Abstract

The agricultural mechanics laboratory, that is a part of the agricultural science and technology instructional program in Texas public schools, has over the years become a key component of the instructional programs. Four classes, as outlined in the Texas Essential Knowledge and Skills (TEKS) that focus on mechanical skills and include: Principles of Agricultural, Food, and Natural Resources, Agricultural Mechanics and Metal Technologies, Agricultural Facilities Design and Fabrication and Agricultural Power Systems.

Most agricultural mechanics laboratories are used to 4 to 5 class periods per day sometimes with more than one class at a time meeting in the facility. The questions that arise is how safe are the labs and are they equipped to handle the classes and number of students in each class.

This study was a preliminary study conducted as a part of the AGD 581 Methods of Teaching Agriculture in the Public School. Six graduate students visited 11 high schools and compiled data in the following areas: foot candles of light available, hours of use per day, and safety equipment, etc. The results will be shared with the participants.

Materials and Methods

Six graduate students enrolled in AGD 581 visited 11 high schools’ agricultural mechanics laboratories in FFA areas VI and IX to determine the extent to which safety issues existed such as: efficient lighting, number of students per lab, paint room accessibility, safety equipment, safety lanes, line of sight, shop cleanliness, and safety exams. To ensure that all researchers would observing the same factors, the survey used to record the findings was developed prior to data collection.

Students in pairs visited 11 laboratories during the fall semester of 2014. To determine the footcandles light intensity, a handheld footcandle meter was placed in a central location at work height on the tabletop in the shop area with all overhead doors down and all the lights on. The type of lighting source was also observed. Safety equipment observed included fire extinguishers, eyewear, eye wash stations, and smoke detectors. Line of sight was determined by entering the teacher’s office and observing whether or not students could be clearly seen from the office when students were in the shop area. The number of students enrolled in each class was determined from the teacher’s role sheets. The measure cleanliness was somewhat subjective. Researchers were instructed to observe such things as clutter on the floor, tools not put up, or unsafe storage practices.

Results

In summary, all schools had some safety issues that needed to be resolved. One of the most glaring issues is the lack of a paint rooms that meet industry standards. Also lighting needs to be addressed so that students working in the lab have ample light to see their work surface. An average of fifteen students in the shop area at a time is a safe and workable number. Twenty-seven students in the shop at one time is a dangerous situation which could lead to accidents even with good supervision. Every school required students to pass the safety test before entering into the agricultural labs, but not all schools had proper safety equipment. At least two of the schools did not have water in the shop area so students did not have access to emergency showers or eye wash stations and eight of the schools did not have traffic lanes painted on the floors for safety.

Acknowledgements

The graduate students in AGD 581 wish to knowledge the help and support of the 11 school districts surveyed in this study.