Make sure they totally cover your ears, fit tightly and there are no gaps around the seals. Don't let hair, jewellery, glasses, hats etc interfere with the seal. Try and keep the seals and the insides clean. Don't stretch the headband too much – make sure it keeps its tension.

Earplugs These can be difficult to fit properly, so practise fitting them and get help if you are having trouble. Often they can look like they are fitted properly, but they may not be giving you much protection. Clean your hands before you fit earplugs, and don't share them. Some types you use only once, others can be re-used and even washed – make sure you know which type you have.

Semi-inserts/caps Follow the same advice as for earplugs and make sure any headband keeps its tension.

There are other more sophisticated hearing protectors that provide additional noise control or are more suitable to protect against sudden impulse noise like gunfire. If in doubt, seek specialist advice.

Further reading

Noise at work: Guidance for employers on the Control of Noise at Work Regulations 2005 Leaflet INDG362(rev1) HSE Books 2005 (single copy free or priced packs of 10 ISBN 978 0 7176 6165 7)
Web version: hse.gov.uk/pubns/indg362.pdf

Protect your hearing or lose it! Pocket card INDG363(rev1) HSE Books 2005 (single copy free or priced packs of 25 ISBN 978 0 7176 6166 4)
Web version: hse.gov.uk/pubns/indg363.pdf

Practical solutions to noise problems in agriculture RR212 HSE Books 2004 ISBN 978 0 7176 2826 1 (also free to view on the HSE website)

Farmwise: Your essential guide to health and safety in agriculture Booklet INDG427 HSE Books 2009 www.hse.gov.uk/pubns/indg427.pdf

Further information

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This leaflet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

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