Data Visualization to Support Junior Fair Decisions in Light of Covid-19

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Introduction/need for innovation or idea

The novel coronavirus has wreaked havoc on the world over the past year. The 4-H Youth Development program has been uniquely affected. Overcoming the obstacles of Covid-19 left many public leaders and policy makers scrambling for a responsible plan to protect the health and safety of 4-H participants, families, and spectators. The Marion County (Co.) Senior Fair Board (SFB) confronted planning needs head on, when forced to vote the cancellation of the 2020 fair (Carter, 2020). Unfortunately, trying to manage the implications of a wicked problem like coronavirus is difficult in particular due to ever changing data and guidance from multiple trusted, science-based sources.

Utilizing Tableau for data drive decision-making allows for the everyday person to easily understand the data and then make informed decisions. Fact based decision making in light of Covid-19 was and still is critical to planning the safety and wellbeing of a community. Evaluations all across the 4-H program can be supported by the use of Tableau software, however, this particular case study focused on Co. Extension staff's innovative use of Tableau as a means to inform decisions about the fair.

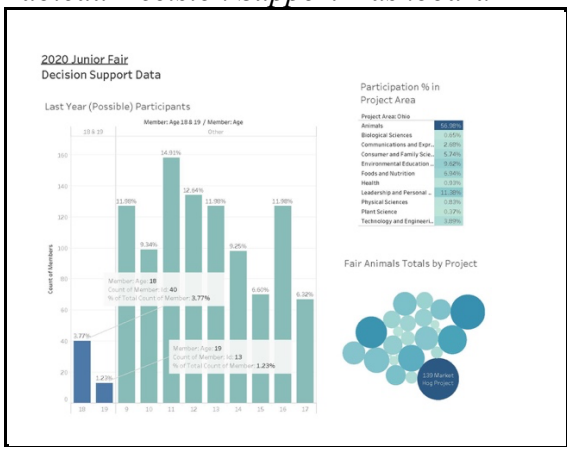
How it works/methodology/program phases/steps

One of the most frustrating parts of dealing with an unprecedented situation is knowing where to begin and what questions are appropriate to ask. Questions were answered using 4-H enrollment data and graphed for presentation purposes with Tableau software. The need to quickly manipulate and display high volumes of data makes Tableau software a perfect tool for informed decision making. Presentations were given by the Co. Extension Educator who shared the direct impacts of cancelling the Junior Fair. In addition to static Tableau data visualizations that were presented at meetings, the software allowed for on the fly analysis. In real-time, with the assistance of Tableau software, the SFB was able to analyze new questions as they arose and/or evaluate alternative scenarios as they were discussed.

In the Tableau visualization shown in Figure 1, the number of youth in their last year of 4-H eligibility and percentage of projects taken by 4-H youth was considered by SFB members.

Figure 1

Tableau Decision Support Dashboard



Results to date/implications

Upon review of multiple Tableau generated data visualizations, as well as recommendations and concerns from the public, the SFB met to weigh all options. While the decision would please the entire community, it was decided the traditional Co. Fair would consist of a Junior Fair only. Using data showcased in Tableau combined with guidelines from the State's Responsible Restart plan, the SFB in conjunction with the County Agricultural Society and County Health Department developed a Health Plan for all exhibitors and spectators to adhere to. Tableau analysis allowed the SFB to visualize how many participants per species plus their families could potentially show their animals. This visualization led to "haul in and haul out" livestock shows whereby one species per day would show and the event would be open to ALL youth participants in different age brackets. Additionally, by knowing how many participants would haul in per day, the correct number of volunteers were planned to assist the 4-H youth with animal tag-in.

Future plans/advice to others

The initial reaction is to hope that the 4-H program and Senior Fair Boards will never have to face difficult decisions of this magnitude in the future; however, the reality is there's a potential for this type of planning to become the norm. Relying on the factual data is key to decision making in order to retain 4-H and junior fair participation, while also focusing on the safety and wellbeing of a community. Transparency and collaboration during a major decision-making process is vital in developing a comprehensive plan. While this abstract highlights Tableau for decision making in 4-H programs, it's important to note that Tableau's value in decision making would be easily transferable to agricultural education programs as well as a variety of agricultural applications. On a more basic level when considering the use of data analysis and visualization software, leadership support for the use of Tableau can make the software more valuable as new uses for it are discovered and encouraged. While Tableau is very user intuitive, a learning curve in understanding the software is present. A robust training plan for users within the organization is necessary. As shown in the example of using Tableau for decision support with the county SFB, remembering the audience consuming the data is critical. When presenting Tableau data, terminology and descriptions must be tailored, to the point, and effective. A final note of advice is having all data on hand that is needed for an analysis. It is always easier to put in the up-front work before analysis to ensure joining various tables of data within the software will not be needed.

Costs/resources needed

Because Tableau can be utilized to make any number of data-driven decisions, the financial investment in the software is far outweighed by the benefits of having understandable data at one's fingertips. Basic individual software packages begin around $400 annually; however, this estimate should not solely be used to make purchasing decisions. In order for each County Extension office to have a license of Tableau software varies greatly by University IT support and bulk purchases. While a learning curve does exist, Tableau is made to be relatively intuitive and self-correcting in many ways. Many institutions that utilize Tableau offer training courses and user groups that allow analysts to work and learn together to better programming with their unique units. The costs and resources are fairly minor compared to the ability to use Tableau software for evaluating a multitude of scenarios and its practical usefulness.

References

Carter, A. (2020, July 16). Marion County Junior Fair livestock shows start Saturday. *Marion Star*. https://www.marionstar.com/story/news/2020/07/16/marion-county-junior-fair-livestock-shows-start-saturday/5430026002/.