



"On the Farm" Radio



Serving the Rural and Agricultural Community in the Mid-Atlantic Region

Farmers: Can you hear me now?

Hearing protection devices for farmers put to the test

By Jeff Ishee

See samples of hearing protection below

Most everyone in a rural community knows personally or has met a farmer who, engaged in conversation, will lean over, cup a hand to his ear and ask "Would you mind repeating that?" It is regrettable that many farmers and other agricultural workers suffer significant hearing loss. This irreversible condition usually occurs after years and years of being continually subjected to loud noises.

Fortunately, hearing loss in agricultural and industrial settings is completely preventable through a combination of quieter equipment and the use of appropriate hearing protection.

"On the Farm" Radio decided to try out some of the most popular hearing protection devices to determine their effectiveness. Our research was not conducted in a scientific manner; instead, we simply wore the devices as directed by label instructions in various noisy environments. Situations included brush-hogging a field with a rotary mower and diesel tractor; clipping a pasture with a gasoline-powered mower; using a 5-HP wet-dry vacuum; and operating a chain saw. All of these situations are typical for a small farm.

Numerous studies have found a great deal of hearing loss in farming; in fact, more so than in most other types of work according to the National Safety Council. This is generally related to loud noises produced by farm equipment such as tractors, generators, pumps, blowers, livestock, chain saws, etc.

One thing I learned in my former career as an acoustic analyst (sonar technician) with the U.S. Navy is that hearing loss is permanent. Our hearing was tested periodically using advanced audio test equipment and we were often advised by physicians that once the nerves in the inner ear are damaged by loud noises, they never heal.

While a single noise such as an explosion may cause permanent damage, hearing loss is more often caused by regular exposure to excessive noise over a period of many years.

In a recent study of noise generated by farm equipment and tractors, the National Safety Council found that many types of machines exceed the OSHA recommendations for human noise exposure. Some chain saws and farm tractors without specially designed acoustical cabs produced noise well in excess of 90 decibels (dB). Experts agree that continued exposure to noise above 85 dB over time, will cause hearing loss.

Hearing-protection devices are ranked by their Noise Reduction Rating (NRR). An NRR-31 rating signifies that a noise will be reduced by as much as 31 decibels under ideal conditions. For example, in a 100 dB work area, a device with a NRR of 31dB would reduce the effective sound level to 69dB.

Personal protection equipment is essential for farm workers who wish to cut down on noise exposure. The three basic



Protect and save your hearing by:

- * Reducing the noise exposure around your farm workplace. If you can't physically move away from the noise source while you work, some type of environmental adjustment should be made, including the repair of loud mufflers or enclosing loud vacuum pumps and air compressors.
- * Wearing hearing protection.
- * Having your hearing tested regularly.



How do you know if you are suffering hearing loss?

- * Your ears seem to ring a few hours after you get off the tractor following a day's work
- * You find yourself straining to hear at farm meetings or in church
- * Family members ask why you have the TV or radio turned up so high
- * You sense a ringing or buzzing in the ears
- * You have difficulty understanding voices (especially of women and children)

types of hearing protection are ear muffs, active noise cancelling headsets, and ear plugs.

Ear Muffs are highly effective. The noise reduction provided by ear muffs varies widely due to differences in size, shape, seal method and type of suspension.

Active Noise Canceling Headsets use an electronic system to cancel unwanted background noise while at the same time enhancing the quality of audio delivered

through the headset. Often used by private pilots for in-flight noise reduction, more and more farmers are seeing the advantage of this type of device.

Ear Plugs are available as pre-formed inserts made of rubber, plastic or foam. For agricultural use, cotton should not be used for the purpose of reducing noise exposure. A report from the Centers for Disease Control found cotton cannot block out high-frequency sound and will provide no protection from high sound levels.

Samples of hearing protection available:

NoiseBuster Industrial headset

Of all the devices we tested, this headset provided the highest level of both active and passive noise reduction. Unlike traditional passive-only earmuffs, the NoiseBuster headset provides more complete protection from a wider range of noise frequencies, particularly the low frequency noise generated by lawn equipment and many power tools. This unit uses a microphone inside the ear cup to listen to noise coming into the ear. The system analyzes that information and uses it to create a noise wave that is identical to, but directly opposite of, the one coming into the ear. The "anti-noise" wave is output through a speaker, also located in the ear cup. When the two waves (the noise wave and the anti-noise wave) meet, the noise is significantly reduced.



The passive component of the NoiseBuster Earmuff cuts mid- and high-frequency noise by as much as 26 dB. The electronic noise canceling electronics provide up to 20dB of added low-frequency noise reduction. Place this headset over your ears and flip the switch to "on" and you are suddenly in a very quiet environment.

We liked the NoiseBuster's audio input feature, which makes it an excellent choice for users who want to listen to an mp3 player or radio while they work. Mowing an open field is somehow more enjoyable when listening to George Strait or Allison Krauss, rather than the steady laboring of a diesel engine.

We also greatly appreciated the adjustable headband which allowed the use of a wide brim hat while wearing the headset. The product delivers excellent audio quality, comparable to that of higher-priced, noise canceling audio headphones currently on the market. The Safety Earmuff is priced at \$149. Find info at www.noisebuster.net.



"On the Farm" Radio



Serving the Rural and Agricultural Community in the Mid-Atlantic Region

John Deere Noise Canceling Headset



Farmers and homeowners can combat equipment noise with a new, industry-first John Deere Noise Canceling Headset. Strenuously tested, these headphones silence ambient equipment noise while providing increased hearing capacity for essential sounds like children, cars, animals and human speech. We found a truly amazing difference in the overall noise environment when using this comfortable headset. Just turn the switch to "on" and there is a dramatic reduction in outside noise.

With a total weight of nine ounces (half the weight of most models of this type), the John Deere Noise Canceling Headset can be worn comfortably for extended periods of time. We found mowing the lawn or using a leaf blower to be almost enjoyable when wearing this device. It features full-size swivel ear cups and is made from material that limits sweating, which makes it ideal for outdoor use.

The John Deere Noise Canceling Headset also allows the input of an external audio device such as an MP3 player. Volume control is adjusted either on the headset or on your portable music device. Battery life is approximately 35 hours.

Active noise reduction is rated at 18dB, which makes this headset ideal for lawn mowers, farm tractors and other non-industrial, relatively quiet outdoor equipment.

The John Deere Noise Canceling Headset is available at select John Deere dealers and all Lowe's Home Improvement stores. The headsets can also be found at www.johndeeregifts.com. Suggested retail price is \$89.99.

Ear Muffs

Numerous brands on the market offer a widely ranging NRR rating of 21 to 31dB hearing protection. Acoustical muffs, or ear muffs, are effective in reducing sound level at the ear. They cover the ear and ear canal to provide a barrier to sound. They do not block out all sounds, therefore, conversation for information and safety purposes is readily heard.

The effectiveness of an earmuff is determined by the headband tension and fit of the domes over the ears. If headband tension decreases either by routine usage or by deliberate modification by the wearer, noise reduction decreases.



Retail prices generally range from \$8 to 20.

Ear Plugs



Earplugs work by blocking the ear canal. Properly inserted earplugs are not uncomfortable or painful. The most common problem with earplugs is that they are not seated deeply enough in the ear canals. Partial insertion results in poor noise reduction, poor retention, and discomfort. When plugs are properly inserted, there will be a slight sensation of pressure, and the wearer's voice will sound louder and more resonant. There will also be some resistance when the user pulls gently on the earplug.

Common NRR ratings are 26 to 33 dB. The 3M product pictured at right has a NRR of 29.

Retail prices generally range from \$2 - 5.

Contact "On the Farm" Radio - P.O. Box 137, Mount Sidney, VA 24467 - (540) 363-3938

Copyright 2006 - All rights reserved

on the farm radio farm news syndicated farm broadcast agriculture radio Mid-Atlantic farming agribusiness Virginia farming Maryland farming West Virginia farming Tennessee farming Pennsylvania farming North Carolina farming pearls of wisdom farm audio files Virginia farming television