Dialing In On Trust: A Moment-to-Moment Analysis of Reactions To a Scientific Debate
Agriculture and science have a long history of being burdened with the spread of misinformation, and the continual distribution of false information has led to the consumer's declining trust in science (Boele-Woelki et al., 2018). A lack of trust and knowledge in science and agriculture negatively affects the producer and consumer relationship (Telg et al., 2018). With new and innovative science emerging, trust is needed in science so that organizations can remain reliable resources when people seek out information about the industry (Settle et al., 2017). However, the complexity of science does not allow the everyday consumer to fully understand and comprehend these topics without specialized knowledge (Hendriks et al. 2016). Science trust was used as the framework for the current study. Schafer (2016) defines trust as "a substitute for knowledge and control". Because the public's trust in science varies based on the topic at hand (Lamm et al., 2020), scientists need to be able to communicate about controversial issues to create and sustain relationships with the consumer (Telg et al., 2018). When the public does not trust science or the medium in which it is conveyed (Weingart & Guenther, 2016), they will no longer rely on science as a legitimate source (Settle et al., 2017).

The purpose of this study was to explore how participants with low and high science trust responded moment-to-moment to information and misinformation presented in a scientific debate about COVID-19. To do so, 43 participants indicated their agreement to a podcast, where one speaker presented misinformation about scientific information, and the other speaker corrected it with credible sources. Prior to responding to the podcast, participants took a pre-test that measured their demographics and trust in science (adapted from McCright et al., 2013). Throughout the podcast, the participants were asked to continuously adjust the dial based on their level of agreement (0 = *strongly disagree,* 100 = *strongly agree*). Data were exported from Perception Analyzer to Excel in 6 second segments. Data were converted to baseline scores (50 – answer) and to mean scores for visual critical moment analysis (Lawson et al., 2020). A median-split was conducted on science trust to examine differences between low and high trust.

The findings showed acute differences in what types of information those participants with high and low science trust agreed with, often with conflicting agreement. We found those with higher science trust were more accepting of the information, but we saw critical points of interest to those with low trust. Out of the 10 critical moments in the study, those with high trust were more positive for four out of the 10 moments while those with low trust were neutral for those points. Specifically, when the podcast discussed if the vaccine decreases the symptoms of COVID-19. However, both levels of trust agreed with the information that the vaccine was developed too fast, and everyone should do their own research. We saw the largest disagreement between low and high trust toward the statements discussing if the vaccine is safe for pregnant women.

These findings confirm prior literature that varying levels of trust negatively affect the consumer relationship (Boele-Woelki et al., 2019; Telg et al., 2018). Scientific information should be curated with the consumer in mind and information must be developed to be easily understandable and readable to the public. We saw those with high science trust clearly disagree with misinformation. This study provides agricultural and science communicators with evidence of the need to build trust within the scientific community to provide strategies to discern factual vs. non-factual information. Future research should continually explore perceptions of sources and their ability to differentiate credible sources from others.