



Safety Note

UNIVERSITY OF CALIFORNIA
AGRICULTURE AND NATURAL RESOURCES
ENVIRONMENTAL HEALTH AND SAFETY



Safety Note #24

HEARING PROTECTION



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). Hearing protection for agricultural employees is addressed under California Code of Regulations Title 8, Sections 5095 and 5096. **English and Spanish language safety videos on hearing protection are also available for loan from the ANR Environmental Health & Safety Library at (530) 752-3933.**

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).
- Fully insulated tractor cabs may provide adequate hearing protection. Review the owner's manual to verify the noise protection level provided by the tractor cab.