Two Case Studies: Cost of quiet circular saws, and lawnmowers

David A. Nelson, INCE Bd. Cert.
Principal Consultant, Nelson Acoustics
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Part 1: Circular Saws

The cost of purchasing quieter equipment is not easy to determine. Most equipment manufacturers do not specifically identify quiet and less quiet equipment for sale (i.e., noise control package). Some do not even publish noise data, perhaps out of concern over liability, keeping their noise emission levels a closely guarded secret. In general, there is a consensus that most equipment is getting quieter (at least relative to its nameplate power), but in the current data-poor environment it is difficult to be certain.

Where published noise emission data is available, a survey of costs may reveal interesting information. As an example, a data mining approach was used to assess the purchase cost-benefit of noise from circular saws. Noise emission under loaded conditions has been tabulated by NIOSH for 17 current 7.25-inch circular saws (NIOSH Power Tools Noise database). Internet searches revealed the typical sale price of each saw. A least-squares trend line through the data indicates that for each additional $15 spent on the saw, the noise emission level drops 1 dBA. The correlation coefficient of the data set to the trend line is 62%.

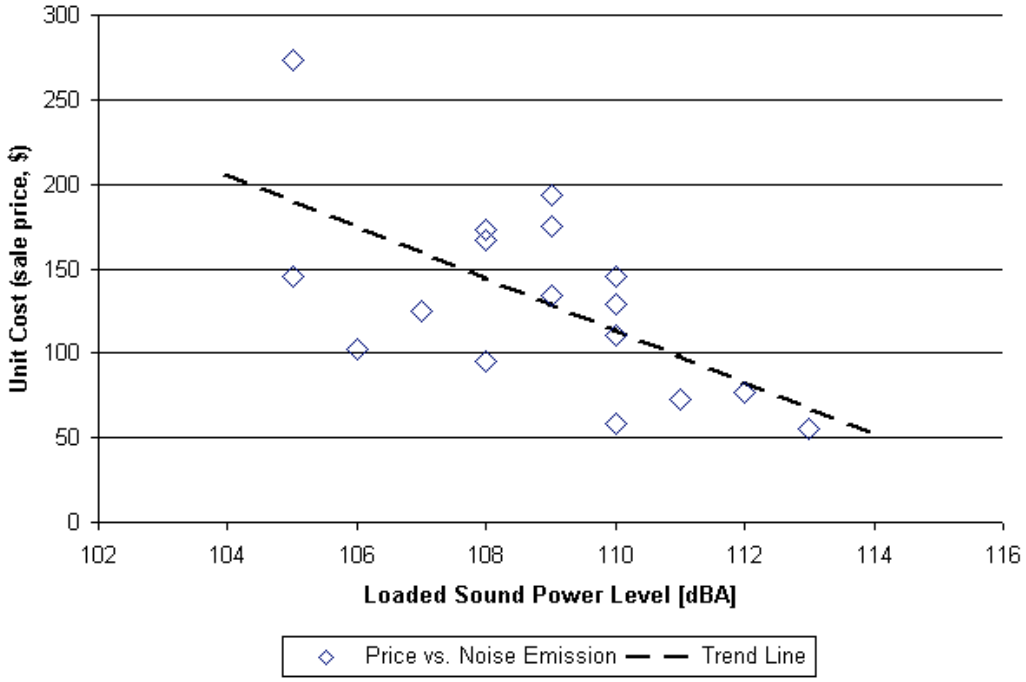

Figure 1: Correlation of cost and noise emission, 7.25-inch circular saws

Part 2: Lawnmowers

By contrast, a similar study of mowers (using data provided by Noise Pollution Clearinghouse) yields no discernible trend (correlation coefficient < 1%). This isn't necessarily a bad outcome: if it's possible to buy a quiet unit for the same price, then all one needs is noise emission data to inform the purchasing decision. The cost of quiet may actually be negligible in some equipment groups.

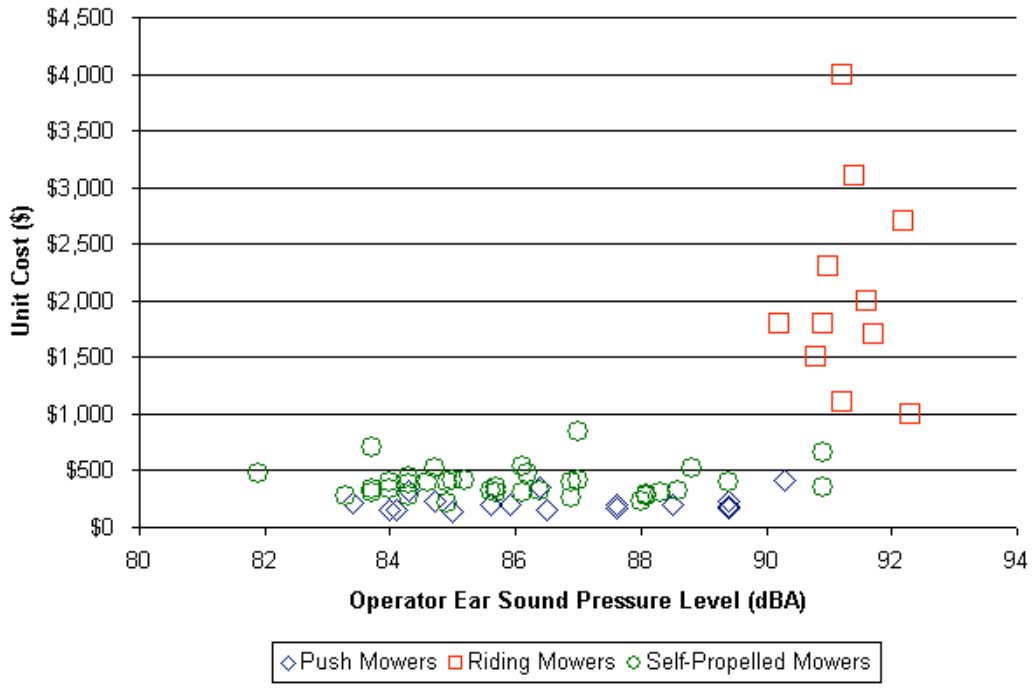

Figure 2: Correlation of cost and noise emission for cost mowers

Conclusion

A strong negative correlation between unit cost and noise emission exists for 7.25-inch circular saws. Noise emission was reduced approximately 1 dBA for each additional $15 invested in the tool. By contrast, there was no correlation between unit cost and noise emission for lawnmowers. With research it should be possible to locate a cost-effective lawnmower with equal or lower noise emission.