

Incorporating an Electronic Scoring System into an Agricultural Mechanics Show

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Introduction

FFA and 4H have a foundation in supporting leadership skill and development through extra-curricular events (Hoover et al., 2007). These events come in the form of formal and informal activities such as conferences, camps, and competitive events. Each discipline in agricultural sciences has their own unique competitions. In the agricultural mechanics pathway, some examples include career development events, speaking competitions and agricultural mechanic project shows. Agricultural mechanic project shows require exhibitors to design, construct, finish and showcase various agricultural mechanic projects (JAM Show, 2023). Similar types of projects are placed into classes to be judged by industry experts (example of classes: Feeders & Troughs, Wildlife, Bumper Pull - over 12 ft. to 16 ft., etc.). Classes are grouped into divisions and all of the divisions make up the full show. Specifically, in Texas, agricultural mechanic project shows take place at smaller county competitions and major livestock show events. The largest agricultural mechanics project show in 2023 had 737 projects in attendance. Previous record keeping of project judging and reports were hindered by time needed to manage physical copies and required significant organization. The purpose of implementing an electronic scoring system for agricultural mechanics project shows is to improve accuracy, consistency, and efficiency of records within the project judging process.

How it Works

Over the last three years, the electronic scoring system (ESS) has been used in several agricultural mechanics project shows ranging from smaller county shows (10-30 projects) to major shows (500+ projects). Regardless of size, implementation is possible through the use of a software program: Smartsheet, a project management software. Entry data, such as exhibitor information, project description, and classification assignment were uploaded into the software and filed into a master spreadsheet. The administrators of the program push the data into the class assignments for judging purposes. Separate google accounts were developed so each judging class had access to the needed information. This method provided ease of access and transition of responsibility related to their lead roles in the judgement process. Each judging team was also equipped with a Wi-Fi enabled tablet that was preloaded with the Smartsheet application as well as the class judging information for that day.

As the software was developed, a project show superintendent worked on identifying judges. The San Antonio Livestock Show and Rodeo holds the largest junior agricultural mechanics show in the nation. 47 judging teams were needed to evaluate all of the projects in an eight-hour time period. Each judging team requires three individuals from industry or educational backgrounds. Most individuals have judged shows before or have participated in them at some level.

Once judging teams have been assigned and the tablets distributed to the judging teams, judging begins. Typically, this occurs at 8:00 am. Judging teams were assigned to evaluate 15 to 20 projects. Judging teams are expected to evaluate the project in six categories: workmanship, design, documentation, presentation, safety, and degree of difficulty. Workmanship is evaluated on the overall fabrication such as weld quality, squareness, and finished appearance. Design is evaluated on functionality and practicality of the project. Each exhibitor or exhibitors are tasked with creating a collection of written materials of their project. The documentation section includes scale drawings, building processes, bill of materials and safety data sheets of inputs to the project. Each project also has an exhibitor or exhibitors that present how they built the project. Presentation is evaluated on their knowledge and speaking ability regarding the project.

Safety is judged on how the project was displayed and was built and finally, degree of difficulty evaluates the sophistication of the project in relation to the exhibitor's experience. Judges are tasked with evaluating the project by inputting a number (1-10) into the ESS system for each criterion for each project. Once the scores are input, a weighted total out of 100 points is calculated by the system. If the project receives 75 points or above, a blue ribbon is awarded. Between 74 – 50 points, a red ribbon is awarded. 50 points and below earns a white ribbon.

Agricultural mechanic project shows employ two judging systems. The first, Danish, is where projects are ranked against standards (Waller, 2004). These awards include receiving a blue, red, or white ribbon. The other judging system, American, is where projects are ranked against each other, for example as first, second, and third (Waller, 2004). Once a ribbon was assigned to the project and input into the ESS, superintendents were notified through a dashboard so that to monitor judging progress. After all projects in a class have been judged, judging team review their scores and place the top six projects, first through sixth. Once all classes in a division have been judged, a grand and reserve division champion is identified by lead class judges and the same is done for grand champion overall. The ESS moves from each level and all of the information is accessible with the project from each level of judging. Therefore, the same judging notes used to identify the class winner can be used in the grand champion drive.

Results to Date

The ESS has been implemented in five county, two university, and three major junior agricultural mechanic projects shows in Texas over the past three years. Data collected from these shows identifies the percentage of ribbon assignments, overall notes and comments for each project judged, and judging team identification. All information listed above was collected by written reports and compiled weeks after the event. With the ESS, information is ready in real time. Anecdotally, senior judges that showed apprehension to the involvement of the ESS have praised the system for creating more consistent and efficient judging teams at major shows.

Future Plans

Future plans include utilizing the ESS to provide feedback for exhibitors and instructors for each project. An important teaching tool is a critique sheet of the project that is handwritten and provided to the exhibition. With ESS, information can be compiled into a form for judges to fill out and then the form can be sent to exhibitors and instructors electronically. This would help eliminate lost critique sheets and provide exhibitors and instructors with a teaching tools as they design their next project. ESS can also be used in other areas of youth agricultural competitions to assist with logistic and consistent judging evaluations.

Costs

The major cost for the ESS is for the subscription to Smartsheet. There are a variety of plans ranging from free to \$25 /month. To operate a large show (700+ projects) an enterprise license is required which is \$2000/year. In addition to the software tablets/smartphones are needed to operate the system. The Smartsheet application can operate on an Android (OS 8.0 or later) or Apple (iOS 15 or later) device. Tablets can range from \$80 to \$1000. Each judging team is required to have one, however they could also use a smartphone if the Smartsheet application is downloaded and there is a proper internet connection.

References

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