Abstract

The agriculture 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 courses. Four courses, 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.

Introduction

As a part of the class assignment for AGD 581, Methods of Teaching Agriculture in the Public School, six graduate students spent time traveling to eleven high schools. Areas VI and IX, to gather information about the agricultural mechanics laboratories at those particular schools.

The graduate students gathered information that would better prepare them to manage an agricultural mechanics laboratory in a teaching situation, especially in the area of laboratory safety. The graduate students had several meetings to determine the items to include in the overview of shop safety. The following objective was developed:

Objectives

The objective of this study was to: determine if safety issues related to light intensity, paint rooms, line of sight, number of students enrolled per class, shop cleanliness, ventilation, and other safety equipment existed within the agricultural mechanics laboratories that were examined.

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 zones, line of sight, shop cleanliness, and safety exams. To ensure that all researchers would be 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 table top 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, eyewash stations, fire alarm systems, eye wash stations, and traffic lanes. Line of sight was determined by entering the teacher’s office and observing whether or not students could be easily 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 room 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.

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