



COOPERATIVE EXTENSION SERVICE
COLLEGE OF TROPICAL AGRICULTURE
UNIVERSITY OF HAWAII

General Home-Garden Series #19

Noise Pollution

Noise is any unwanted sound. It may be a blast or a whisper. The same sound may be music to one person, but irritating to another. The difference between noise and beneficial sound is often a matter of opinion. Sound which is inappropriate or untimely, or that which cannot be associated with necessary events can be distracting. Distracting noise lowers a person's work efficiency and affects his mental health. Many people become irritated and nervous in the presence of a constant noise, even though it may not be distracting at first.

Sound pressure levels (noise levels) can be measured in decibels as indicated in Table 1.

The Effects of Noise

The most specific effects of noise are on hearing. A loud blast, such as an explosion deafens everyone momentarily. Permanent hearing loss, however, comes only from repeated or continuous exposure to noise of 80-85 decibels or higher. The high community noise level - traffic, T.V., sirens, planes overhead, lawn mowers, vacuum cleaners and car horns - are suspected of helping account for the deafness of older people on the U.S. Mainland and in Hawaii.

Noise raises blood pressure, lowers efficiency and triggers ailments such as ulcers and allergies. Studies at one university indicated that the average person spends one-fifth of his energy fighting noise. When noise level is reduced, worker output increases and absences and worker turnover drops.

How To Control Noise

The use of improved mufflers for cars, trucks and motorcycles would help reduce traffic noise - the most annoying noise of all. The use of materials for quieter road surfaces and use of quieter tires would also help. Perhaps the most important of all is each individual's concern for his neighbor.

To reduce noise in the home several things may be done. Build the home as far back from the street or other source of noise as possible. Living areas should be located as far from the noise source as is practical. Outdoor living areas should be near the house so that it serves as a barrier to noise. The use of double wall construction with insulation materials in the walls, of double windows especially on the side of the house facing the noise source, the use of drapes, of carpets with a pad underneath are also effective. Lined cotton, rayon and rayon-acetate draperies pleated to 50% of the unpleated area are effective in reducing noise. Fiber glass draperies are ineffective for controlling noise.

For washers and dryers, and other electrical appliances apply acoustical sound deadening tile or panels to ceilings and walls and locate as far from the living area as possible.

To reduce external noises, plants are effective. The most effective noise barrier is a massed planting that forms a deep barrier from ground level to the height desired. However, solid plantings are unnecessary. Plantings can be spaced out, graduating from low to high as they approach the home. Properly placed plants will pay large dividends in noise control for homes located near streets, highways and industrial sites. Use of walls or earth embankments will also increase the effectiveness of plantings for noise control.

Objectionable noise may be masked by a continuous, obstrusive sound that has pleasant associations for almost everyone. Soft music, a quiet fan, or air conditioner for indoors, and fountains or artificial waterfalls outdoors are suitable for this purpose. However this masking technique has its limits - up to about 35 decibels which is still barely noticeable.

Table 1 The quality, sources, and some effects of noise levels

<u>Sound Quality</u>	<u>Decibels</u>	<u>Noise Source</u>
Extreme Nervousness and often death of mice & small animals	160	Loud blast, explosions, etc.
Rupture of eardrums	140-150	Jet taking off, sonic booms.
Painful to ear	120-130	Sirens, rocket engine, jet motors for take off, ram jet, roar of two-engine propeller airplane.
Deafening	100-110	Boiler factory, thunder, car horn at 3 feet, motorcycle, loud power lawn mower, nearby riveter, drop hammer.
Very loud	80-90	Woodsaw, portable sander, food blender, traffic noise, noisy factory, very loud television, police whistle, noisy cocktail party, barking dogs, slamming doors, reveving car motors.
Loud	60-70	Noisy office, average traffic, squealing of tires on parking ramps, usual radio and television, average factory, city playground, vacuum cleaner.
Moderate	40-50	Suburban playgrounds, noisy home, average office, ordinary conversation, quiet radio, average restaurant.
Faint	20-30	Quiet home, private office, average auditorium, quiet conversation, average classroom or courtroom, a whisper at 5 ft.
Very faint to threshold of audibility	0-10	Rustling leaves, breathing, whisper, soundproof room.

Wade W. McCall
Soil Management Specialist

November 1976--2M