

An Examination of Agricultural Mechanics Laboratory Safety Conditions in Texas: Perceptions from Texas AFNR Teachers who Supervised Students Competing in the 2019 San Antonio Junior Agricultural Mechanics Project Show

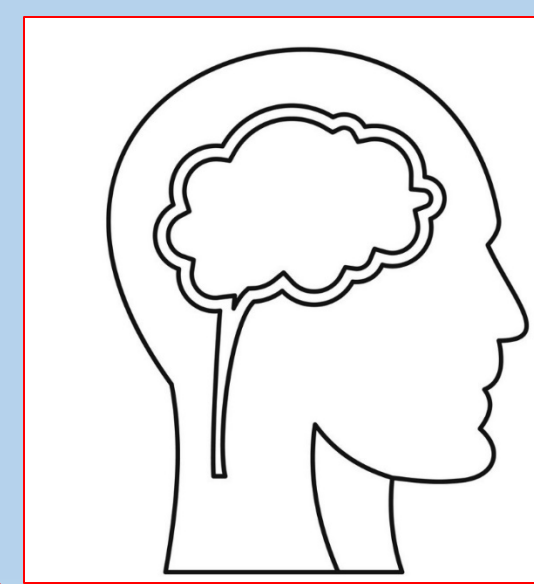
INTRODUCTION

- Agricultural mechanics courses have been a **significant part of the agricultural education curriculum** since its inception and are **popular** across the United States (Anderson, Velez, & Anderson, 2014).
- The agricultural mechanics classroom and laboratory offer **unique experiences** for many students, providing **real-world engagement** in the context of a safe learning environment (Langley & Kitchel, 2015).
- Safety** in the agriculture mechanics laboratory is a **major concern** for teachers, students, parents, and administration (Clay, 2017).
- Accidents** that occur in the agricultural mechanics laboratory **can be reduced** when these facilities are managed by educators who **are competent** in the **area of laboratory safety** and facility management (McKim & Saucier, 2011).

THEORETICAL FRAMEWORK

- To guide this study, the **Theory of Planned Behavior** (TPB; Ajzen, 1991) was utilized.
- The TPB is based on the proposition that an individual's behavior is a direct function of the behavior intention with behavioral intentions being shaped by attitudes, subjective norms, and thus, shaping perceived behavioral control (Fogarty & Shaw).
- TPB suggests that an individual's intentions, or attitude, and exposure to subjective norms and perceived behavioral control (internal and external), play a role in the behavior they will present in a given situation.

RESEARCH QUESTIONS

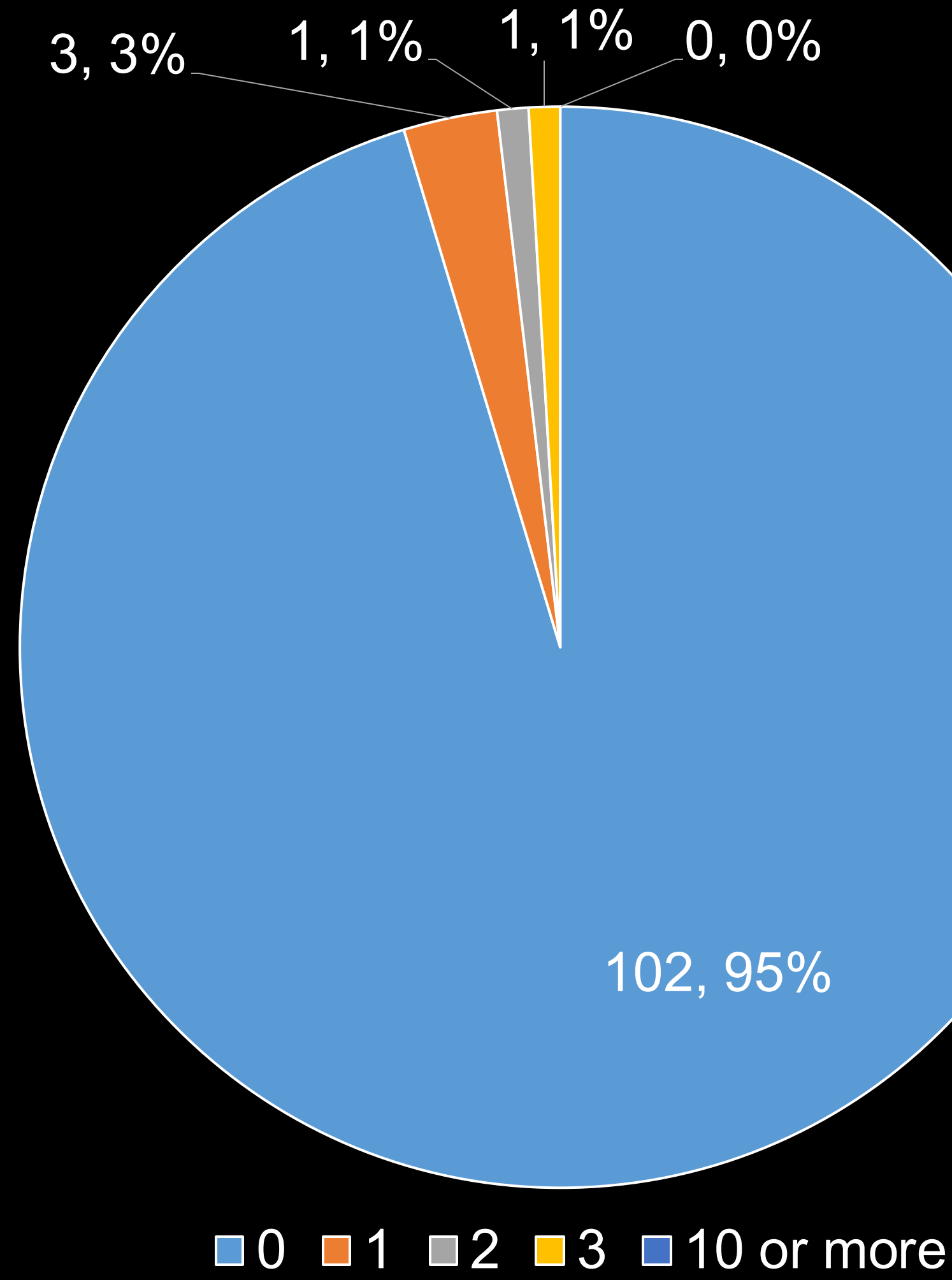


What are the personal, professional, and program demographic characteristics of Texas Agricultural, Food, and Natural Resource teachers, who supervised students who competed in the 2018 San Antonio Junior Agricultural Mechanics Project Show?

What are safety conditions of the agricultural mechanics laboratories in which these teachers instruct students?

RESULTS

Number of Major Injuries for the 2017-2018 School Year

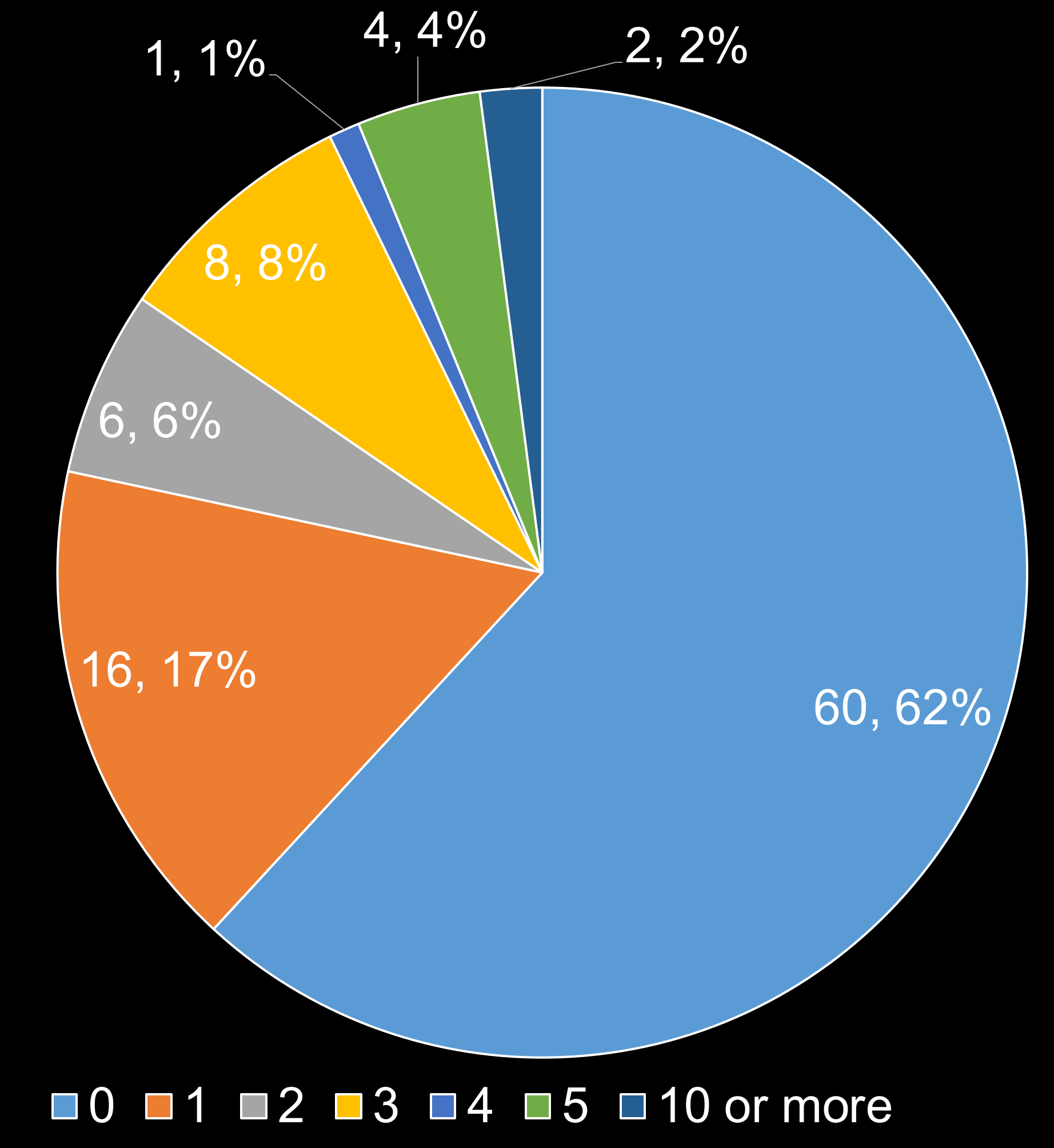


* 95% of AFNR teachers reported that they experienced no injuries in the agricultural mechanics lab.

Budgets of Texas Agricultural Education - Mechanics Programs (N = 120)

Budget(s)	M	SD	Min	Max
Department	\$25,689.80	\$29,401.83	\$2,500	\$200,000
Agricultural Mechanics Course	\$10,009.78	\$12,733.08	\$0.00	\$100,000
Personal Protection Equipment	\$3,505.45	\$5,892.12	\$0.00	\$40,000
Consumables	\$4,858.43	\$6,993.29	\$0.00	\$40,000
Tools and Equipment	\$4,263.16	\$7,849.68	\$0.00	\$60,000
Laboratory Size (ft ²)	4,477.39	5,476.35	160	40,000

Number of Minor Injuries for the 2017-2018 School Year



* 62% of AFNR teachers reported that they experienced no injuries in the agricultural mechanics lab.

PURPOSE

A sub-study of this census was to determine the safety conditions of agricultural mechanics laboratories that Texas AFNR teachers who supervised students that competed in the 2018 San Antonio Junior Agricultural Mechanics Project Show taught in and their personal, professional, and program demographics.

METHODS

- Agriculture science teachers were presented with a booklet style questionnaire. The population for this study was determined by the number of participating Texas AFNR teachers who attended the San Antonio Agricultural Mechanics Project Show in 2018 (N = 120) and who were present at a show meeting.
- Prior to this show, **a panel of experts** (n = 5), with experience in agricultural education and agricultural mechanics, were used to **evaluate the instrument for face and content validity**. Based upon their suggestions, the instrument was revised and a **pilot test** (n = 17) was then conducted to **ensure reliability**.



CONCLUSIONS & IMPLICATIONS

- Respondents were mostly male, white, middle-aged, and mid-career who taught in older, but functional agricultural mechanics laboratories with ample teaching budgets.
- Teachers indicated that only a few minor and major accidents that occurred in the previous academic year.
- Recommendations suggest that teacher educators and in-service providers understand the actual safety conditions and equipment used in agricultural mechanics laboratories across the United States.
- AFNR teacher preparation can be improved by offering an industry skill-based, STEM related, and rigorous undergraduate teacher education program and impactful continuing education workshops for existing teachers.



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