



### Introduction & Need for Research

- SBAE programs often use tools that exceed the 85 dB NIOSH limit, creating long-term hearing risks.
- Research on safety culture has focused on mechanics labs, leaving horticulture underexplored.
- Teachers and students may underestimate risk in greenhouse, nursery, and landscape settings.
- Study explores gaps in PPE use, teacher expectations, and motivational factors for safety.

### Theoretical Framework

- Guided by the Theory of Planned Behavior (Ajzen, 1991).
- Examines how attitudes, social norms, and perceived control shape PPE use.
- Links teachers' beliefs and thresholds to actual safety behaviors.
- Provides a lens for identifying why hearing protection is inconsistently applied in horticulture.

### Methods

- Conducted during the Hort Short Course at SFASU.
- Eleven instructor participants completed the instrument.
- Survey covered:
  - PPE use across six common horticulture tools.
  - Expectations for student PPE use.
  - Decibel threshold for personal PPE.
  - Rank-order of eight safety motivators.
- Responses were analyzed using descriptive statistics to identify trends and gaps.

# HEARING Rooted in SAFETY: Unearthing PPE Practices in Horticulture

### Thresholds for PPE Use

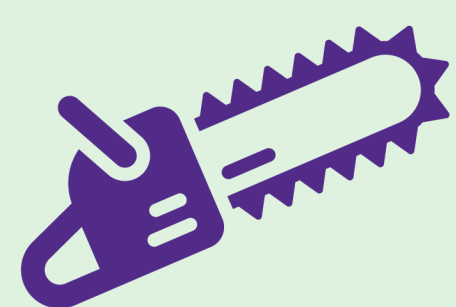
- Average reported threshold = 88.75 dB.
- Slightly higher than the NIOSH 85 dB limit, but closer than in past studies.
- Suggests improved awareness of auditory risks among SBAE horticulture teachers.
- Despite awareness, PPE use did not consistently match thresholds.

### Safety Motivation Factors

- “Keep Students Safe” (M = 2.00; SD = 2.45)
- “Keep Classrooms Safe” (M = 3.57; SD = 1.40)
- “Keep Aligned with Policy” (M = 4.43; SD = 1.59)
- “Promote Student Awareness” (M = 4.43; SD = 1.68)
- “Keep Campuses Safe” (M = 4.57; SD = 2.06)
- “Prespare Students for Workforce” (M = 4.71; SD = 1.83)
- “Keep Equipment Safe” (M = 6.00; SD = 1.41)
- “Conserve Materials” (M = 6.29; SD = 2.55)

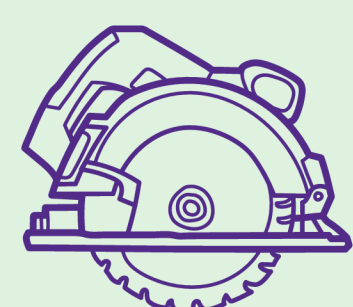
### Personal PPE Use | PPE Use Accuracy

25% | 25%



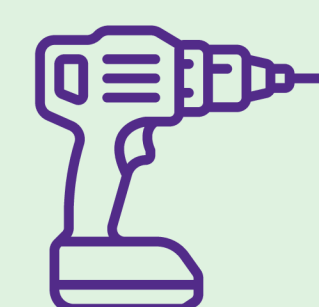
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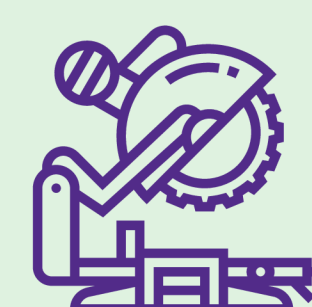
43%

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10%

18% | 18%



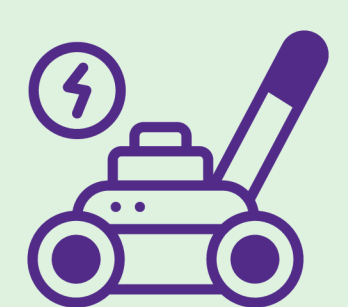
30%

10% | 30%



25%

0% | 83%



25%

### Expected Student PPE Use

### Implications & Recommendations

- Teachers' awareness of safe decibel levels may be improving, but PPE use lags behind. Professional development may close this gap.
- Perceived tool decibel level does not always match known levels. Training should stress tool-specific decibel data.
- Since teachers ranked student safety as their highest motivator, framing training around students may be the best PD approach.
- Hearing safety should be emphasized in all SBAE contexts (i.e., horticulture), not only in agricultural mechanics.
- Create PD and curricular resources that encourage consistent hearing PPE practices in horticulture classrooms and greenhouses.

