



MASTER GARDENER PROGRAM THINKING SAFE AND GREEN



**AGRICULTURE AND NATURAL RESOURCES
ENVIRONMENTAL HEALTH AND SAFETY**

#15

HEARING PROTECTION

Information given here is intended for use by program representatives, master gardeners, and those they train.



According to information from the National Institute for Occupational Safety and Health (NIOSH), 25% of employees age 55 or older have developed significant hearing impairments when exposed long term in the workplace to an average noise level of about 90 decibels (dBA).

English and Spanish language safety videos on hearing protection are also available for loan from the ANR Environmental Health & Safety Library at <http://safety.ucanr.org>.

Noise Hazards

- Noise can damage hearing when it is continuously at about 90 dBA or greater.
- Noisy work areas can elevate anxiety, hypertension, and fatigue in employees.
- Noise-induced hearing loss is permanent and occurs progressively over time.
- The following table lists recommended exposure times without hearing protection for noise hazards and levels routinely encountered in agricultural settings:

| <u>Noise Hazard</u> | <u>Level of Noise</u> | <u>Recommended Exposure Time</u> |
|-----------------------------|-----------------------|---------------------------------------|
| Dynamite blast, gunshot | 140 dBA | None |
| Chainsaw | 115 dBA | 15 minutes or less |
| Barn fan, combine | 110 dBA | 30 minutes |
| Table saw, grinder, tractor | 100 dBA | 2 hours |
| Shop vacuum | 98 dBA | 3 hours |
| Lawn mower | 90 dBA | 8 hours |
| Idling tractor | 85 dBA | Damage can occur if exposure >8 hours |

Preventing Hearing Damage

- Always use hearing protection (i.e., acoustic ear muffs or ear plugs) when working in an environment where noise levels are continuously at about 90 dBA or higher.
- Warning signs for overexposure to noise include ringing in the ears (called tinnitus) and temporary loss of hearing sensitivity (called temporary threshold shift).
- Select and use hearing protection with an appropriate noise reduction rating (NRR) to reduce ambient noise to below 90 dBA.
- Be aware that the manufacturer's NRR was derived under ideal conditions and therefore, a more realistic rating for use in the field is about one-half the manufacturer's NRR.
- Hearing protection worn incorrectly may not adequately reduce noise exposure.
- Cotton balls do not effectively provide hearing protection.
- Noise levels follow the inverse square law and can be reduced by 25% if you double your distance from the noise source (i.e., moving from 5 to 10 feet from a 100 dBA source will reduce the noise level to 75 dBA).



Protect Your Ears