

PROTECTING YOUR HEARING



Invest In
Your Health

Educate. Prevent. Protect.

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Collaboration with the
AgriSafe Learning Lab.

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Training Overview:

Objectives: After the module, teens and young adults will be able to...

- Describe the basic anatomy and physiology of the ear
- Identify harmful exposures which have the potential to cause hearing damage
- Identify preventive strategies to reduce exposure to noise
- Describe appropriate selection and use of personal protective equipment



Developer:

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University of Michigan, School of Nursing

Dr. McCullagh's career has focused on occupational health and safety, particularly as it relates to the use of personal protection devices among farm operators and their families. Since 1985 she has had an active program of research in mitigating hazardous occupational exposures. She has conducted several randomized clinical trials, comparing the effectiveness of several approaches to influencing use of personal protective equipment. Dr. McCullagh is a Professor and Director of the Occupational Health Nursing program at the University of Michigan School of Nursing.



Classroom Activity #1: Self-Paced Learning Module

This e-learning module is designed for students to teach them about hearing protection, with a focus on working in agriculture. This module will take approximately 30 minutes for students to complete and is intended to be used in place of a lecture for students. If you would rather present the lecture-style presentation for your students, you can access the presentation slides using the link in the resources page at the end of this guidebook. Click the link below or scan the QR code to access this activity.



Scan to access the self-paced learning module.





Classroom Activity #2: AgriSafe Decibel Hunt

Learning objective: Determine the recommended time exposure limit for a variety of common noisy farm and recreational activities.


Activity: Students will download a sound measurement app appropriate to their smartphone (android or iPhone) if available. Using the app, measure sound level of selected farm and noisy activities. Using the table, determine the permissible exposure time for each noisy activity.

Instructor-led In-class discussion: Lead students in sharing data. Compare values. Rank noisy activities. Notice that different students may have measured different sound levels for similar activities. How can you explain these differences? Which activities fell above the “action level” of 85 dB? What are the implications for use of protective strategies for each of the activities falling about the action level? What surprised you about this learning activity? What did you learn? What about this would you like to share with your family and friends?

AgriSafe Decibel Hunt Activity sheet is found at the end of this Instructor Guide.

AgriSafe Decibel Hunt																											
 Decibel Reading _____ Maximum exposure limit (minutes) without hearing protection _____	 Decibel Reading _____ Maximum exposure limit (minutes) without hearing protection _____	 Decibel Reading _____ Maximum exposure limit (minutes) without hearing protection _____	 Decibel Reading _____ Maximum exposure limit (minutes) without hearing protection _____																								
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Classroom Activity #3: JeopEARdy! Game

Fun and interactive way to engage students on all aspects of hearing conservation. This game was developed and distributed by Jeopardy Labs

Definitions	Noise Control Strategies	Evaluation of Noise Levels	Hearing Conservation Program	Hodgepodge
100	100	100	100	100
200	200	200	200	200
300	300	300	300	300
400	400	400	400	400
500	500	500	500	500

MENU

Suggested wrap-up questions to follow the activity:

1. Which category did you think was the easiest? Which was the hardest? Why?
2. Is there a question that you found interesting? If so, why?



Scan to access
the Jeopardy
game.

Hearing Conservation Knowledge Test

Correct answers are marked with an asterisk ()*

1. Prolonged exposure to any noise above this level can cause hearing loss.

- a. 74 dB
- b. 85 dB *
- c. 105 dB
- d. 77 dB

2. According to a recent population-based study of Midwestern farmers, which gender is more likely to wear hearing protection than the opposite group?

- a. men*
- b. women
- c. use is similar in both groups
- d. none of the above

3. How do you know when noise is loud enough to cause damage?

- a. when your ears start to hurt
- b. when you get a feeling of fullness in your ears
- c. when you have to raise your voice to be heard 3 feet away*
- d. there's really no way to tell

4. Which of these statements about a disposable ear plug is incorrect?

- a. They cost about 15 cents a pair when purchased in quantity.
- b. They are the least expensive method of ear protection.
- c. They are generally the most comfortable for long-term use.
- d. Most people use them properly.*

5. Which of these statements about earmuffs is incorrect?

- a. They cost more than most earplugs.
- b. Some people find them hard to wear.*
- c. Fitting them is the simplest of all types of hearing protection.
- d. They can be shared among multiple users.

Hearing Conservation Knowledge Test continued

Correct answers are marked with an asterisk ()*

6. Which of these statements about the consequences of exposure to loud noise is incorrect?

- a. Loud noise causes fatigue, headache, cardiovascular disease, ulcers, and high blood pressure.
- b. People who work in loud noise without hearing protection are higher risk for injury at work.
- c. After a while of exposure to loud noise, your ears get tough and are no longer damaged.*
- d. The adverse effects of noise exposure are preventable.

7. When inserted correctly, hearing protectors can lower sound levels by about

- a. 15 decibels*
- b. 27 decibels
- c. 5 decibels
- d. 50 decibels

8. How can you tell if your earplugs are inserted properly?

- a. Your own voice sounds louder and deeper.
- b. The plugs don't slip out easily.
- c. The plugs are barely visible behind the tragus (bump on the front side of the ear).
- d. All of the above.

9. When should you use hearing protection?

- a. Whenever you are exposed to high noise*
- b. Whenever you think of it
- c. When your friends approve of using it
- d. When your parents make you use it

Hearing Conservation Knowledge Test continued

Correct answers are marked with an asterisk ()*

10. Which of these is an indication that you have been in hazardous noise?

- a. a dull, ringing sensation in your ears
- b. fatigue, headache
- c. irritability
- d. all of the above*

11. Many people are surprised to learn that hearing loss is not quiet; rather, it is frequently accompanied by this condition, which is a bothersome ringing or buzzing noise that interferes with sleep, and can cause depression.

- a. sinusitis
- b. tinnitus*
- c. rhinitis
- d. bronchitis

12. What would you say to a farmer who believes he cannot benefit from using hearing protection because he already has hearing loss?

- a. Even people who already have hearing loss save what hearing they have left*
- b. Hearing loss is part of farming, and can't be avoided
- c. Hearing loss is of little consequence
- d. Hearing loss is easily corrected with hearing aids

13. Which of these is the best type of hearing protector?

- a. Roll-down ear plugs
- b. Pre-molded ear plugs
- c. Ear muffs
- d. Any type, as long as you use it consistently*

Hearing Conservation Knowledge Test continued

Correct answers are marked with an asterisk ()*

14. What is the most common error in inserting roll-down ear plugs?

- a. Selecting the wrong size plug
- b. Failure to roll the plug down to a small cylinder*
- c. Selecting a plug that doesn't block enough noise
- d. Re-using a previously used plug

15. What are the most common barriers to farmers' use of hearing protectors?

- a. They think it will be difficult to communicate with co-workers
- b. They think that use of hearing protectors will make them miss sounds they want to hear
- c. They think that hearing protectors are a nuisance
- d. All of the above*

16. What are the major benefits of using hearing protection?

- a. Prevention of hearing loss and tinnitus
- b. Prevention of adverse health effects of noise exposure, such as high blood pressure and heart disease
- c. Preserving family relationships
- d. All of the above*

17. All hearing protectors are labeled with an NRR (noise reduction rating). Which of these statements about the NRR is not true?

- a. The NRR is expressed in decibels
- b. Decibels are a unit of measurement of loudness of sound
- c. The noise reduction rating of the hearing protector is based on its laboratory performance rather than its real-life performance
- d. The bigger the NRR, the better*

Hearing Conservation Knowledge Test continued

Correct answers are marked with an asterisk ()*

18. Loud noise commonly damages what part of the ear?

- a. Eardrum (tympanic membrane)
- b. Hair cells (stereocillia, and their related synapses)*
- c. Pinna
- d. Ossicles (malleus, incus, and stapes)

19. People with noise-induced hearing loss can expect

- a. The condition will improve over time
- b. The condition will improve with medical treatment
- c. The condition will improve with hearing aids
- d. The condition is permanent and will not improve*

20. Most farmers receive most of their hazardous noise exposure through these exposures:

- a. shop, tractor bystander, tractor operation*
- b. chain saw, pneumatic conveyor
- c. pressure washer, mower
- d. pig squeals, combine

21. Which of these statements about hearing conservation is true?

- a. All workers are protected by the OSHA Hearing Conservation Standard, which provides for hearing services including annual noise level monitoring, hearing screening, free hearing protectors, training, and supervision, where necessary
- b. Most farm operators are protected by the OSHA Hearing Conservation Standard
- c. Most farm operators are routinely exposed to hazardous noise at work*
- d. Most workers have access to workplace health programs that protect their hearing

Hearing Conservation Knowledge Test continued

Correct answers are marked with an asterisk ()*

22. What are things farm operators can do to reduce noise exposure?

- a. Wear hearing protection
- b. Keep equipment well-lubricated, properly adjusted, and maintained to block noise,
- c. Limit time spent in noisy areas, and keep as distant from noisy equipment as possible
- d. All of the above*

Find more information

The screenshot shows the AgriSafe Network website. The header includes the AgriSafe Network logo with the tagline "Protecting the People Who Feed the World". Navigation links include "News & Forums", "Learning Lab", "Health Hub", "Login with miniOrange", and a search bar. A secondary navigation bar lists "Home", "Health Topics", "Learning Opportunities", "Current Projects", and "About". The breadcrumb trail reads "AgriSafe Network > Healthcare Topics > Hazards > Hearing Loss Prevention". On the left, a "Health Topics" sidebar lists categories: A-G, H-O, Hazards, Healthcare, Hearing Loss Prevention (highlighted), Heat Related Illness, Mental Health, Musculoskeletal, and Opioids. Below this is a promotional banner for "QPR FOR FARMERS AND FARM FAMILIES" featuring a 1.5-hour training on stress, mental health, and suicide, presented by Linda Emanuel and Dr. Tara Haskins. The main content area is titled "Hearing Loss Prevention" and includes a "Hearing Loss Prevention Resources" box with links to Articles, Webinars, Fact Sheets, Booklets, and Brochures, and Websites. Below the resources box, a paragraph explains that noise-induced hearing loss is common in agricultural work and can lead to isolation and depression. It lists some key indicators, including frequently asking people to repeat things.

AgriSafe Network > Healthcare Topics > Hazards > Hearing Loss Prevention

Hearing Loss Prevention

Hearing Loss Prevention Resources

- Articles
- Webinars
- Fact Sheets, Booklets, and Brochures
- Websites

Noise-induced hearing loss is common in agricultural work. In fact, agriculture is listed in the top 3 occupations that cause hearing loss. Noise-induced hearing loss is permanent and can lead to a diminished quality of life. Studies have shown it can contribute to isolationism and depression. Hearing loss is usually gradual and may go unnoticed for several years, and it does not only effect older adults, but effects all ages, including young adults and teens.

Some key indicators of hearing loss include:

- Frequently asking people to repeat things

Resources:

- [Have you heard? Hearing Loss Caused by Farm Noise is Preventable! - CDC & NIOSH Brochure](#)
- [Hearing Loss Prevention: Adapting the Hearing Conservation Program for Agriculture - AgriSafe](#)
- [They're Your Ears: Protect Them - NIOSH](#)



Scan to view additional
resources.

Support provided by



AgriSafe Decibel Hunt

Livestock Building



Decibel Reading _____

Maximum exposure limit (*minutes*)
without hearing protection _____

Grain Auger/Grain Bins



Decibel Reading _____

Maximum exposure limit (*minutes*)
without hearing protection _____

Music Room



Decibel Reading _____

Maximum exposure limit (*minutes*)
without hearing protection _____

Tractor or Lawn Mower



Decibel Reading _____

Maximum exposure limit (*minutes*)
without hearing protection _____

Woodshop



Decibel Reading _____

Maximum exposure limit (*minutes*)
without hearing protection _____

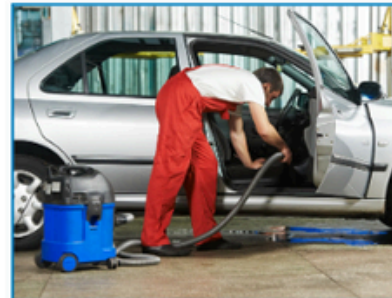
Mobile device/ear buds



Decibel Reading _____

Maximum exposure limit (*minutes*)
without hearing protection _____

Vacuum



Decibel Reading _____

Maximum exposure limit (*minutes*)
without hearing protection _____

Indoor stadium



Decibel Reading _____

Maximum exposure limit (*minutes*)
without hearing protection _____

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