Minding the Gap: An Examination of Susceptibility to Misinformation About Beef Among Generation Z and Millennials

By

Karen Anne Hiltbrand

A thesis submitted to the Graduate Faculty of
Auburn University
in partial fulfillment of the requirements for the Degree of
Master of Science

Auburn, Alabama
May 6, 2023

Keywords: Agriculture Communications, Continuous Response Measurement, Beef Perceptions, Focus Group, Food Production, YouTube

Approved by:

Dr. Donald R. Mulvaney, Chair, Associate Professor of Animal Sciences
Dr. David Martin, Associate Professor of Hospitality Management
Dr. Kim Mullenix, Associate Professor & Extension Beef Systems Specialist

Abstract

Every minute, 500 hours of video content is uploaded to YouTube (Ceci, 2023). The constant flood of new content creates an environment that fosters misinformation, specifically about animal agriculture and the beef industry(Van Eenennaam & Werth 2021). Misinformation creates a challenge because consumers buying habits and perceptions control the market (Schiffman & Wisenbilt, 2019). Decisions result from consumers' perceptions, and money is spent based on those beliefs (Schiffman & Wisenbilt, 2019). These studies evaluated the gap in understanding animal agriculture and young consumers' susceptibility to being affected by false information about the beef industry. Segments of YouTube videos differing in the correctness of ag information and a Food Familiarity Index (FFI) were used as tools. In the first phase of this mixed-methods study 15 Next Generation (NG) consumers were shown two different YouTube video clips about focused aspects of animal agriculture, one being categorized by an expert panel as misinformation and one communicating accurate, research-based information.

The level of trust among participants was gauged using the continuous response measurement (CRM) instrument to identify critical moments of trust and distrust. It was found that the lower the consumers' knowledge of the food industry, the more likely they would trust misinformation ($p < 0.05$) and become misinformed. The content generated from the focus group was analyzed, and the themes revealed included: sources, confusion, distrust, and solutions. In the second phase, another mixed-methods study involving 209 NG consumers also watched the video segments. Participants recruited by the survey distributor platform Prolific completed pre- and post-surveys located on Qualtrics. The group means revealed greater ($p < .05$) trust in the video clip, including misinformation. Results show diminished opportunity to revert consumers' perceptions about the beef after they have engaged in misinformation.

Acknowledgment

You never know where God will lead you, and I am so grateful that He led me to Auburn University. The completion of this thesis was only possible with my support team. First, I would like to thank Dr. Mulvaney for having the utmost confidence in me, assisting with completing research in an area I am passionate about, and sharing your wealth of knowledge with me. Thank you to my committee members, Dr. Mullenix and Dr. Martin, for sharing your wisdom, ensuring my research was of high quality, and using your valuable time to assist me. I would also like to thank Dr. Youngblood and Dr. Ross for their guidance and instruction in using the Learning, Usability, and Communications Accessibility Lab (LUCIA). For assisting me in the design of my research and teaching me all about continuous response measurement. I would also like to extend a very special thank you to Dr. Smith for helping me understand and run my statistics.

To my Mom, Dad, Katie, and Justin, I honestly don't think I could have gotten through this without all your support. The last six months have been one of the most challenging stents we have ever faced, and I am so glad everything has ended on a positive note. To Shane, thank you for encouraging me to follow my dreams; you have made this process much easier than it could have been. I cannot tell you how much I genuinely appreciate your willingness to talk through all my challenges and provide me with unending support.

Finally, to my Auburn Animal Science family, I am so grateful to have met and developed friendships with so many of you that I know will last a lifetime. From stats to my silly questions, Katie, and Madison, I was able to complete this thesis thanks to your help. Auburn will forever hold a special place in my heart. War Eagle!

Table of Contents

List of Tables

List of Figures

List of Abbreviations

Ag	Agriculture
CRM	Continuous Response Measurement
CIE	Continued Influence Effect
ELM	Elaboration Likelihood Model
FFI	Food Familiarity Index
FDA	Food and Drug Administration
NG	Next Generation

Chapter 1

Literature Review

Introduction

Human perception is a complicated but necessary topic concerning consumer behavior (Ceci, 2023). Consumer behavior studies consumers' choices when searching for, evaluating, purchasing, and using products and services they believe will meet their needs (Wisenbilt & Schiffman, 2019). Amid recent food shortages, increased food prices, and food distribution pains, there has been increased consumer awareness regarding how, why, and where food is produced. This is especially specific to sustainable food production and products.

For years, agricultural communicators have discussed, researched, and deployed methods to narrow the communication gap between consumers of agricultural products and food producers (Clemons et al., 2018). One of the many challenges agriculturalists face is combating the spread of misinformation about agriculture (Van Eenennaam et al., 2021). From video to social media, and on-demand video, consumers experience over 13 hours of media every day (Statista, 2023), meaning agriculture communicators both have an opportunity and a challenge to gain consumers' attention. This is a challenge as the average attention span is roughly 8.25 seconds among audiences (Zauderer, 2023). Not only are communicators tasked with grabbing consumers' attention but also maintaining it (Zauderer, 2023).

Another dimension of the communication challenge is that the average consumer is more than three generations removed from the farm (Hughes et al., 2017), and for years, agricultural communicators have been trying to understand how agricultural information is best communicated, retained, and understood and, in turn, how this affects consumer buying

decisions. Lewis (2018) and Frick, et al.,(2018) state, “Agriculture literacy is the awareness and understanding of our food fiber, natural resources, and animal health and its relationship to the public and the environment” (p. 1). Van Eenennaam and Werth (2021) explain that unwarranted fear among consumers substantially reduces the ability to produce nutritious food with less environmental impact and increases sustainability.

Agricultural Literacy and Being Literate in Agriculture

While agriculture literacy and being agricultural literate sound analogous, the two concepts are different (Lewis, 2018). Agricultural literacy, precisely, does not address an individual’s ability to write, read, and communicate (be literate) about a specific topic, which in this case is the topic of agriculture (Clemons et al., 2018). One of the most well-known challenges the agriculture industry faces is the lack of knowledge and connectedness with the public (Settle et al., 2017). While many agriculturists work to communicate to the public, often, their messages get caught in what is referred to as an echo chamber (Ruth et al., 2018). An echo chamber is an individual’s intrinsic tendency to seek information that reinforces and confirms their pre-existing beliefs (Ruth et al., 2018). This phenomenon can be described as speaking to the choir and is not the circle that the story of agriculture needs to be limited to (Ruth et al., 2019).

In a study conducted by Lewis (2018), it was found that the general population of the United States “was not very agriculturally literate” (p. 47); however, they did understand more in the area of “*the Relationship Between Agriculture and the Economy*” (p. 60), compared to the construct the “*Relationship with Agriculture and Animals*” (Lewis et al., 2018, p. 60). Baby boomers had the highest overall agricultural literacy, apart from understanding newer technology related to having knowledge about agriculture (Lewis et al., 2018). The generations who

possessed the lowest level of agricultural literacy were Generation X and Millennials (Lewis et al., 2018). The two constructs of the pillars of Farm Bureau Ag Literacy that consumers had the least knowledge about were the *"Relationship Between Agriculture and Animals"* (p. 62) and the *"Relationship Between Agriculture and Lifestyle"* pillar (Lewis et al., 2018, p. 62). Results from the Lewis study are significant and indicate that there is much work to do in informing younger generations in those areas of the agriculture industry (Lewis et al., 2018). Agricultural literacy is necessary so consumers understand the food system and can be literate about the following concepts identified by Frick et al. (1991).

- Agriculture's relationship with the environment and sustainability.
- The processing of agricultural products, which includes food safety and research and development.
- Developing policies regarding agriculture, understanding how the consumer can affect policy, and regulating policies can affect agriculture.
- To understand agriculture's relationship with natural resources in relation to conservation, stewardship, and symbiosis in the environment.
- To address society's lack of understanding regarding animal products, precisely consumer concerns, the uses of animal proteins, husbandry, and advancing technologies.
- To understand the production of plant products in relation to gardens, care of plants, biotechnology, genetics, profit, and society.
- To understand the economic impact of agriculture from a farm management, micro/macroeconomics perspective, and food costs.

- To have a working knowledge of how agriculture products are marketed related to public perception.
- To understand the vastness and processes of the global and domestic distribution of agricultural products.
- Finally, the global implication of agriculture relating to food economies, hunger, research, global politics, and sociology.

Consumer Perception of Food and Sustainability

The America Psychology Association (2022) defined perception as:

> The process or result of becoming aware of objects, relationships, and events using the senses, which includes activities such as recognizing, observing, and discriminating. These activities enable organisms to organize and interpret the stimuli received into meaningful knowledge and act in a coordinated manner" (entry. perception).

When faced with a situation, subjects interpret stimuli in a relatable or meaningful way based on their past experiences (Pickens, 2005). The challenges differing perceptions create are that they are highly subjective to every individual (Pickens, 2005). All stimuli uniquely affect different audiences depending on their experiences, environment, and influences (American Psychology Association, 2022).

Attitude is the basis of perception and is made up of three factors: mental status (feeling), a condition (belief), and behavior (Koswat1a et al., 2022; Altman, 2008; Pickens, 2008). Experience and temperament play a significant role in an individual's attitude, and the result of attitude is behavior (Pickens, 2005). Perception comprises four phases, including stimulation, registration, organization, and interpretation (Pickens, 2005). Awareness is an essential factor in

perception (Pickens, 2005). Individuals will naturally be more attentive to stimuli corresponding to their preexisting attitudes, beliefs, personalities, and motivations (Pickens, 2005). Perceptual vigilance refers to the mental process by which people achieve their most immediate needs (Pickens, 2005). In contrast, perceptual defense refers to the inclination to avoid stimuli that may cause tension or discomfort (Pickens, 2005). With the average American consumer being three generations removed from agriculture (Hughes et al., 2017), combined with the overload of social media, on-demand video, and resources on the internet, there is an opportunity for misinformation to occur (Ruth et al., 2018).

Perception involves a physical dimension that relates to how received information is transformed into operational information (Koswat1a et al., 2022). The presentation of the data is highly related to how the information was acquired and the source (Koswatta et al., 2022). In the physiological dimension of perception, information received is interpreted through an individual's personal beliefs, values, needs, and interests (Koswatta et al., 2022).

In a study by Koswatta (2022), researchers examined the factors affecting public perception of science, perception formation, and factors contributing to each step in the perception formation process within agricultural communication. Through their review of literature and methods, they identified four themes: audience beliefs, audience socio-demographics, communication sources, and environment (Koswatta et al., 2022) that contribute to perception formation. The sub-themes that shaped the audiences' beliefs were religious beliefs, political beliefs, trust in science, perceived risks, benefits, and preexisting attitudes (Koswatta et al., 2022). Age, income level, occupation, gender, and knowledge were also said to affect trust in science (Koswatta et al., 2022). The sub-themes that added to the credibility of sources within articles were credibility, scientist trustworthiness, organizational trustworthiness,

communications medium, and message characteristic (Koswatta et al., 2022). Finally, the environment theme comprised sub-themes, including exposure to information, type of exposure, social bots, and science-related events (Koswatta et al., 2022). These research observations support the importance of collecting demographic information to explore factors affecting perception and trust.

Consumers buying decisions are the primary controllers of the market (Ruth et al., 2018). The U.S. consumer is becoming further removed from agriculture both experientially, geographically, physically, and educationally (Rumble et al., 2020). This has created an environment for consumers to be easily misinformed and be more concerned with modern agriculture production practices and technologies (Rumble et al., 2020). To address this problem, it is important that agricultural communicators and constituents within the agriculture industry proactively and effectively inform consumers about how their food was raised (Rumble et al., 2020).

Messaging should be customized toward generational affiliation, specifically for college-aged millennials (1982-2004) (Oesterreicher et al., 2018). In a focus group conducted by Oesterreicher et al., 2018, health implications were one of the primary buying criteria for Millennials (Oesterreicher et al., 2018). In addition, their conversations were based around cattle management, the use of natural resources, the treatment of animals, food safety, and the local economy (Florida) (Oesterreicher et al., 2018).

Shugoll Research (2014) stated that when millennials make buying decisions, they consider "great taste, good value, feeling comfortable, and confidence when preparing the dish, being food, they feel good about and having an ideal balance of taste and nutrition" (p 4.). According to Oesterreicher and others (2018) and Shugoll Research (2014), millennials consider

trimmed fat and slight marbling while making beef selections, and about one-third consider how cattle are produced and treated. Oesterreicher and others (2018), Shugoll Research (2014), and the Beef Checkoff (2015) said that millennials were said to be "frustrated about the contradictory information about whether or not beef is good for you" (p. 4). Also, millennials associate eating beef with emotions that include excitement, nostalgia, anticipation, and comfort (Oesterreicher et al., 2018; Beef Checkoff, 2015; & Shugoll Research, 2014).

It is essential to understand the scope of the landscape of the current perception of the beef industry as related to sustainability, specifically regarding environmental impact. While difficult to define, sustainability is a common buzzword defined differently by different entities. The United States Department of Agriculture (USDA) defines sustainability as satisfying human needs, enhancing environmental quality, the resource base, and ecosystem services; sustaining the economic viability of agriculture; and improving the quality of life for farmers, ranchers, forest managers, workers, and society (USDA, 2022). Because of the diversity of definitions of sustainability, citizens can be confused about it. The Environmental Protection Agency (EPA) defines sustainability as the fundamental principle that "To pursue sustainability is to create and maintain the conditions under which humans and nature can exist in productive harmony to support present and future generations" (EPA, n.d). Sustainability is a complex, multifaceted, and often emotionally driven issue, which today is dominated by climate change (Cullman, 2022). Society cares and asks questions to understand improvement opportunities and progress (Cullman, 2022). The three pillars of sustainability include economic, environmental, and social dimensions. An immense amount of emotion and money is dedicated to making sustainable advancements. For example, "Millennials are set to inherit $24 trillion of wealth in the US alone over the next 15 to 16 years, and 75% believe their investments can influence climate change"

(Credit Suisse, 2019, p. 10). When the three pillars of sustainability overlap, they create intersections that produce socio-economic, socio-environment, and eco-environmental areas of sustainability (Cullman, 2022).

The scientific literature ranges from studies that claim consumers are buying into sustainable solutions and others that claim that sustainability does not change their purchasing decisions (Gorynska et al., 2020). In a study by Gorynska (2020), they found that "one-third of their respondents were interested in and actively taking part in searching for information about food consumption and the food market." Consumers were most concerned with a product's health benefits, nutritional benefits, and specific ingredients (Gorynska et al., 2020). The product's origin, price, form of preparation and connection to ecology were also significant to buyers (Gorynska et al., 2020). Consumers thought the most credible information about food was from reports and scientific papers, as well as from family and friends (Gorynska et al., 2020). Word-of-mouth was also an effective communication tool, according to Gorynska's 2020 study. The theory of social attitudes and social communication theory was also considered (Gorynska et al., 2020). People or groups tend to react to stimuli differently due to their circumstances or values when making sustainable food purchases (Gorynska et al., 2020). Of the study participants, 80% of the respondents had never come across any information concerning sustainable food production values (Gorynska et al., 2020). Of the sample, 12.5% said the information about sustainable food that was most memorable was about environmental issues first, then food waste, shopping planning, change in direction (relating to ecological and personal impact from both a personal and worldly standpoint), human health, consumption about nutritional recommendations and stricter diets (about specific dietary restrictions). This information relating to sustainable food production was more memorable for women than men

(Gorynska et al., 2020). According to Gorynska (2020), "the young (18–24 years old) remembered the information about shopping planning and connection between consumption and nutrition recommendations, people aged 25–34 were more interested in environmental issues, the direction of changes and issues of consumption and ecology, while people aged 35–44 were interested in food waste" (p. 12). This study showed that environmental issues and health risks were at the peak of participants' concerns. Still, the authors add that other factors, such as socioeconomic status, education level, and product availability, are essential (Young et al., 2010). Thirty percent of consumers express worries about environmental issues, but only 5% turn those worries into actions (Young et al., 2010). While people claim they are becoming more eco-friendly, there will be no change until action has occurred (Barnett et al., 2010), and until then, there will be little change in the market of sustainable food preferences (Barnett et al., 2010).

In a nationally representative survey paper conducted with 524 randomly sampled individuals utilizing Qualtrics, Settles (2017) reported participants' awareness, knowledge, and trust in 16 agriculture organizations using a 5-point Likert scale (Settle et al., 2017). The results showed that 94.3% of participants were the most aware of the Food and Drug Administration (FDA), with 14.1% of respondents being least aware of Syngenta (Settle et al., 2017). It is also important to note that only 26.0% of respondents were knowledgeable of Cooperative Extension programs, a well-established federal and state network (established in 1862) focused on providing resources to citizens to educate the public about agriculture (Settle et al., 2017).

Environmentally friendly or green consumers make their purchasing decisions, beginning with environmental issues, assessing human rights, and finally considering animal rights (Wheale & Hinton, 2007). It is essential to clearly understand the consumer landscape to

appropriately provide educational resources and products to consumers (Wheale & Hinton, 2007). As insight, Europe lacks agricultural breeding technologies due to the amount of scientific misinformation that exists (Smyth & Lassoued, 2019).

Generation Z

Generation Z are individuals born between 1997 to now (Thompson, 2022). There is a deficit of research about Generation Z because these individuals are just coming of age to enter the workforce (Meola, 2021). Generation Z is the youngest, largest, and most ethnically diverse generation, accounting for 27% of the United States population (Meola, 2021). Generation Z has the spending opportunity of $143 billion annually, accounting for nearly 40% of the total global consumers in 2020 (Dagnostino, 2001). Knowing that consumers drive the market, studies must be conducted to identify inter-generational buying trends and attitudes, specifically in the agriculture industry.

While there needs to be more specific research on Gen Z about agricultural and food purchasing trends, data is available on the generation's motivations, attitudes, and habits. Many studies have been conducted on millennials' perceptions of the beef industry, but there are few consumer perceptions of Generation Z (Shugoll, 2014).

In a study examining Gen Z communication styles by applying the Hartman and McCambridge assessment tool (Hartman et al., 2011), it was found that Generation Z tends to utilize four primary communication styles, including analytical, driver, amiable, and expressive, based on two dimensions, being assertiveness and responsiveness (Hartman et al., 2011; Humaira Raslie, 2020). It was shown that Gen Z listened more than they talked (Humaira Raslie, 2020). According to Hartman and McCambridge (2011), talking more than listening reflects assertiveness, whereas listening more is a responsive communication style. When working with

people on projects, Gen Z is more concerned with what others think and less about getting the task done, implying that individuals can be image-focused (Humaira Raslie, 2020). Gen Z participants were better at style-flexing (adapting their communication style to match those who surround them) and were more other-focused (Humaira Raslie, 2020). They are more likely to cooperate during communication, conform, and attempt to relate to their peers (Humaira Raslie, 2020).

Gen Z and Gen Y (millennials) prefer face-to-face communication and visuals for online communication (Humaira Raslie, 2020). Gen Z expects instantaneous feedback when conversing and is low on the assertive scale (Humaira Raslie, 2020). Generation Y and Generation Z have an agreeable communication style, which means they are more receptive than assertive, favor relationship orientation above tasks, and do tasks more slowly and carefully (Humaira Raslie, 2020). Because they tend to comply and collaborate, they may be unable to handle workplace confrontations, which are often unavoidable (Humaira Raslie, 2020). Other studies confirm that when it comes to trust, college students are high on the agreeableness scale (Sriprom et al., 2019).

Generation Z is the first generation to have access to the Internet for their entire lifetime (Ho Shin et al., 2021). Due to their connectedness, it is vital that marketers understand their characteristics and can effectively disseminate to digital natives (Ho Shin et al., 2021). Ho Shin (2021) states (as cited by Krishen, 2016) that, "Generation Z is eager to search for information via social network service; they tend to make their decisions based on feedback from others" (p. 4).

Individuals within Generation Z value social ethics when making purchasing decisions. In a study by Francis and Hoefel (2018), about 80% of Generation Z were reluctant to support a

business they felt had unethical practices. The latter observation tells researchers that when communicating with this generation, brands should reflect social responsibility and admirable character (Ho Shin et al., 2021). When communicating with Gen Z, it is essential to treat them as equals as they do not validate an age gap as qualifying them as inferior in the working world (Nguyen, 2021). Knowing that Gen Z prefers to be treated as equal, it is essential to express trust and inclusiveness, not in a way that infers that they lack knowledge (Nguyen, 2021).

Trust in the Science of Agriculture

As defined by Rumble and others (2020), "trust is the fundamental component of all relationships between the public and specific people or groups" (p. 4). Trust alone is a complicated notion, particularly when everyone has a different way of interpreting what and whom they find trustworthy (Rumble et al., 2020). The adoption of new technology in science hinges on the public's trust, public policy, and public perception (Rumble et al., 2020). When the public does not accept science, further advancement can be inhibited, meaning there are fewer opportunities for scientific developments to assist in developing a safe, affordable, and high-quality food supply (Understanding Science, 2020), when social trust is lacking around topics such as climate change, genetically modified food, or environmental issues (National Science Board, 2018), political regulation and market action often become required to monitor practices (Arnot et al., 2016). A lack of trust may result in further government regulation (Understanding Science, 2020).

Trust is an integral component of communicating effectively regarding sharing, comprehending, and narrowing the producer/consumer gap (Settle et al., 2017). In a convergent mixed-methods study by Rumble et al. (2020), trust was analyzed before and after engaging in a conversation via a focus group regarding adopting new technologies to combat citrus greening.

Within this study, 76 individuals participated in one of the four-focus groups from around the country (California, Florida, Illinois, and New Jersey). Rumble and others reported (2020) common themes, including "modern science does more harm than good" (p. 9), "belief in scientists and their contribution to science to society" (p. 8), and participants broadly expressed gratitude for the work scientists were doing to solve problems (Rumble et al., 2020). One participant changed their opinion drastically about the protein technology used to combat citrus greening when they recalled that he took a similar medication and could relate to the technology (Rumble et al., 2020).

This focus group had significant themes of distrust related to lack of information, skepticism, fear, and benevolence (Rumble et al., in 2020). Lack of knowledge/the unknown was the most common theme among many participants in the four focus groups (Rumble et al., 2020). This information suggests that communicators address all potential questions while delivering knowledge on a particular issue. Rumble (2020) stated that "many participants were skeptical that information was being withheld from them" (p. 11), which stemmed from the fact that the participants had never heard about the specific problem before (Rumble et al. 2020).

Transparency is essential in reducing consumer skepticism (Rumble et al., 2020). When discussing fear, participants mentioned DDT and how it was too late when many people became aware of its poor health repercussions (Rumble et al., in 2020). Trust was hampered when participants felt consumers' best interests were not in mind, which was explicitly prompted by a discussion regarding the financial and economic implications of agriculture technology (Rumble et al., in 2020). Participants shared that they trust educational institutions' research more than corporate research because they are not profit-motivated (Rumble et al., 2020). Even though general trust in science may exist, that does not translate to trust in specific science contexts

(Rumble et al., 2020). Without consumer trust, the U.S. agriculture industry is vulnerable to decreased livestock production and crop production, soil and water quality issues, pest issues, and even economic struggles (Geston et al., 2022).

Gross (2021) stated that trust becomes more important when consumers lack knowledge and have uncertainties about food production. When determining consumers' trust in food, they often rely on credible information from their peers or personal sources (Gross, 2021). Kupsala and others (2015) found that women and urban residents have lower levels of trust, and older individuals have more trust in animal production, especially those with a farm background. Age, place of residence, and level of experience are related to the level of knowledge among consumers (Kupsala et al., 2015). Lower levels of trust are less widespread among the older and rural populations (Kupsala et al., 2015).

Misinformation and Disinformation

Eckler and others (2022) define misinformation as "any information that turns out to be false – and poses an inevitable challenge for human cognition and social interaction because it is a consequence of the fact that people frequently err and sometimes lie" (p.1). Disinformation differs as it is intentionally spreading false information (Eckler et al., 2022). The difference between the two types of message distribution defaults on the communicator's intent (Eckler et al., 2022). Aside from the dissemination of incorrect information, Karlova & Fisher (2013) stated that spreading misinformation and disinformation produces "suspicion, fear, worry, anger and decisions" (para. 3), which results in implications of trust. Or inversely, Karlova and Fisher (2013) state that it is becoming more standard to accept information as consistently "true, accurate, and complete" (sentence. 4). Consumers fail to consider the possibility of material being misinformation (Karlova & Fisher, 2013). The social diffusion model of information,

misinformation, and disinformation depicts the process and formation of information, misinformation, and disinformation starting with the audiences' environment (Karlova & Fisher, 2013). Information, misinformation, and disinformation, as well as cues of credibility and deception, may all be influenced by social, cultural, and historical factors (Karlova & Fisher, 2013).

Unfortunately, misinformation and disinformation are not new challenges to the twenty-first century. Examples of both misinformation and disinformation over the years have contributed to several antagonistic occurrences that include but are not limited to elections, religious and political oppression, and specific events such as the world's response to the Covid-19 pandemic (Eckler et al., 2022). Unlike in history, today, the digital infrastructure allows for unmatched reach of that incorrect information (Eckler et al., 2022).

Misinformation and disinformation exist in food and beyond (Diekman et al., 2023). Some of the most common issues where misinformation and disinformation live include genetically modified organisms (GMOs) (Butler-Hortan, 2021; Ryan et al., 2020, p. 15), milk production, animal welfare, and animal protein production (Van Eenennaam, 2022). Newsworthy stories of misinformation and disinformation include lean finely textured beef story and Oprah Winfrey's claim about Bovine Spongiform Encephalopathy (BSE).

Some practical systems to mitigate misinformation and disinformation are fact-based correction, addressing logical mistakes, and challenging the source's credibility (Eckler et al., 2022). Other forms of refuting this problem are pre-bunking and debunking misinformation and disinformation and sharing its relevance to communicators, information consumers, practitioners, and policymakers (Eckler et al., 2022).

Use of Continuous Response Measurement in Agricultural Communications Research

Continuous response measurement (CRM) is a tool primarily used to measure how effective or ineffective a specific communication message is by analyzing a participant's reaction from moment to moment of the communication (Lawson et al., 2020). In recent years, CRM studies have been utilized in agriculture communications research and literature (Lawson et al., 2020). Knowing that viewers' perceptions vary while viewing or listening to a multimedia stimulus, the perceptions analyzer allows researchers to pinpoint when the participant shifts their opinion (Lawson et al., 2020). According to Lawson and others (2020) and Tarpley (2020), "Continuous response management (CRM) offers the discipline an additional opportunity to bridge gaps in understanding individual perceptions about varying elements within a communications message" (p. 1).

Messaging can prompt various responses based on perceptions, which can be attributed to multiple factors, including personal values, involvement with the subject, ability to focus, and mental state (Lawson et al., 2020). Analyzing a stimulus from moment to moment allows researchers to gain insights into individual perspectives and theorize why a particular group might have a specific belief (Ramanathan & McGill, 2007). This methodology also allows the opportunity to identify critical moments known as peaks and troughs, which can be further analyzed compared to consumer qualities (Lawson et al., 2020). With the subjectivity of social science, using CRM cannot provide a direct explanation (Lawson et al., 2020). Instead, it can suggest how theoretical frameworks and models help scientists understand why and how individuals may form a particular view or perception (Lawson et al., 2020).

In a review, Lawson (2020) provided an expansive overview of CRM's potential benefits and limitations regarding agricultural communication research. Procedures used in CRM allow

researchers to track viewers' attitudes using the slider or dial device (Lawson et al., 2020). According to Lawson (2020), “Software packages, such as the Perception Analyzer, allow the researcher to set up the test, collect and analyze data in the field (such as a live speaking presentation or debate), or in a laboratory setting where prerecorded videos can be shown” (p. 2). When utilizing CRM, a dynamic stimulus should be used and should be long enough to allow participants to stay engaged but not lose interest (Lawson et al., 2020). When choosing a response option, participants are asked to rate their level of feeling towards a specific quality or construct, such as trust or level of agreement, on a scale of typically zero to 100, with 50 being neutral and the starting point of the dial (Lawson et al., 2020). CRM can conduct experimentally designed studies with self-reported items and qualitative data (Lawson et al., 2020). CRM studies have been used in political debates, as well as in marketing and advertising groups (Lawson et al., 2020).

In a CRM study by Tarpley et al. (2020), 169 college students from a communications and agriculture college self-reported their level of agricultural involvement. They compared their low or high level of involvement regarding agriculture to their comfort level while viewing two videos about animal processing (Tarpley et al., 2020). Tarpley’s research suggested that increased transparency within the animal processing industry (particularly graphic imagery) can be uncomfortable for audiences, regardless of their involvement with the agriculture industry (Tarpley et al., 2020). Tarpley stated (2020), “Higher levels of issue involvement generally played a role in the higher comfort level of those individuals with high involvement in agriculture” (p. 15). This study identified areas of viewer discomfort and helped explain how individuals process that type of information (Tarpley et al., 2020).

Trust remains a dimension of communications that researchers try to learn more about regularly, especially in agriculture communications (LaGrande., et al., 2018). Researchers collected CRM data from 151 post-secondary students and measured their trust in agriculture messaging within the five dimensions of trust, including trust itself, honesty, sincerity, dependability, and reliability while viewing a pro-agriculture video. Results showed-that trust varied among participants throughout the video (LaGrande., et al., 2018). In some situations, the same messages ranked as the highest peak and the lowest trough within the different trust dimensions (LaGrande., et al., 2018). Overall, this showed that different agricultural messages elicit different responses and levels of trust (LaGrande., et al., 2018). It also revealed that participants exhibited general trust toward the messages in the video (LaGrande., et al., 2018). The messages that viewers preferred included family, hard work, and value congruent (LaGrande., et al., 2018). The least trusted messages concerned money and sustainability (LaGrande., et al., 2018). LaGrande recommended that communicators be careful when discussing the economy's implications and avoid sharing information from a fiscal and monetary standpoint (LaGrande., et al., 2018). Framing messages using politics or from an economic context should also be avoided (Augoustinos et al., 2010).

Overall, CRM can be utilized to understand what consumers find favorable and unfavorable within specific messages so that communications methodology can foster favorable attitudes (Goodwin et al., 2011). Much research is still needed to understand how Gen Z members respond to varying messaging elements (Fischer, 2021).

The Elaborative Likelihood Model Theory

In communications research, social scientists constantly look for theories to explain how and why individuals think and perceive how they do (Ruth et al., 2018). It is almost impossible

to find a single-theory as the lone framework for communicating all agriculture communications topics (Ruth et al., 2018). To effectively communicate to all the appropriate audiences' multiple theories are required to share appropriate information (Ruth et al., 2018).

The Elaboration Likelihood Model (ELM) is a theory commonly used as a framework for social science research in agricultural communications (Tarpley et al., 2020). The ELM is a model of persuasion that occurs when an outside stimulus attempts to change a person's attitude through communication (Behavior Works Australia, 2023). The ELM suggests that different audiences process information with varying levels of intent (Behavior Works Australia, 2023). Depending on how willing an individual is to engage in elaboration can help explain how effectively they may be persuaded (Wagner & Petty, 2011). Many factors can contribute to how much effort someone will put into processing information (Wagner & Petty, 2011). Some of the factors that may affect someone's motivation to process information are their personal involvement with the topic, their intent to process, their level of distraction, their level of knowledge about the topic, how flashy or eye-catching the message is, to name a few (Behavior Works Australia, 2023).

When individuals are actively and intentionally processing information, they are processing cognitively via their central processing route (Behavior Works Australia, 2023). The central processing route focuses on the strength of the message's argument (Behavior Works Australia, 2023). If a message contains essential elements to the targeted audience or has been repeatedly exposed to the audience, then it is likely that the audience may be persuaded toward the intended point of view resulting in an attitude shift (Petty et al., 2009). Inversely, suppose someone is processing information with a low level of intent or out of convenience, via mental shortcuts or with the help of source identification or heuristics; in that case, they may be using

their peripheral processing route (Behaviour Works Australia, 2023). When motivation or ability to process information is absent, the intended audience will process messages through the peripheral processing route (Petty et al., 2009). It is more likely for attitude change to occur when information is processed via the central processing route (Petty & Cacioppo, 1996). In contrast, when processing information through the peripheral route, the individual will unlikely retain the attitude change (Petty & Cacioppo, 1996).

It is essential to acknowledge that with ELM, it is difficult to know a person's attitude or how much it has changed (Petty & Cacioppo, 1996). Any message variable can sway how a person experiences persuasion (Petty & Cacioppo, 1996).

Research results in agricultural communications indicate that many consumers use the peripheral route to process information regarding the agricultural industry (Ruth et al., 2018). In a study by Ruth and others (2018) involving 524 respondents, it was stated that participants were likely to pay attention to issues in the news, animal welfare, environment, nutrition, and food safety topics(Ruth et al., 2018). Randolph (2021) found that medium-length videos (90 seconds long) reflected a higher level of elaboration and positive attitude scores (Randolph, 2021). ELM was-used to suggest that communication intervention can lead to attitude changes and subsequent behavioral modification (Ruth et al., 2018).

Messaging Modalities

From the telegraph to newspapers, TV, social media, and now Zoom (or similar platforms), the way the world consumes media is much different from our predecessors just a few decades ago (Holt et al., 2015). The same has occurred regarding communications methods (Holt et al., 2015). From the industrial revolution to the informational revolution, the current landscape of the media is constantly changing (Holt et al., 2015).

Holt (2015) and Severin and Tankard (2001) state, “The changing atmosphere in communication is known as “*media convergence*” and has led to communicators utilizing all forms of communication channels to reach audiences” (p. 4). One of the challenges that agricultural communicators face is deciding how to craft and frame messages, what communication medium is appropriate for which audience, and what modality or platform to utilize (Holt et al., 2015). There have not been consistent findings about which media channel is most effective for distributing specific information to different audiences and consumers (Holt et al., 2015).

According to Statista, in 2022, the average American spent over 13 hours per day using media, which is over half of a day (Guttman, 2023). Aside from increased social media users, consumers spend time using multiple forms of media, including podcasts, magazines, radio, books, and on-demand video subscriptions(Guttman, 2023).

According to Stoll (2021), “In 2021, U.S. adults spent 167 minutes per day watching TV video content, and 149 minutes per day watching digital video” (heading. Daily time spent with video). Researchers predict digital video consumption will surpass TV consumption soon (Stoll, 2021). For context, after conducting a nationwide survey, Guttman (2023) found that “the average daily time spent with digital media in the United States is expected to increase from 470 minutes (seven hours and 50 minutes) in 2020 to over eight hours in 2023” (heading. Time spent with digital). The use of digital media continues to rise sharply, while traditional media remains much less (Guttman, 2023).

The most popular online video platform in the United States within Google Sites is YouTube, which has 2.1 billion users worldwide (Ceci, 2023). An estimated 720,000 hours of videos make it to the platform every single day (Ceci, 2023). Knowing this, our research

explicitly aimed to look at the opportunity for influence using YouTube videos on Generation Z viewers. In this research, we compare the influence of one video communicating misinformation about agriculture and one communicating accurate information about agriculture.

Literature Cited

Altmann, T. K. (2008). Attitude: A Concept Analysis. *Nursing Forum*, *43*(3), 144-150. https://doi.org/https://doi.org/10.1111/j.1744-6198.2008.00106.x

APA Dictionary of Psychology. (n.d.). *American Psychological Association*. American Psychological Association, https://dictionary.apa.org/perception

American Psychology Association (n.d) Perception. In American Psychology Association Dictionary of Psychology (e.d). https://dictionary.apa.org/perception

Arnot, C., Vizzier-Thaxton, Y., & Scanes, C. G. (2016). Values, trust, and science–building trust in today's food system in an era of radical transparency. *Poultry Science,* 95(9), 2219–2224. https://doi.org/10.3382/ps/pew168

Augoustinos, M., Crabb, S., & Shepherd, R. (2010). Genetically modified food in the news: Media representations of the GM debate in the UK. *Public Understanding of Science*, 19(1), 98–114. https://doi.org/10.1177/0963662508088669

Barnett, C., Cloke, P., Clarke, N., Malpass, A. (2010). The Political Rationalities of Ethical Consumption. Oxford: Wiley.

Beef Board. (2015). *2016-2020 Beef industry long-range plan final report.* [Pamphlet]. https://www.beefboard.org/blog/2015 Summer Conference/2016-2020 Beef Industry LRP Final Report - for printing.pdf

Beef Checkoff. (2014). *Millennial perceptions of beef production*. https://www.beefresearch.org/CMDocs/BeefResearch/BIQ/Millennial Perceptions of Beef Production 1.pdf

Butler-Hortan, M. (2021). *College Students' Perceived Ability Versus Actual Ability to Identify Fake News on Agricultural Topics*. [unpublished manuscript]. Agricultural Communications, Texas Tech University. https://ttu-ir.tdl.org/bitstream/handle/2346/88708/BUTLER-THESIS-2021.pdf?sequence=1&isAllowed=y

Ceci, L., (2023). *Hours of video uploaded to YouTube every minute as of February 2022.* Statista. https://bit.ly/3V8am26

Ceci, L. (2023). *YouTube – Statistics & Facts.* Statista. https://www.statista.com/topics/2019/youtube/#topicOverview

Clemons, C., Lindner, J., Murray, B., Cook, M., Sams, B., & Williams, G. (2018). Spanning the Gap: The Confluence of Agricultural Literacy and Being Agriculturally Literate. *Journal of Agricultural Education*, 59(4), 238–252. https://doi.org/10.5032/jae.2018.04238

Credit Suisse. (2019). Sustainability Report. Retrieved March 2023, from https://www.credit-suisse.com/ch/en/investment-banking/ibcm/corporate-insights/earning-returns-on-sustainable-terms.html

Dagostino, A. Council Post: Here Is How Gen Z Is Changing the Way We Communicate. (2021). *Forbes, Forbes Magazine*, https://www.forbes.com/sites/forbescommunicationscouncil/2021/08/09/here-is-how-gen-z-is-changing-the-way-we-communicate/? sh=1ad2e3f41350.2

Definitions: Sustainability and Food Systems. *USDA*, United States Department of Agriculture, (n.d.), https://www.usda.gov/oce/sustainability/definitions.

Diekman, C., Ryan, C., & Oliver, T. (2023). Misinformation and Disinformation in Food Science and Nutrition: Impact on Practice. The Journal of Nutrition, 153(1), 3-9. 10.1016/j.tjnut.2022.10.001

Getson, J., Church, S., Radulski, B., Sjo¨strand, A., Lu, J., & Prokopy, L. (2022). Understanding scientists' communication challenges at the intersection of climate and agriculture. *PLoS ONE*, 17(8): e0269927. https://doi.org/10.1371/journal.pone.0269927

Goodwin, J. N., Chiarelli, C., & Irani, T. (2011). Is perception reality? Improving agricultural messages by discovering how consumers perceive messages. *Journal of Applied Communications, 95*(3), 21–33. https://doi.org/10.4148/1051-0834.1162

Gorynska-Goldman, E. & Gazdecki, M. (2020). Searching for and Perception Of Information By Consumers In The Light Of The Sustainable Consumption Idea — On The Example Of Food Markets. *Marketing Of Scientific and Research Organizations,* 36(2) 1-18. https://www.sciendo.com/article/10.2478/minib-2020-0013

Gross, S. & Roosen, J. (2020). Effects of information on social trust in farmers regarding animal welfare. *International Food and Agribusiness Management Review.* 24(1). 10.22434/IFAMR2020.0034

Guttmann, A. (2023). *Time spent per day with digital versus traditional media in the United States from 2011 to 2023.* Statista. https://www.statista.com/statistics/565628/time-spent-digital-traditional-media-usa/

Ho Shin, J. & Woo Lee, J. (2021). Athlete brand image influence on the behavioral intentions of Generation Z. Social Behavior and Personality an International Journal. https://doi.org/10.2224/sbp.9533vwww.sbp-journal.com

Eckler, U., Lewandowsky, S., Cook, J., Schmid, P., Fazio, L., Brashier, N., Kendeou, Vraga, E., & Amazeen, M. (2022). The psychological drivers of misinformation belief and its resistance to correction. *NATURE REVIEW-Psychology,* 1, 13-29. https://doi.org/10.1038/s44159-021-00006-yhttps://doi.org/10.1038/_s44159-021-00006-y

Francis, T., & Hoefel, F. (2018). 'True Gen': Generation Z and its implications for companies. *McKinsey & Company*. https://mck.co/2JzK4F1

Frick, M., Kahler, A., & Miller, W. (1991). A definition and the concepts of agricultural literacy. *Journal of Agricultural Education*. 32(2), 49–57. 10.5032/jae.1991.02049

Global social networks are ranked by the number of users (2023, January). Statista. https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/

Hais, M., & Winograd, M. (2011). Put Millennials first. *The Huffington Post*. Retrieved from http://www.huffingtonpost.com/michael-hais-and-morley-winograd/put-millennials-first_b_856082.html

Hartman, J., McCambridge, J. (2011). Optimizing Millennials Communications Styles. *Business Communication Quarterly.* 74(1), 22–24. https://doi.org/10.1177/1080569910395

Holt, J., Rumble, J., Telg, R., and Lamm, A. (2015). The Message or the Channel: An Experimental Design of Consumers' Perceptions of a Local Food Message and the Media Channels Used to Deliver the Information, *Journal of Applied Communications*, 99(4) https://doi.org/10.4148/1051-0834.1053

Hughes, A., Johnson, T., Edgar, L., Miller, J., & Cox, C. (2017). A Content and Visual Analysis of Promotional Pieces Used in a Communication Campaign for the Arkansas Promotion Board. *Journal of Applied Communications*, 100(2). https://doi.org/10.4148/1051-0834.1027

Karlova, N. & Fisher, K. (2013). A social diffusion model of misinformation and disinformation for understanding human information behavior. *Information Research*, 18(1) paper 573. http://InformationR.net/ir/18-1/paper573.html

Koswatta, T.; Wingenbach, G.; and Leggette, H. (2022). Factors Influencing Public Perception of Science, *Journal of Applied Communications,* 106(4). https://doi.org/10.4148/1051-0834.2442

Krishen, A., Berezan, O., Agarwal, S., & Kachroo, P. (2016). The generation of virtual needs: Recipes for satisfaction in social media networking. *Journal of Business Research*, 69(11), 5248–5254.

Kupsala, S., Vinnari, M., Jokinen, P. & Räsänen, P. (2015). Citizen attitudes to farm animals in Finland: a population-based study. *Journal of Agricultural and Environmental Ethics,* 28(4): 601–620. https:// doi.org/10.1007/s10806-015-9545-z

LaGrande, L. (2018). *Trust in Agricultural Messages: A moment to moment analysis* [Master's thesis]. Texas, Tech University, Lubbock, Texas. https://ttu-ir.tdl.org/handle/2346/82673

Lawson, C., Fischer, L., LaGrande, L., & Opat, K. (2020). Do touch that dial: A guide to continuous response measurement in agricultural communications, *Journal of Applied Communications*. 104(3). https://doi.org/104148/1051-0834.2333

Lewis, M. (2018). *Agricultural Literacy Among the Generations: A National Study.* [Unpublished master's thesis]. Tennessee State University, Nashville. https://www.proquest.com/docview/2057991785?parentSessionId=FmBMzbsSMkAAtMB1g30bDET5zirZnkMs0rdBR1CiYFk%3D

McDonald, S. M. (2012). Perception: A Concept Analysis. *International Journal of Nursing Knowledge*, *23*(1), 2–9. https://doi.org/https://doi.org/10.1111/j.2047-3095.2011.01198.x

Nguyen, T. (2021). 5 things you should know to effectively communicate with Gen Z in the workplace. Back to Resources. https://blog.grovehr.com/generation-z-communication-in-the-workplace

Meola, A. (2021). Generation Z News: Latest Characteristics, Research, and Facts. *Insider Intelligence*, https://www.insiderintelligence.com/insights/generation-z-facts/

National Science Board. (2018). *Science and technology: Public attitudes and understanding.* https://nsf.gov/statistics/2018/nsb20181/report/sections/science-and-technology-public-attitudes-and-understanding/highlights

Oesterreicher, S., Lundy, L., Rumble, J., & Telg, R. (2018). Collegiate Millennials' Perceptions of Locally Produced Beef, *Journal of Applied Communications*, 102(4) https://doi.org/10.4148/1051-0834.2226

Petty, R., Brinol, P., & Priester, J. (2009). Mass media attitude change: Implications of the elaboration likelihood model of persuasion. *Media effects: Advances in theory and research*. 3, 125–164.

Petty, R. E., & Cacioppo, J. T. (1996). *Attitudes and persuasion: Classic and contemporary approaches*. Boulder: Westview Press.

Petty, T., & Cacioppo, J. (1986). The Elaboration Likelihood Model of Persuasion. *Advances in Experimental Social Psychology*, 19, 123-205.

Pickens, J. (2005). Attitudes and perceptions. In N. Borkowsk (Ed.), *Organizational behavior in health care* (pp. 43–76). Jones and Bartlett Publishers.

Ramanathan, S., & McGill, A. (2007). Consuming with others: Social influences on moment-to-moment and retrospective evaluations of an experience. *Journal of Consumer Research*, 34(4), 506–524. https://doi.org/10.1086/520074

Randolph, L., Telg, R., Rumble, J.; Galindo, S., and Lindsey, A. (2021). Measuring the Effects of Narrative and Analytical Messages in Video Production, *Journal of Applied Communications*, 105(1) https://doi.org/10.4148/1051-0834.2361

Stoll, J. (2022). *Average daily time spent with video content among adults in the United States from 2019 to 2026, by device*. Statista. https://www.statista.com/statistics/420791/daily-video-content-consumption-usa-device/

Research with millennials: Executive summary. (2014). Shugoll Research. http://www.beefissuesquarterly.com/CMDocs/BeefResearch/BIQ/Executive Summary_Revised March 18 2014.pdf

Rumble, J., Wu, Y., Tully, K., Ruth, T., Ellis, J., & Lamm, A. (2020). A Mixed-Methods Comparison of Self-Reported and Conversational Trust in Science, *Journal of Applied Communications*. 104(4). https://newprairiepress.org/jac/vol100/iss3/10/

Rumble, J., Settle, Q., & Irani, T. (2016). Assessing the Content of Online Agricultural Awareness Campaigns, *Journal of Applied Communications*. 100(3). https://doi.org/10.4148/1051-0834.1233

Ruth, T., Rumble, J., Galindo-Gonzalez, S., Lundy, L., Carter, H., & Folta, K. (2019). Can Anyone Hear Us? An Exploration of Echo Chambers at a Land-Grant University, *Journal of Applied Communications*. 03(2). https://doi.org/10.4148/1051-0834.2242

Ruth, K., Settle, Q., Rumble, J., & McCarty, K. (2018). Predicting Likelihood to Pay Attention to Agriculture-Related Issues in the News with Demographic. Characteristics. *Journal of Agricultural Education*, 59(2), 49–63. https://doi.org/10.5032/jae.2018.02049

Ryan, C. D., A. J., Butner, R. & Swarthout, J. T. (2020). Monetizing disinformation in the attention economy: The case of genetically modified organisms (GMOs). European Management Journal, 38(1), 7-18. https://doi.org/10.1016/j.emj.2019.11.002

Wisenblit, J., Schiffman, L. G. (2019). Consumer Behavior. United Kingdom: Pearson Education. 9780134734828, 0134734823

Severin, W., & Tankard, J. (2001). *Communication theories: Origins, methods, and uses in the mass media (5th)*. New York, NY: Addison Wesley Longman, Inc.

Sriprom, C., Rungswang, A., Sukwitthayakul, C., & Chansri, N. (2019). Personality traits of Thai Gen Z undergraduates: Challenges in the EFL classroom? *PASAA: Journal of Language Teaching and Learning in Thailand, 57*, 165-190

Settle, Q., Rumble, J., McCarty, K., & Ruth, T. (2017). Public Knowledge and Trust of Agricultural and Natural Resources Organizations. *Journal of Applied Communications*, 101(2). https://doi.org/10.4148/1051-0834.1007

Smyth, S., & Lassoued, R. (2019). Agriculture R&D Implications of the CJEU's Gene-Specific Mutagenesis Ruling. *Trends in Biotechnology*, *37*(4), 337–340. https://doi.org/10.1016/j.tibtech.2018.09.004

Tarpley, T., Fischer, L., Steede, G., Cummins, G., & McCord, A. (2020). How Much Transparency is Too Much? A Moment-to-Moment Analysis of Viewer Comfort in Response to Animal Slaughter Videos, *Journal of Applied Communications*, 104(2). https://doi.org/10.4148/1051-0834.2302

Understanding Science. (2020). *Supporting science.* University of California Museum of Paleontology. http://www.understandingscience.org

United States Department of Agriculture (U.S.D.A). Definitions: Sustainability and Food Systems. (n.d.). U.S. Department of Agriculture. https://www.usda.gov/oce/sustainability/definitions

United States Environmental Protection Agency (EPA). Learn About Sustainability (2022). United States Environmental Protection Agency. https://www.epa.gov/sustainability/learn-about-sustainability

Van Eenennaam, A. & Werth, S. (2021). The animal board invited review: Animal agriculture and alternative meats - learning from past science communication failures. *Animal*, *15*(10), 100360. https://doi.org/https://doi.org/10.1016/j.animal.2021.100360

Van Eenennaam, A. (March 23, 2022). *Misinformation in the Agricultural Sciences* [Zoom Presentation]. Center of Vet Study. The University of Illinois. https://mediaspace.illinois.edu/media/t/1_k0b1s1mh

Wagner, B., & Petty, R. (2011). The elaboration likelihood model of persuasion: Thoughtful and non-thoughtful social influence. In D. Chadee (Ed.), *Theories in social psychology* (pp. 96–116). Oxford: Blackwell

Wheale P, Hinton D. (2007). Ethical consumers in search of markets. *Business Strategy and the Environment*. 16, 302–315. https://doi.org/10.1108/sd.2007.05623jad.005

Young, W., Hwang, K., McDonald, S., Oates, C. J. (2009). Sustainable consumption: Green consumer behavior when purchasing products. Sustainable Development, 18(1), 20–31. https://doi.org/10.1108/sd.2007.05623jad.005

Zauderer, S. (2023). *Average human attention span by age: 47 statistics*. Life-Changing ABA Therapy - Cross River Therapy. Retrieved April 30, 2023, from https://www.crossrivertherapy.com/average-human-attention-span

Chapter 2 – Manuscript 1: Food for Thought: How Influenceable is the Next Generation Consumer

K. H. Hiltbrand[‡], K. Corbitt[‡], M. Coursen[‡], D. Martin[§], K. Mullenix[‡], B. Smith[‡], E. Youngblood[†], D. Ross[†], D. Mulvaney[‡].

[‡]Department of Animal Sciences, Auburn University, Auburn, AL 36849

[§]Department of Hospitality Management, Auburn University, Auburn, AL 36849

[†] College of Liberal Arts, Auburn University, Auburn, AL 36849

Abstract

The spread of misinformation and disinformation in animal agriculture is rampant in social media. Coupled with the theory of social contagion, the reach of this information and its potential impact on the erosion of social licensure becomes extensive (Diekman, 2023). This research study evaluated young consumers' (Generation Z and Millennials) susceptibility to false information about the beef industry based on their level of knowledge about the food industry determined by their Food Familiarity Index (FFI) score. This mixed-methods study included a focus group of 15 next-generation (NG) consumers who viewed two different YouTube video clips about agriculture, one categorized as misinformation and one as communicating accurate, research-based information. The level of trust among participants was gauged using a continuous response measurement (CRM) instrument to identify critical moments of change for trust and distrust. Recorded responses from the focus group enabled participant narratives about perceptions of the beef industry. Those with less knowledge about the food industry were more vulnerable ($p < 0.05$ and $p<.10$) to misinformation. Through engagement involving thought-

provoking discussion and subsequent qualitative analysis, factors that encouraged higher or lower levels of trust among the participants were discovered. This study contributes to a body of literature that may help communicators within animal agriculture better understand audience views and enhance their abilities to share information about the agriculture industry with American consumers.

Keywords: Agriculture Communications, Continuous Response Measurement, Beef Industry Perceptions

Introduction

Over 327.2 million internet users virtually share whatever opinion they want with little chance of pushback or consequence (Petrosyan, 2022). Internet users can freely share any information they choose, which eventually can reach many individuals in a relatively short time (Petrosyan, 2022). The use of the internet and social media platforms has permitted people opportunities to share information quickly and affordably. However, it has also made it equally as easy to share inaccurate information regardless of their intention. The spread of misinformation and disinformation is prominent, with sharing capabilities being at consumers' fingertips (Christakis et al., 2013).

Like many other industries, agriculture is challenged by the spread of misinformation and disinformation (Graham, 2021) through social contagion. Misinformation is defined as dishonest or occasionally false claims that conflict with the scientific community's epistemic consensus (Swire-Thompson et al., 2020). At the same time, disinformation intentionally disseminates incorrect information for secondary gain, whether political, financial, or both (Swire-Thompson et al., 2020). These forms of information are commonly spread via online communities since the author has the security of being able to share a potentially controversial opinion behind the safety of a screen (Swire-Thompson et al., 2020). Once the information is disseminated, it can be further propagated by the platform algorithms to curate each user's online environment based on what and whom they engage with (Desai et al., 2022).

Social media can serve as both an echo chamber and an information silo, which creates a closed network of beliefs that promotes the additional exchange of inaccurate information (Desai et al., 2022). Topics such as genetically modified organisms (GMOs), biotechnology, animal welfare, nutrition, and environment are topic areas where inaccurate information is shared most

often (Ruth et al., 2016). As agriculturists, it may be easy to reason that these individuals have been misinformed. However, there is no natural way for less-informed individuals to detect the difference between credible facts and distorted information unless someone with credibility tells them so.

The American consumer, on average, is two to three generations removed from production agriculture (Farm Credit, 2020). The combination of Generation Z and Millennials' limited attention span with their overall lack of familiarity or interest in agriculture prompts potential disaster for the agricultural industry. Over 500 hours of video content is uploaded to YouTube each minute, as it is a prime location for consumers to find information about virtually any topic (Ceci, 2023). Searching for a video on YouTube can result in hundreds to thousands of other video recommendations based on the platform's algorithm. Often designed to attract attention, videos on YouTube are preferred to go viral and reach a broader audience. Algorithms or bots are designed to multiply hits and are estimated to account for 70% of a user's time on YouTube (Patel, 2023).

Content creators regularly publish beef education content on YouTube. Much of the content is positive, but as discussed previously, plenty of misinformation and disinformation pieces get posted. Credible sources, including commodity organizations, ranchers, news entities, and state extension programs publish new content. As an example, in a simple YouTube search (March 28, 2023) of "beef production," the top five content creators ranked from first to last is a video by Wondastic Tech, appearing second is a video by the Ohio Beef Council, third and fourth were two videos from Vox and fifth was a video from a cattle producer known as Baldy's farm. From this search, one of the videos was neutral in their viewpoint, two were positive, and two shared a negative, inaccurate view of the beef industry.

To ensure content reaches its intended audience, content creators within the beef community must elevate their search engine optimization (SEO) to increase viewer traffic and overall reach (Patel, 2023). SEO is the process that helps digital content rank higher on search engines like Google (Patel, 2023). To optimize videos for YouTube, it is vital to include compelling keywords and metadata, eye-catching descriptions, video transcription, use an attention-grabbing hook, include a conversational conclusion, create the opportunity for channel subscriptions, craft videos that are part of a series, cross-promote videos, and utilize the YouTube analytics dashboard (Patel, 2023). When crafting content about agriculture, these best practices should be used to ensure that content reaches the intended audience.

Continuous Response Measurement

Continuous response measurement (CRM) is a methodology that observes participant reactions moment-by-moment (Lawson e al., 2020). CRM is a tool used in marketing to track an individual's response to media messages in real time and has been utilized in agriculture communications research (Fischer, 2021). CRM can reveal critical moments within a message, including commercials, live presentations, or political speeches (Lawson et al., 2020; Morning Consult, 2018), which could encourage a change in perception (Fischer, 2021). CRM can assist agricultural communicators in determining what messaging components resonate with consumers the best (Lawson, 2020).

Ensuring the validity of the research instrument is a result of carefully and consistently providing study instructions (Mauer & Reinemann, 2009). CRM measures momentary cognitive processing: hence, its validity is monitored closely because it measures the flow of cognitive responses (Biocca et al., 1994). Although opinions about media may be steady, hedonic reactions to a particular stimulus segment may vary (Biocca et al., 1994).

Theoretical Framework

To tackle the objectives of this interpretively-designed study (Schwartz-Shea & Yanow, 2012. Interpretive Research Design Concepts and Processes. Routledge, NY, NY), the research philosophy employed was positivism. Deductive reasoning was used to draw inferences and develop conclusions from the data, as human tendencies can be viewed subjectively.

The elaboration likelihood model (ELM) was used as the theoretical framework for this study (Petty & Cacioppo, 1986). The ELM is the system in which individuals process information (Petty & Cacioppo, 1986). The degree of persuasiveness of the topic is be based on the processing avenue (Petty & Cacioppo, 1986). When information is processed centrally, the individual takes a systematic approach and is highly motivated to understand the topic (Petty & Cacioppo, 1986). Inversely, when information is processed peripherally, the motivation to process is low, and because of this, heuristic cues tend to gain viewers' attention (Petty & Cacioppo, 1986). The ELM has been utilized within agriculture communications research about consumer trust and education (Tarpley et al., 2020). Based on tendencies within the ELM, it is expected that individuals with a low level of food familiarity (low motivation) process the information that is most attention-grabbing through their peripheral route.

Study Purpose, Objectives, and Research Questions

This study sought to identify specific factors within two YouTube videos that addressed topics about the beef industry that influenced next-generation consumers' level of trust by utilizing a continuous response measurement instrument (CRM) and a corresponding focus group. One video was categorized by individuals specializing in animal science and agriculture communications and contained misinformation, and the other video with similar topic content was deemed accurate information. We were interested in which YouTube video, misinforming or

accurate, college-aged viewers (18-38 years old) were more likely to trust and why. Additionally, we were interested in the elements of the video that viewers agreed or disagreed with based on their level of agricultural literacy. The following research objectives (RO) and research questions (RQ) guided this study:

RO1. Explore if next-generation consumers are susceptible to influence by inaccurate information based on their antecedent level of knowledge of the food industry.

RO2. Investigate the opportunity agricultural communicators have to revert participant attitudes with accurate information in the form of dynamic multimedia based on their level of knowledge of the food industry.

RO3. Describe the narrative of young consumer perceptions of the beef industry and methods of creating trustworthy/highly consumable video content.

RQ1: Does watching either video impact the change in participants' pre-assessed attitudes relating to the beef industry based on their knowledge of food production?

RQ2: Which aspects of each video's communication style did young consumers prefer, and ultimately which video did they trust more?

RQ3: Which moments in each YouTube video elicited more trust, and how does that level of trust relate to participants' knowledge of food production?

RQ4: What are the participant's overall narratives of trust and perceptions of the beef industry after watching two YouTube Videos focusing on environmental concern aspects about the beef industry?

Methods

All study methods and materials were approved Auburn University Institutional Review Board, and study #22-428 was considered exempt.

Research Design

The research design was quasi-experimental and utilized a mixed methods approach. The target demographic was undergraduate students at a southeastern university that are responsible for purchasing groceries. A total of 15 participants (n = 15) were selected through convenience sampling after being recruited via email through the Office of Institutional Research at Auburn University. Before participants were recruited, a pilot study was held to monitor accessibility, instrument validity, and the functionality of the survey.

Participants were invited to complete a recruitment survey distributed through university-issued emails (Dillman et al., 2014). The survey employed in this study used Qualtrics Survey software (Version 2022, Provo, Utah, U.S.) to reveal individual perceptions of the beef industry, video communications preferences, and knowledge of beef production. These questions were validated by a trained professional in social science to verify the instrument's reliability prior to the release of the survey.

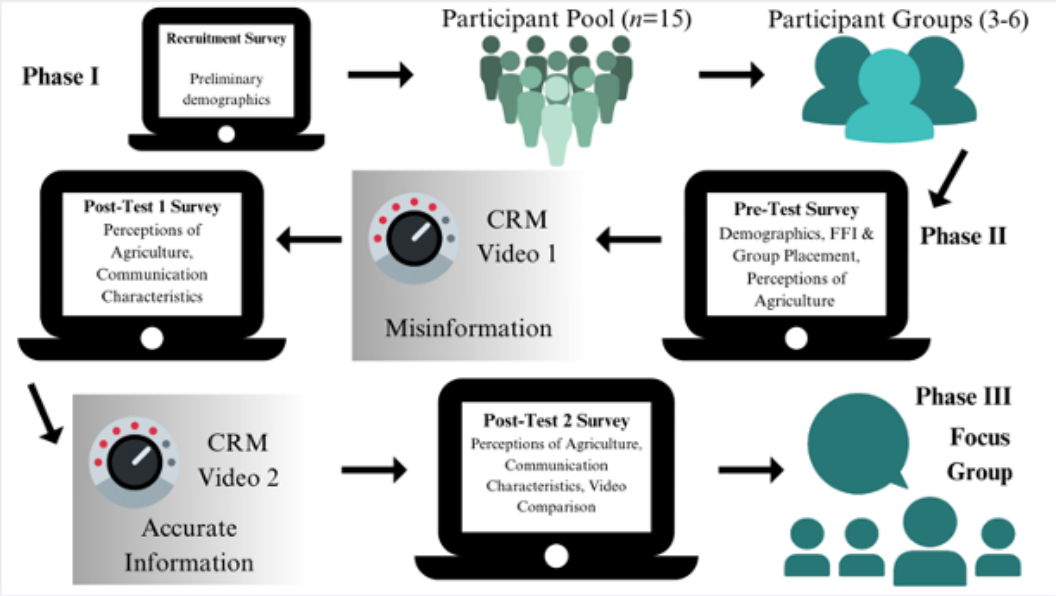
Study Flow

Participants were recruited to determine comprehension of agricultural videos with the incentive of receiving a Visa gift card. Fifteen participants were divided into three group sessions to ensure that the group size remained within the recommended amount of 6-10 people (Bhattacherjee, 2012). Three sessions were held between November 2022 and December 2022. Participants were instructed to complete (Figure 1): a pre-survey to establish the demographics, knowledge, and attitudes about the beef industry using the Food Familiarity Index (Table 1);

watch a video portraying misinformation; a post-survey; watch a video portraying accurate information on the same topics as the first video; a second post-survey; and participate in a post video viewing focus group session. All sessions were recorded via video and audio; the second author was a notetaker.

Figure 1.

Misinformation in the Beef Industry Study Flow Diagram[1]



[1] Continuous Response Measurement = CRM.

Food Familiarity Index (FFI)

The Food Familiarity Index (FFI) is a questionnaire asking participants to score their level of agreement with 12 items. This questionnaire generated the between-subjects variable representing the participants' knowledge level and involvement in food production (Table 1). It is important to note that there were not any participants who scored in the high FFI group. Participants were asked to rank their level of agreement for each statement on a 10-point Likert scale where 0 = *Strongly Disagree*, 5 = *Neutral*, and 10 = *Strongly Disagree*. To create each FFI group, an additive score was split to create the low food familiarity group (sum ≤ 40), medium

food familiarity group (sum ≥ 40 and sum ≤ 80), and a food familiarity group (sum ≥ 80). The FFI was adapted from the Agriculture Involvement Index (Tarpley et al., 2020) adapted from the Sports Team Identification Index (Wann & Branscombe, 1970).

Table 1.

Food and Agriculture Familiarity Index (FFI)

FFI Item
I go out of my way to accommodate the purchase of preferred foods.
I am emotionally connected to procedures and conditions in which food is produced/grown.
I would say that I know something about how a majority of the food I eat is raised.
I devote time and energy to learning about different food systems and current agricultural practices used in food production.
When food is a topic of conversation, I am willing to share my knowledge about how food is grown/produced with others.
I devote time to growing my own food and/or food for others (people or animals) to consume.
I would be concerned if I were not able to study and learn about food and agriculture.
I support agriculture and food production systems.
I make buying decisions based on how and/or where a specific food item was produced.
I seek out others who also know or care about where their food comes from.
I am familiar with safety, quality, and marketing factors of food.

As study participants watched the two videos (Video Stimuli), they were asked to indicate their trust in the videos using a dial on the Continuous Response Measurement instrumentation. Turning the dial to the left indicated less trust (0-49), turning to the right indicated greater trust (51-100), and neutrality was indicated at 50. To reduce the chance of dial fatigue, participants were reminded to turn their dials while watching both videos (Biocca et al., 1994).

Participants Demographics

The purposive sample of 15 young adult participants was recruited from the twelve different colleges within the university; in total, seven different colleges were represented in the study. Data were removed for one dial as there was a malfunction during the study. Of the 15 responses, 53.3% (*n*=8) of the participants identified as male, 40% (*n*=6) acknowledged as female, and 6.7% (*n*=1) identified as non-binary. Most of the participants were from Generation

Z (born after 1996) up 93.3% (*n*=14) of the study. Three political affiliations were represented in this study, including 26.7% (*n*=4) conservatives, 40.0% *(n*=6) moderates, and 33.3% (*n*=5) liberals.

Of the participants, 33% (*n*=5) were represented in the medium FFI group, and 66% (*n*=10) fell into the low group; no individuals were considered to have a high FFI. The participant pool reported that they utilized blogs the most at 14% (*n*=7) when looking for credible information. Forty percent of the time (*n*=8) participants indicated they source their animal protein from grocery stores, and 40.0% (*n*=8) of the time they source their animal protein from restaurants. See Table 3 and Table 4 for comprehensive demographics.

Table 2.

Demographics of Participants.[1]

Alias	Age	Race	Gender	Political Affiliation	Major	Background
Charlie	Gen Z	White	Male	Moderate	Business	Rural
Alex	Gen Z	Two or more races	Female	Liberal	Liberal Arts	Rural
Sam	Gen Z	African American	Male	Moderate	Agriculture	Rural
Taylor	Gen Z	White	Female	Liberal	Engineering	Urban
Peyton	Gen Z	African American	Female	Liberal	Engineering	Suburban
Kim	Gen Z	White	Male	Moderate	Business	Rural
Elli	Gen Z	African American	Non-Binary	Moderate	Architecture & Construction	Rural
Morgan	Gen Z	Two or more races	Female	Liberal	Engineering	Rural
Mason	Gen Z	White	Male	Liberal	Architecture & Construction	Rural
Noah	Gen Z	White	Male	Moderate	Sciences and Mathematics	Urban
Johnnie	Gen Z	White	Female	Conservative	Nursing	Urban
Kelli	Millennial	White	Male	Conservative	Engineering	Rural
Jerry	Gen Z	White	Male	Conservative	Liberal Arts	Rural
Andy	Gen Z	White	Male	Conservative	Business	Rural
Hadley	Gen Z	White	Male	Moderate	Engineering	Rural

[1] Survey utilizing Qualtrics (*n* = 15).

Table 3.

Agriculture Related Demographics of Participants.[1]

Characteristics	*n*	*%*
Food Involvement Score (FFI)		
High	0	0%
Medium	5	33%
Low	15	66%
Source of accurate information		
Books	6	12%
Blogs	7	14%
News Outlets	1	2%
Podcasts	5	10%
Print Materials (newspaper and/or magazine)	4	8%
Search Engines	4	8%
Social Media	9	18%
YouTube	7	14%
Other	7	14%
Sources of Animal Protein		
Chain Grocery Store	8	40%
From Farmer or Farmer's Market	2	10%
Restaurant	8	40%
Hunt own protein	2	10%

[1] Survey utilizing Qualtrics (n = 15).

Description of Video Stimuli

One of the primary purposes of this study was to see if consumers can determine credibility in information about agriculture. The selected videos were published on well-known YouTube channels, and both communicated information about environmental, health, and welfare implications regarding the beef industry. By design, the order the videos were shown remained consistent throughout the study to test if the accurate information in video two could shift the perceptions assessed after video one.

Video one was published by the YouTube creator Mark Rober and is titled "Feeding Bill Gates a Fake Burger (to save the World)" and was originally 16 minutes and 39 seconds long (Mark Rober, 2020). For this study, the first video (https://youtu.be/ZAG0mTeFON4) was condensed to 2 minutes and 23 seconds to allow similar content to align with the second video. It was also crucial that the video stayed concise to maintain the audience's attention (Tarpley,

2020). To avoid any upfront bias, both videos were referred to with the generic names of videos one and two.

The second video shown to survey takers was titled "Eating Less Meat Won't Save the Planet. Here's Why" and was originally 23 minutes and 11 seconds long (What I've Learned, 2021). For this study, this video (https://youtu.be/VJLSewiVOys) was condensed to 3 minutes and 50 seconds to allow similar content to align with the first video and retain viewers' attention.

Focus Groups

One of the many advantages of focus groups is that participants being interviewed can respond to other participants and the moderator (Ary et al., 2014). This allows for the stimulation of ideas and ideation from other participants. In part one of the studies, we paired the use of CRM with a focus group to get a full explanation of participants' reactions to each video. The focus group questions are provided in Appendix 1.5 and the conversations were recorded.

Table 4.

Guiding Focus Group Questions after Completion of Phase I & I

Question
Q1. Which video did you trust more?
Q2. What would you have changed about the video to have increased your trust of the information presented?
Q3. How do these two videos leave you feeling about the beef industry?
Q4. Were there any moments in either of the videos that were particularly impactful and why?
Q5. Will anything you learned today impact if or how you purchase beef?

Statistical Analysis

As mentioned previously, this study followed a mixed-methods design. Various methods evaluated data. Gathering survey data, CRM data, and focus group transcripts helped encompass various study objectives' goals. This mixed methods study (n=15) utilized both qualitative and quantitative data. Quantitative data were analyzed using SAS v. 9.4 (SAS Institute, Inc., Cary, NC, desktop version) and SPSS (SPSS, Version 28) statistical software. Qualitative data were

analyzed using ATLAS,ti (Web Version, 2022). The first author organized and transcribed data, and then it was thematically coded by a group of coders using in-vivo methodologies (Saldaña, 2016). Multiple alpha and significance levels were defined for this study. The first, $\alpha_1 = 0.05$, where data were considered significant if $p < 0.05$. The second is $\alpha_2 = 0.10$, such that tendencies for differences among responses would be declared when $0.05 \leq p < 0.10$. Exact *p*-values are presented to allow the reader to develop independent interpretations.

To answer RQ1, non-parametric Kruskal-Wallis (KW) chi-square analysis was used to determine the change in responses across a series of surveys. To answer RQ2, frequencies were found using SPSS (SPSS, Version 28) to see which video style viewers preferred and to detect if participants could identify credible information. To answer RQ3, researchers visually appraised graphs generated from CRM for peaks and troughs. These event moments were then coordinated with their video transcription and image to understand what moments were more impactful to each segmented audience. To answer RQ4, thematic codes generated from focus group sessions captured young consumers' opinions, examples, and perceptions.

Results

RQ1: Does watching either video impact the participants' attitudes relating to the beef industry based on their knowledge of food production?

A non-parametric one-way KW chi-square analysis was used to determine if there was a relationship between how college-aged participants were impacted by the two videos based on their FFI (Table 5). The KW test revealed that amongst FFI groups, there were tendencies to be different in the perception of the efficiency of food production systems after watching the first video [$\chi^2(1) = 3.02$, $p = 0.0820$]. Inspection of the group means suggested that belief in the efficiency of food production after video one was reduced in medium groups but not low groups.

KW tests report differences amongst FFI groups regarding perceptions of environmental impact for plant-based and animal-based proteins [$\chi^2(1) = 5.18$, $p = 0.0228$]. Specifically, after analyzing group means, the medium group believed animal proteins are worse for the environment after watching the first video. Statistical analysis showed tendencies regarding perceived health benefits of beef and alternative proteins [$\chi^2(1) = 3.27$, $p = 0.0705$], where the medium group confirmed beef is healthier than alternative proteins after watching the first video. Another KW test revealed significant differences amongst various connections to food concerning perceptions of how beef is raised [$\chi^2(1) = 3.97$, $p = 0.0461$]. After watching video one, participants in low groups had worse perceptions of how beef is raised. KW tests in this study report that across FFI groups, there were tendencies to differ based on food insecurity [$\chi^2(1) = 2{,}71$, $p = 0.0993$]. After participants watched video one, the medium group shifted to believing that food insecurity could be resolved if the world produced less beef. There were statistical differences between the sentiment of beef perceptions between the pre-test and the first post-test, but no statistical differences were present between post-test 1 to post-test 2 (between) video one and video two).

Table 5.

Non-Parametric Analysis of Test-to-Test Change Response: Pre-Test Versus Post-Test 1.[1]

Question	Group	*n*	*M*	*p*-value
An efficient food production and distribution system is essential to feeding a growing population.	Pre-Post Medium Pre-Post Low	10 5	6.90 10.20	0.0820
Plant based protein products are better for the environment vs. animal-proteins.	Pre-Post Medium Pre-Post Low	10 5	9.70 4.60	0.0228
I believe beef is healthier than alternative proteins.	Pre-Post Medium Pre-Post Low	10 5	9.35 5.30	0.0705
I have a positive perception of how beef is raised.	Pre-Post Medium Pre-Post Low	10 5	9.25 5.40	0.0461
We could improve food-insecurity if we raised less beef.	Pre-Post Medium Pre-Post Low	10 5	6.75 10.5	0.0992

[1] Survey utilizing Qualtrics ($n = 15$); data are pre- and post-test results for video one.

RQ2: Which aspects of each video's communication style did young consumers prefer, and ultimately which video did they trust more?

This portion of the study aimed to examine the impact of accurate information and misinformation on young consumers. A total of 15 (n =15) participants were prompted to complete a portion of the post survey after watching video one (a misrepresentation of agriculture) and then again in the second post-survey after watching video two (an accurate representation of agriculture, Table 5). A ranking question also asked participants to choose words from a list that described each video (words included: believable, concerning, empowering, emotional, engaging, factual, informative, memorable, misleading scientific, solution based, tells a story, or other).

Frequencies were used to determine preference between the two videos and to understand young consumers' preference between the two specific videos (Table 6). The sample population acknowledged that video one was of superior production quality and had characters they could identify. Participants' highest-ranking descriptors of video one were concerning, informative, engaging, believable, and ranking fifth there was a tie between: 'empowering', 'solution-focused', and 'tells a story.' The top five descriptors that were selected most often for video two were: informative, concerning, believable, factual, and engaging. The rankings were determined by summing the rankings of each word and selecting the terms with the lowest overall average

Table 6.

Frequency Table of Communication Characteristics.[1]

Question		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	*M*	*SD*
Video quality is highly produced.								
	Video 1	13.40%	26.7%	40.0	6.70%	20.0%	3.2	1.4
	Video 2	13.3%	46.7%	6.7%	26.7%	6.7%	2.6	1.2
I recognize a character in this video.								
	Video 1	20.0%	20.0%	0.0%	6.7%	53.3%	3.5	1.7
	Video 2	73.3%	13.3%	13.3%	0.0%	0.0%	1.4	0.7

The video kept my attention, and I found the content interesting							
Video 1	0.0%	13.3%	20.0%	53.3%	13.3%	3.6	.9
Video 2	0.0%	6.70%	20.0%	46.7%	26.7%	3.9	.8
The visuals and infographics made sense and helped me understand the topic							
Video 1	0.0%	20.0%	6.7%	40.0%	33.3%	3.8	1.2
Video 2	6.7%	6.7%	13.3%	40.0%	33.3%	3.8	1.1
This video utilizes effective storytelling.							
Video 1	0.0%	20.7%	6.7%	40.0%	33.3%	3.6	1.1
Video 2	13.3%	6.7%	13.3	46.7%	20.0%	3.5	1.3
I was able to understand the concepts in video X.							
Video 1	0.0%	0.0%	0.0%	40.0%	60.0%	4.6	.5
Video 2	0.0%	6.7%	6.7%	26.7%	60.0%	4.4	.9
Video X script was effective at communicating the purpose of the video.							
Video 1	0.0%	13.3%	0.0%	26.7%	60.0%	4.3	1.0
Video 2	6.7%	6.7%	0.0%	40.0%	46.7%	4.1	1.1
I trust what the speakers are telling me.							
Video 1	13.3%	40.0%	20.0%	13.3%	13.3%	2.7	1.2
Video 2	13.3%	20.0%	13.3%	33.3%	20.0%	2.2	1.2
I would tell someone else about this video or share it on social media.							
Video 1	46.7%	20.0%	20.0%	6.7%	6.7%	2.0	1.2
Video 2	0.0%	26.7%	13.3%	20.00%	26.7%	2.2	1.2
I want to look for more information after watching this video.							
Video 1	13.3%	0.0%	26.7%	53.3%	6.7%	3.4	1.2
Video 2	13.3%	26.7%	13.3%	20.0%	26.7%	3.2	1.4

[1] Survey utilizing Qualtrics (n = 15)

When analyzing video preference, video comparison frequencies were conducted to uncover participant video preference in Table 7. Students preferred video one, in the areas of script (46.7%), imagery (40%), motivating call to action (53.3%), compelling storytelling (40%), and video quality (60%). Participants preferred video two in the areas of believability (46.7%), credibility (66.7%), relatability (53.3%), and as offering more scientific facts (66.7%). There was no preference between the videos in the areas of ease of understanding (46.7%), shareability (46.7%), and emotional appeal (46.7%).

Table 7.

Frequency Table of Video Preferences.[1]

Question	Video 1	Video 2	No Difference	*M*	Mode	*SD*
Script was effective…	46.7%	40.0%	13.3%	1.6	1	0.7
Image/visuals/illustration of key points were effective…	40.0%	26.7%	33.4%	1.9	1	0.8

Message was evident and easy to understand…	33.3%	20.0%	46.7%	2.1	3	0.9
Video was believable…	20.0%	46.7%	33.3%	2.1	2	0.7
Has a motivating "call to action"	53.3%	20%	26.7%	1.7	1	0.8
I am more likely to share…	20.0%	33.3%	46.7%	2.2	3	0.7
Most effective storytelling…	40.0%	26.6%	33.3%	1.9	1	0.8
I found this this video more credible…	20.0%	66.7%	13.3%	1.9	2	0.5
Professional quality…	60.0%	20.0%	20.0%	1.6	1	0.8
I was able to relate to this video more…	26.7	53.3%	20.0%	1.9	2	0.7
Offered more facts, figures and was more scientific…	13.3%	66.7%	20.0%	2	2	0.5
Appealed more to my emotions…	20.0%	33.3%	46.7%	2.2	3	0.7

[1] Survey utilizing Qualtrics (n = 15)

RQ3: Which moments in each YouTube video elicit more trust based on food knowledge of the food industry?

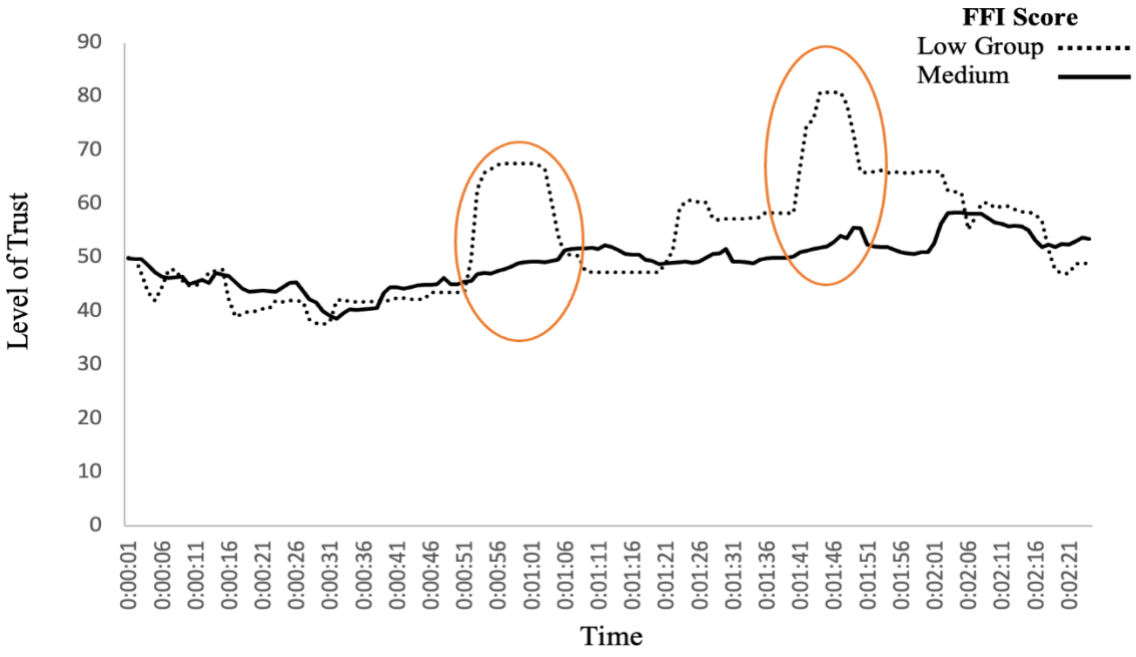
For question three, CRM was used to measure trust in real-time of both video one and two. Using CRM methodology, data were collected second-by-second using dials to measure participant trust. Graphs were generated from FFI group average using Microsoft Excel. For each video, critical moments, or times where there was either a distinct shift of trust either positively or negatively were identified as both as the peaks (highest points) and troughs (lowest points) through visual appraisal (Figures 2 & 3). As anticipated, those individuals who were identified as having a lower knowledge of the food industry had higher trust in the video that shared misinformation and those who exhibited a higher (medium group) level of knowledge of the food industry were more trusting in video two that shared accurate information about the beef industry.

In the misinformation video (video one), participants with a lower level of food familiarity experienced three moments where they experienced more trust (Figure 3). Participants in the low FFI group reported a steep increase in level of trust during the 16 seconds

(00:51to 1:09). Video imagery and transcription of critical moments are provided in Table 8. At the beginning of this clip, trust began to rise (*M* = 43.5), reached its peak (*M* = 67.7), and then fell to normal levels at the end of the clip (*M* = 47.5). Participants in the low FFI group also reported a steep increase in level of trust during the 13 second segment (01:41 to 1:54). At the beginning of this clip *M*=58.2, by the middle of the critical moment, it rose to *M*=80.7 and then by the end of the clip it moved to *M*=65.7.

Figure 2.

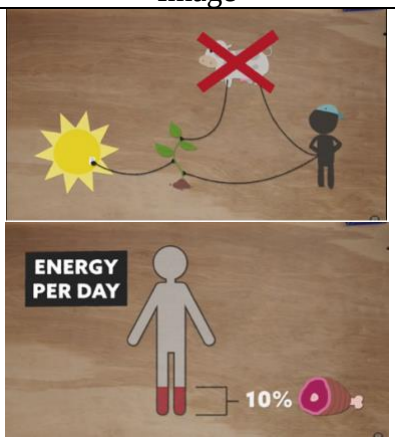
Trust Level in Video One that Includes Misinformation



Continuously reported level trust over time during video one based on FFI group. Circles indicate critical moments.

Table 8.

Description of Critical Moments of Video One.

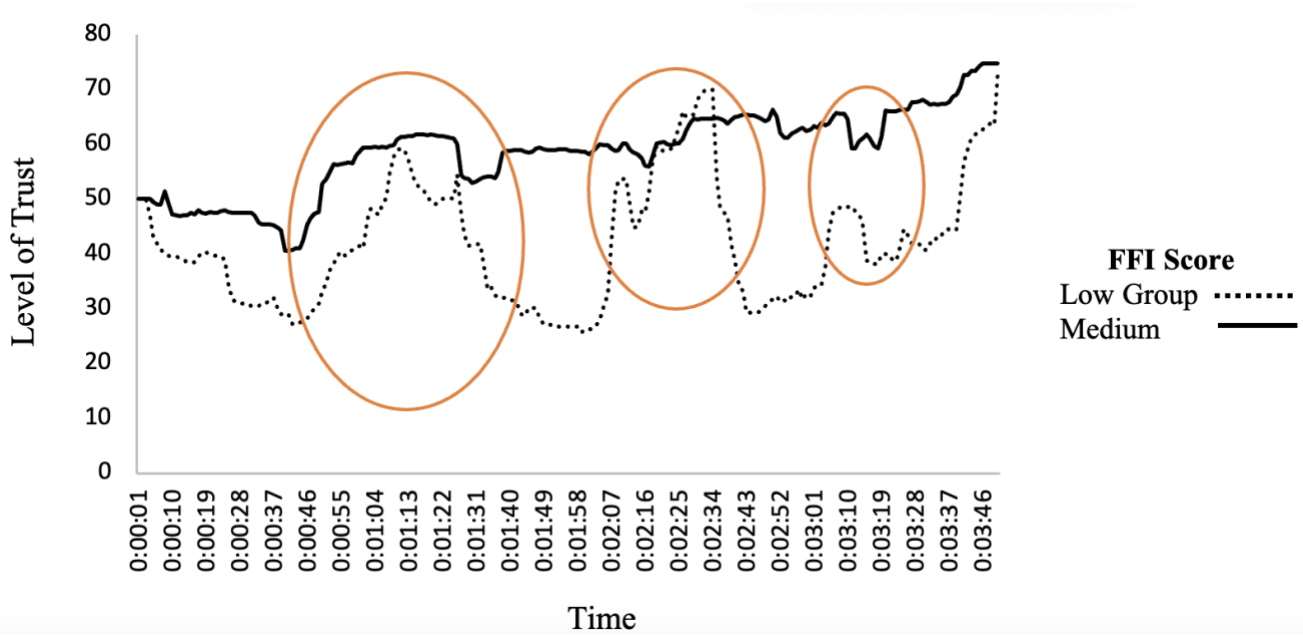
Time Segments	Image	Narration
00:51-1:09		If you think about it – as humans, we are really solar powered. We eat plants, but they get their energy from the sun. Then you might be like, ah, we also eat animals also though. But they get their energy from plants to which again gets their energy from the sun. So, when it comes to getting our energy from the sun – animals are an inefficient middleman. We get on average 10 percent of our calories or energy in a day from meat. That may sound reasonable until you look at the amount of resources it takes to make that meat compared to the other 90%.
1:40–1:54		And it's not just land resources but water as well. To end up with 24 hamburger patties it requires the amount of water you see in this pool. That same amount of water could make 75 loaves of whole grain bread and 30 jar of peanut butter. So, if I made myself a delicious peanut butter sandwich which nearly has nearly the identical amount of both calories and proteins compared to this patty.

In the video presenting accurate information (video two) participants with a lower level of food familiarity experienced three moments where they experienced more trust, while participants with a greater food familiarity experienced an increase and decrease in trust (Figure 3). For the first critical moment in video two (0:46 -1:27) of 21 seconds participants in both the low FFI group and the medium group reported an increase in level of trust. Table 9 provides video screenshots and transcriptions of critical moments. At the beginning at this clip for the low

FFI group the critical moment it rose (*M* = 59). During this same section of time the medium group peaked (*M* = 59). For the second critical moment in video two (2:04–2:43) of 39 seconds, the low FFI group reported an increase in level of trust. During this clip the low FFI group's critical moment increased (*M* = 70). The third critical moment in video two (3:10 -3:39) lasted 29 seconds, including inverse reactions of the low and medium FFI groups. During this clip, the medium FFI group's critical moment decreased (*M* = 74.2), and inversely the low FFI group reported an increase in trust (*M* = 59.2), creating a trough.

Figure 3.

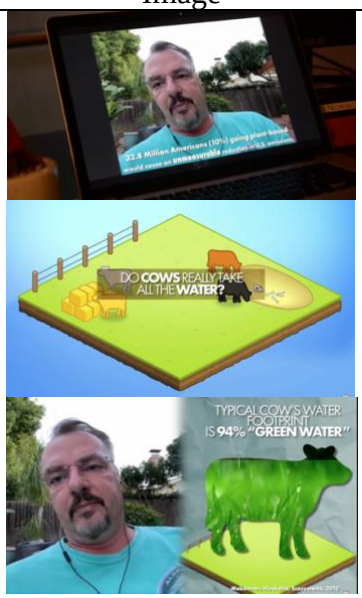
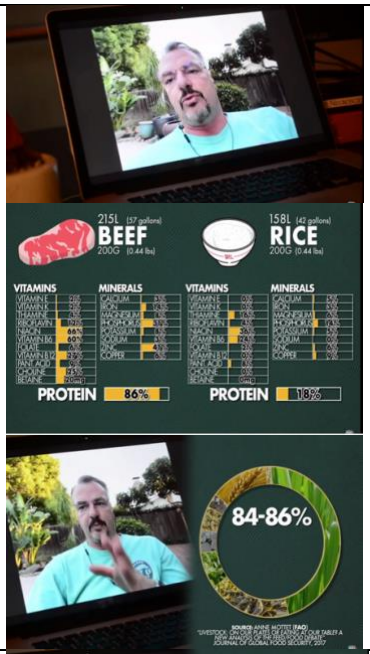
Trust Level in Video Two That Includes Accurate Information

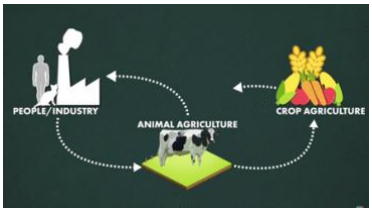


Continuously reported level of trust over time during video two based on FFI group. Circles indicate critical moments.

Table 9.

Description of Critical Moments of Video Two.

Time Segments	Image	Narration
0:46 -1:27		Dr. Frank Mitloehner: I measure methane on the ground. I measure it in the air. I measure it from space. I can tell you any change less than 1% is not measurable, not measurable. Do cows really take all our water? Narrator: And it's not just land resources, but water as well. To end up with 24 hamburger patties, it requires the amount of water you see in this pool. So, this big water footprint that everyone talks about with cows and livestock, where does that water come from? Dr. Mitloehner: So, the water input that people assigned to beef includes, and that's the majority, the so-called green water and the green water is rainwater.
2:04 –2:43		Dr. Mitloehner: Would we say the same thing about all the water that goes to trees to grow? Of course not. Narrator: Just one quarter pound hamburger takes around 1,650 liters of water to produce. Narrator: We need to think about nutritional requirements when we eat, and beef is way more nutrient dense. So yeah, 122 liters used to make a quarter pound of beef is not nothing, but you can't compare that to a quarter pound of rice, which only uses 90 liters, but provides only one fifth the protein and much less vitamins and minerals than beef. Now what about resources? Aren't we wasting so much food on cows that hungry people could eat instead? Dr. Frank Mitloehner: In the world, take this, in the world 84% of all livestock feed across all species, 84% is non-human edible.
3:10 -3:39		Dr. Mitloehner: They are up cycling nutrients, and they are making available feed that normally would be wasted.



Narrator: The thing is that animal agriculture doesn't just take resources, pump out meat and methane and that's it. Animal agriculture is part of a huge ecosystem. For example, a ton of otherwise useless cropped byproducts produced when growing food for people can be made use of by livestock. When you grow corn, what do you do with the husks and the other stuff that comes out of the ground? You can feed it to cows.

RQ4: What are the participants overall narrative of trust and perceptions of the beef industry after watching YouTube Videos about the Beef Industry?

Themes Established Within the Focus Group

After viewing both videos, focus group discussion sessions were conducted and lasted around 30 to 45 minutes each. Recordings were transcribed and coded by a panel of coders. Two cycles of coding were conducted. For the first round, "open coding" was used, and then for the second round of coding, were grouped into themes and sub-themes. From the focus groups, five significant themes emerged. The themes included ***Consumer Concerns About Beef***, ***Beef Perceptions***, ***Means for Elevated Communication***, ***Elements of Trust***, and ***Importance of Sources*** (Appendix A1, Appendix A2, Appendix A3, Appendix A4, & Appendix A5,)**.**

Elements that Affected Video Trust

Among the 15 participants, there was slightly more trust in video two. Although the consensus leaned toward video two, in the first session, most of the participants did prefer video one. Overall, when it came to trust, the themes that were coded most frequently included: source, credibility, presentation of both sides of the argument, and if the content presented solutions (Table A1). Those that trusted video one reflected that the production value was much higher in video one, and that aspect reflected the videos credibility. Taylor noted, "I recognized Bill Gates. And I know his background is very philanthropical, but then I thought, you know, sometimes when people throw a lot of money into something, they are making it very market-ey and they

really want you to get the message." Elli also said, "I think, you know, using your influence to call attention to something is fine, but the intentions they have behind it aren't reliable. So, I would definitely look into it (the subject) more before I took someone's word for it that I don't know."

Source and credibility were two of the most popular themes discussed (Table A2). A few participants recognized Bill Gates and Mark Rober in video one, but no one recognized Dr. Frank Mitloehner, an agriculture professor at U.C. Davis in video two. None of the characters were introduced in either of the videos, but many of the participants agreed that introducing sources and including credentials would have elevated their trust of video two. Some participants recognized Mark Rober, the first video's host, since they had previously seen his YouTube videos and channel, which could be unique to the younger generation. They agreed that having a recognizable source was beneficial for the right topic area. For example, Sam said that he didn't know Mark Rober as an agriculture expert, which lowered his trust, but when Bill Gates was introduced, his trust was regained. Jerry even uses the analogy, "It'd be like using Adam Sandler to talk about physics," to explain how utilizing celebrities as influencers can be a red flag. The overall trust in either video varied from participant to participant, depending on their perception of the characters. Another recurring theme in the context of trust was whether the video offered both sides of the argument or was solution focused. Participants agreed that they often referenced the number of likes as well as positive or negative comments in a video post to assist in determining credibility.

As a follow-up question, participants were asked what they would have changed about the video to have increased their trust in the information presented in either video. For this section, significant themes that emerged were an increase of video production quality and level

of engagement, addressing both sides of the argument, using sources that are appropriate for the information, citing information, and providing relatable examples. Participants also noted that they preferred to look for credible information in published articles in academic journals, but YouTube and websites that use .gov or .edu were more of a secondary information source.

Perception of the Beef Industry

Regarding resources, participants, in general, agreed that agriculture required too many. Alex remarked, "I definitely think that [the beef industry is] problematic, and it does use way more resources than necessary and that it probably is safer and better - like more helpful, to reduce our beef intake." Participants frequently addressed the beef industry's water usage, impacts on the environment, and concerns about nutrition (Table A3). Young consumers agreed that the conflicting information causes more confusion regarding who and what they should believe. They mentioned using scholarly publications and research papers to focus on the issues they were confused about. It was suggested that more issues be covered from a global perspective rather than simply from the U.S., aside from nutrition and the environment. Participants noted that implementing manageable solutions to the issues discussed in the videos. Around half of the participants said they consume beef, but most of them do not purchase beef because of the cost. Some of the participants remarked that they emulate their parents' buying patterns which did not include beef, instead, they chose chicken and turkey as their protein source. Other topics mentioned for beef perceptions were ways participants have reduced their beef intake, controversies like Fair Oaks farm (reference), and others (Table A4).

Moments of Impact

Participants noted that strong and clear examples are more impactful. For example, using peanut butter sandwiches to compare the amount of peanut butter used to sustain protein

requirements versus hamburger patties and the difference in environmental impact. Participants said that unequal comparisons, such as the comparison of beef to rice, made them feel as though the data was being skewed, and so it was hard to believe. There was a little bit more confidence in video two among participants. Although most participants in the first session preferred video one, the general opinion leaned toward video two. If more examples of accurate information points had been provided in the second video, participants stated it would have been more convincing (Table A5).

Discussion and Implications

Trust can be described as "a psychological condition consisting of the acceptance of vulnerability based on positive expectations about another's intentions or conduct. The phenomenon of building human trust is ever evolving" (Dirks et al., 2021; Rousseau et al., 1998, p. 395). This is why researchers continuously try to identify what characteristics of messages may enhance consumers' trust in agriculture. One method to measure perceptions is use of CRM (Lawson et al., 2020). Specifically, agriculture communicators use this tool to scope consumer responses to specific messaging, imagery, music, or other storytelling elements (Fischer, 2021). Effective research using these tools requires researchers to understand consumer values, including moral foundations, political affiliations, and social norms (Fischer, 2021), which affects agricultural perceptions and purchasing intentions. Previous research revealed that consumers showed greater trust in messaging that portrayed agriculture as a family business and fostered relationships between farmers and consumers which is why intentionally creating messages for the intended audience is extremely important (Langrande et al., 2021). It was found through this study that consumers with some level of familiarity of the food production industry or the beef industry are largely unwavering in their perceptions and trust and are less susceptible

to misinformation about the beef industry, specifically when viewing YouTube videos. Another main takeaway is that those with a low level of familiarity or knowledge of the beef industry are more susceptible to misinformation about the beef industry and can be easily misinformed because of their lack of certainty regarding the topic.

Misinformation is Attractive When Confusion Exists

Preexisting beliefs have been found to contribute to attitude and perception formation regarding the beef industry, which is influenced by agriculture involvement (Tarpley et al., 2020) and echo chambers (Ruth et al., 2018). In this study, there were several examples of opinion shifts that resulted from the video that misinformed viewers about the beef industry. Keeping in mind that social science research is highly subjective, there are a few different angles one can interpret these results. To begin, it can be suggested that next generation consumers have difficulty distinguishing accurate information from inaccurate information about the beef industry when presented via a YouTube video. Young college students sampled noted that they were often confused about what information to believe between the two videos regarding beef production practices. One participant shared, "I was sort of confused already but all this makes me more confused." This was consistent with other literature, as many young consumers have little knowledge of local beef production and little understanding of trust and transparency relationships (Oesterreicher et al., 2018). When individuals are in a state of confusion, they cannot determine credibility easily, and so they resort to other mechanisms of checking credibility through avenues such as video likes (social currency) by the viewers, where the video is posted on the internet and overall video quality. Peripheral processing is when the motivation to process a message is due to the message elements, not the message itself (Ruth et al., 2018). This tells us, as agriculture communicators, that the younger generations are more apt to lean

toward incorrect information. Knowing that confusion exists, it is important to frame and create high-quality content so that those who experience confusion are encouraged to learn more about beef production and the industry.

Staying the Course

Those who strongly disagree or strongly agree with the production practices in animal agriculture fall on opposite ends of the spectrum, which is not where most consumers' beliefs lay (Oesterreicher et al., 2018). Regarding video two in this study, consumers with a medium level of FFI are mainly unaffected by the content presented. This can be considered positive because this means that individuals aren't confused by the accurate information they view on YouTube. On the other hand, this can be seen as unfavorable because it shows that next generations of consumers may not be substantially influenced by sharing important accurate information about the beef industry. This can be attributed to young college-aged consumers being firm and unwavering in their perceptions of beef or to the fact that they are simply uninterested in this topic and are uninterested in processing the information.

The most significant changes in trust were seen in those who possessed a lower level of knowledge of the food industry via critical moments versus those who had some knowledge amount of knowledge about food production. When individuals' motivation and subject involvement is low, in effect, information is processed peripherally. This may be why the sample population preferred video one in the areas of video quality, recognition of characters, effective storytelling, and conceptual understanding. Consistent with previous literature (Buddle et al., 2018; Oesterreicher et al., 2018), the same amount of distrust exists in the beef industry, no matter the accuracy of the content. This tells us that agricultural educators and communicators

must continue to find ways to innovatively create content that is innovative, relevant, trustworthy, and attention-getting.

Sources that Make Sense

Social currency is a concept that is relevant to YouTube and social media in general. It assists consumers in determining credibility. Social currency is the influence someone can have on social networks, online and offline communities, and the degree to which your opinion or information is shared by others (Joachimsthaler et al., 2010). A customer's association with a virtual community might be socially beneficial for reasons of social integration and identification (Mirsha et al., 2021). To determine social credibility, participants in this study discussed their tendencies to observe the number of video likes, YouTube channel subscriptions, and comments that have been made on a video. Building a brand that has a solid social currency and online presence may be beneficial to build trust from consumers. Clear and well-thought-out examples are paramount when it comes to ensuring college-aged consumers understand information about the beef industry. Participants in this study stressed how important it was to have well-defined examples and comparisons. For example, participants preferred the example about how much water is used in the production of a hamburger and a peanut butter sandwich relating to the size of a pool. They did not trust the example that compared rice to beef, as they remarked that the comparisons were not similar enough to make the association. They also said that any type of far-reaching comparison felt like the video may to trying to skew the data.

Solutions Based Communications

Participants recommended that solutions be included in agricultural education content being shared with them. Rather than hearing about how much water the industry uses, consumers would rather know what is already being done to fix the problem or how they can help. Again,

participant Kelli discussed water usage in beef production and said, “It's more like they're pushing an agenda versus just looking for solutions to the problems.” Furthermore, Andy also added that initiating solution-based communications could create more support and buy-in from consumers, especially if that means they can contribute to solving the problem.

Conclusions, Limitations, and Future Research

For agricultural communicators, knowing which aspects of videos impact viewer trust is critically important to crafting successful educational video communication pieces. Exploring intersections of sensitivity to misinformation and connection to food production might improve future perceptions and purchase intentions. Ultimately, this study concludes that young, non-agricultural consumers are susceptible to misinformation and stresses the importance of providing credible sources and solutions for effective video comprehension and trust. This study had some limitations. One of the more significant limitations that exist in the study, was the small sample size of n=15. For this study, there was not much interest from the undergraduate student population, so finding a better way to encourage participation and seem more beneficial to them is something that could be modified. In addition, the Perceptions Analyzer lab space was limited in the number of participants per focus group. Greater number of respondents would have enabled greater statistical interpretation of the survey data and allowed for more observations to be made throughout each phase of the study.

For future research, analyzing differences among political groups could provide additional explanations of perception sensitivity. Effective, encouraging words shared on social media about agricultural industries, particularly beef, would refute misinformation that exists across online platforms. The Food Familiarity Index has also demonstrated potential as a trustworthy research instrument by consistently evaluating one’s participation in food

production. Although further investigation is required to fully understand the possible implications, this tool might be used to segment the audiences of agricultural communicators to personalize specific messages based on their perceived understanding and affiliation with food participation within food production and agriculture.

Results of a study of relationships of childhood nature experiences to adulthood views indicated that involvement with programs in childhood, such as walking, hiking, camping, hunting, or fishing, had a significant, positive association with adult attitudes and behaviors (Wells & Lekies, 2006). With consumer socialization occurring at a young age (John, 1999), it could be effective to examine if introducing children to agriculture messaging and exposure could result in long-term positive perceptions of agriculture.

Literature Cited

Ary, D., Jacobs, L., Sorensen, C., & Walker, D. (2014). *Introduction to research in education (9th ed.).* Belmont, CA: Wadsworth Cengage Learning.

Bhattacherjee, A. (2012). *Social Science Research: Principles, Methods, and Practices. Textbooks Collection. 3.* https://digitalcommons.usf.edu/oa_textbooks/3

Biocca, F., David, P., & West, M. (1994). Continuous response measurement (CRM): A computerized tool for research on the cognitive processing of communication messages. In A. Lang (Ed.), Measuring psychological responses to the media (pp. 15–64). Erlbaum.

Buddle, E., Bray, H., & Ankeny, R. (2018). "I Feel Sorry for Them": Australian Meat Consumers' Perceptions about Sheep and Beef Cattle Transportation. *Animals,* 8:171, doi:10.3390/ani8100171

Butler-Hortan, M. (2021). *College Students' Perceived Ability Versus Actual Ability to Identify Fake News on Agricultural Topics*. [unpublished manuscript]. Agricultural Communications, Texas Tech University. https://ttu-ir.tdl.org/bitstream/handle/2346/88708/BUTLER-THESIS-2021.pdf?sequence=1&isAllowed=y

Christakis, N., Fowler, J. Social contagion theory: Examining dynamic social networks and human behavior. Stat. Med. 2013,32, 556–577.

Desai, A., Ruidera, D., Steinbrink, J., Granwehr, B., & Heun Lee, D. (2022). Misinformation and Disinformation: The Potential Disadvantages of Social Media in Infectious Disease and How to Combat Them *Clinical Infectious Diseases*, 74 (e34–e39). https://doi org.spot.lib.auburn.edu/10.1093/cid/ciac109

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). Internet, phone, mail, and mixed-mode surveys: The Tailored Design Method. *Wiley.*

Diekman, C., Ryan, C., & Oliver, T. (2023). Misinformation and Disinformation in Food Science and Nutrition: Impact on Practice. The Journal of Nutrition, 153(1), 39.10.1016/j.tjnut.2022.10.001

Dirks, T., Sweeny, P., Dimotakis, & Woodruff, T. (2021). Understanding the Change and the Implications for New Leaders. *Journal of Business Ethics*. 180:711–730 https://doi.org/10.1007/s10551-021-04902-4

Farm Credit of the Virginias. (n.d). Connecting to AG Is More Important than Ever. *Farm Credit of the Virginias*, Farm Credit, https://www.farmcreditofvirginias.com/knowledge-center/blog/connecting-ag-more-important-ever#:~:text=The%20fact%20that%20almost%20everyone,they%20do%20it%20and%20why

Fischer, L. (2021). Continuous Response Measurement [PowerPoint Slides]

Fischer, L. (2021). Opinion Formation & Theoretical Applications [PowerPoint Slides]

Graham, V. (2021). 'Fake News' wars to attack ag. *Stock Journal (Fairfax Media)*. https://advance-lexis-com.spot.lib.auburn.edu/document/?pdmfid=1516831&crid=608c369c-80e6-41b1-a06e-54f81e39d3f8&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentIt

Joachimsthaler, E., Pfeiffer, M., Zinnbauer, & M. and Honer, T. (2010), Social Currency. Why Brands Need to Build and Nurture Social Currency. *Commercial Internet Publication of Vivaldi Partners.*

John, D. (1999). Consumer Socialization of Children: A Retrospective Look at Twenty-Five Years of Research. *Journal of Consumer Research*. 26(3), 183-213. https://doi.org/10.1086/209559

Konstantinou, P., Georgiou, K., Kumar, K., Kyprianidou, M., Nicolaides, C., Karekla, M., & Kassiano, A. (2021). Transmission of Vaccination Attitudes and Uptake Based on Social Contagion Theory: A Scoping Review. *MDPI.* https://doi.org/10.3390/vaccines9060607

LaGrande, L., Meyers, C., Cummins, G., & Baker, M. (2012). A Moment-to-Moment Analysis of Trust in Agricultural Messages. *Journal of Applied Communications*. 105(2). https://doi.org/10.4148/1051-0834.2375

Lawson, C., Fischer, L., LaGrande, L., and Opat, K. (2020). Do touch that dial: A guide to continuous response measurement in agricultural communications. *Journal of Applied Communications*. Vol. 104: Iss. 3. https://doi.org/10.4148/1051-0834.2333

Maurer, M., & Reinemann, C. (2009). RTR measurement in the social sciences: Applications, benefits, and some open questions. In J. Maier, M. Maier, M. Maurer, C. Reinemann, & V. Meyer (Eds.), Real-time response measurement in the social sciences: Methodological perspectives and applications (pp. 1-13). Frankfurt is Main.

Mirsha, Y. & Singh, A. (2021). Identifying the factors of social currency for social media marketing strategy. *South Asian Journal of Business Studies*.10(3), 305–321. https://www-emerald-com.spot.lib.auburn.edu/insight/content/doi/10.1108/SAJBS-01-2020-0022/full/pdf?title=identifying-the-factors-of-social-currency-for-social-media-marketing-strategy

Morning Consult. (2018). *Brand intelligence: Watch nearly 2,000 consumers react in real-time to Nike's Kaepernick Commercial.* Morning Consult. https://morningconsult.com/form/nike-dial-test/

Oesterreicher, S., Lundy, L., Rumble, J., & Telg, R. (2018). Collegiate Millennials' Perceptions of Locally Produced Beef, *Journal of Applied Communications*, 102(4). https://doi.org/10.4148/1051-0834.2226

Patel, N. (2023) Enterprise SEO Strategy: Ultimate Guide. NP Digital. *https://neilpatel.com/blog/enterprise-seo-strategy/*

Petty, R., Cacioppo, J. T., E., Kao, C. F., & Rodriguez, R. (1986). Central and peripheral routes to persuasion: An individual difference perspective. *Journal of Personality and Social Psychology*. 51(5), 1032–1043. https://doi.org/10.1037/0022-3514.51.5.1032

Rousseau, D. M., Sitkin, S. B., Burt, R. S., & Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. *Academy of Management Review*. 23, 393–404.

Ruth, K., Settle, Q., Rumble, J., & McCarty, K. (2018). Predicting Likelihood to Pay Attention to Agriculture-Related Issues in the News with Demographic. Characteristics. *Journal of Agricultural Education*, 59(2), 49-63. https://doi.org/10.5032/jae.2018.02049

Saldaña, J. (2014). Coding and analysis strategies. In P. Leavy (Ed.), The Oxford Handbook of qualitative research (pp. 581-685). Oxford University Press.10.1093/oxfordhb/9780199811755.013.001

Schwartz-Shea P., D. Yanow. (2012). Interpretive Research Design Concepts and Processes. Routledge, NY, NY

Statista. (2023, January). Global social networks ranked by the number of users in 2022. [Consumer market outlook]. https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/

Suarez, E. & McKee, V. (2018). *Preparing to Work with Generation* Z. EDIS. 10.32473/edis-wc311-2018

Swire-Thompson, B, Lazer, D. (2020). Public health and online misinformation: challenges and recommendations. *Annu Rev Public Health.* 41:433–5. https://www.annualreviews.org/doi/10.1146/annurev-publhealth-040119-094127

Tarpley, Troy G.; Fischer, Laura Morgan; Steede, Garrett M.; Cummins, R. Glenn; and McCord, Amber (2020). How Much Transparency is Too Much? A Moment-to-Moment Analysis of Viewer Comfort in Response to Animal Slaughter Videos, *Journal of Applied Communications.* 104(2). https://doi.org/10.4148/1051-0834.2302

Van Eenennaam, A. (March 23, 2022). *Misinformation in the Agricultural Sciences* [Zoom Presentation]. Center of Vet Study. University of Illinois. https://mediaspace.illinois.edu/media/t/1_k0b1s1mh

Wann, D. & Branscombe, N. (1993). Sports fans: Measuring degree of identification with their team. *International Journal of Sport Psychology*. 24(1) 1–17. https://psycnet.apa.org/record/1994-00035-001

Wells N.M. & K.S. Lekies. (2006). Nature and the Life Course: Pathways from Childhood Nature Experiences to Adult Environmentalism. *Children, Youth and Environments*, 16 (1) pp. 1-24. www.jstor.org/stable/10.7721/chilyoutenvi.16.1.0001

Chapter 3 – Manuscript 2: Next Generation Vulnerabilities to Beef Misinformation

K. H. Hiltbrand[‡], K. Corbitt[‡], M. Coursen[‡], D. Martin[§], K. Mullenix[‡], B. Smith[‡], D. Mulvaney[‡].

[‡]Department of Animal Sciences, Auburn University, Auburn, AL 36849

[§]Department of Hospitality Management, Auburn University, Auburn, AL 36849

[†] College of Liberal Arts, Auburn University, Auburn, AL 36849

Abstract

With information about seemingly every topic copiously and readily available, it is ever important that consumers flex their critical thinking muscle to sort credible information from a pervasive world of misinformation and disinformation regarding the beef industry. The media dependency that exists, the amount of time spent on social media, and the ever-expanding gap of the American consumer generationally removed from production agriculture are making it increasingly difficult to reach the intended audiences. The primary objective of this study was to identify young consumers' perceptions regarding beef production and if there was an opportunity to alter trust after an individual had been misinformed. A mixed-methods survey study was utilized using the survey platforms Qualtrics and Prolific to gauge how young participants (Gen Z and Millennials; *n*=209) perceived a factually accurate video about the beef industry after viewing an inaccurate video. It was found that trust was higher in the video that included misinformation *(M*=72.51) versus the video that included accurate information (*M*=70.22). Participants were segmented into low, medium, and high groups based on their level of familiarity of the food industry and it was found that the medium group and the low group were the most influenceable by the messaging. Data suggests that young consumers are more likely to take what they see on the internet as factual with no intention of questioning the credibility of the

information. This research verifies a complex challenge in reaching and influencing the emergent younger generation consumers with accepted and trusted factual information about animal agriculture.

Keywords: Misinformation, Beef Industry, YouTube, Agriculture Communications, Influence

Introduction

Societal change and improvement are a byproduct of adoption and investment in technology, but it also requires a clear understanding of the adopters who utilize technology. Technology has advanced within the agricultural industry and so have the avenues to communicate about it (Burnett et al., 2019). Advances in precision agriculture, artificial intelligence, robotics, and other technologies have impacted animal nutrition, breeding and genetics, and animal health and animal reproduction. Simultaneously there has been exponential advancement in communication platforms of social media, artificial intelligence, and augmented reality used to communicate concepts about the agriculture industry (Abbasi et al., 2019).

Understanding how consumers best assimilate information is critical to helping inform the public about agriculture and its consumer products (Burnett et al., 2019). For example, it would be impossible to teach someone about agriculture in a different language – they won't comprehend anything. Likewise, it is crucial that the agriculture community acquire skillsets and knowledge to more effectively communicate to consumers of the new technologies and practices to audiences who may not have a background in agriculture. Possessing the proper knowledge of best practices to communicate to specific audiences is critical to sharing the story of agriculture (Burnett et al., 2019).

Generation Z's buying power is on the rise and compared to past generations their spending habits are drastically different (Fromm, 2022) from other generations. Much like Millennials, one of the keys to marketing to Generation Z is via social media (Fromm, 2022). While millennials have been significant drivers of consumer markets in recent years, a large portion of information they source is from what they glean from the internet (Oesterreicher et al.,

2018) or social media connections. Generation Z is very similar to millennials in their sourcing of information.

One of the many motivations of conducting research in agriculture communications and consumer perceptions is to see if researchers can identify paradigms or mental models (Bhattacherjee, 2012, pg. 17) to understand how audiences process information with the hopes of development of eventual theories. Paradigms are commonly overlooked because they often are assumed actions or habits, but according to Bhattacherjee it is important that they are analyzed because it helps in, "making sense of and reconciling differences in people' perceptions" (Bhattacherjee, 2012, pg. 17). Results from the present research study will add to a body of literature that bids at theorizing why younger consumers of agricultural products process information and develop attitudes or perceptions of animal agriculture. The nature of theory development is challenging, given the indistinct composition of theoretical notions, the difficulty of measuring human behavior, and the presence of numerous uncontrollable and potentially confounding elements (Bhattacherjee, 2012).

Misinformation and Disinformation

Misinformation as defined by Eckler et al., (2022) is "any information that turns out to be false – and poses an inevitable challenge for human cognition and social interaction. Disinformation differs as it is intentionally spreading false information" (Eckler et al., 2022). In essence the difference of the two types of message distribution defaults on the communicator's intent. Aside from the dissemination of incorrect information, Karlova & Fisher, (2013) stated that spreading both misinformation and disinformation produces "suspicion, fear, worry, anger and decisions" which results in implications of trust.

Unfortunately, misinformation and disinformation are not a new challenge to the twenty-first century. Examples of both misinformation and disinformation over the years have contributed to several antagonistic occurrences that include but are not limited to elections, religious and political oppression, and specific events such as the worlds response to the Covid-19 pandemic (Eckler et al., 2022). Unlike in history, today, inaccurate messages have access to digital infrastructure with unmatched reach (Eckler et al., 2022).

Misinformation and disinformation exist in agricultural topics and beyond. Some of the most common topics where misinformation and disinformation exist include genetically modified organisms (GMOs) (Butler-Hortan, 2021; Ryan et al., 2020, p. 15), milk production, animal welfare, and animal protein production (Van Eenennaam, 2022). Newsworthy stories of misinformation and disinformation include the 1990's lean finely textured beef story and Oprah Winfrey's claim about Bovine Spongiform Encephalopathy (BSE) or better known as "mad cow disease" (Lemons & Landrum, 2018).

Agricultural Communications Survey Work and Social Science

In social sciences, survey research dates to the 1930's and in earlier days, surveys were conducted via telephone and mail questionnaires (Glock, 1967). Today, both qualitative and quantitative surveys are distributed in many ways, including mail, email, social media, web page, survey platforms, and in-person.

A literature review of research published in the Journal of Applied Communications (JAC) revealed that 47.3% of the studies published in the agriculture communications centered journal used a survey methodology (Edgar et al., 2009). Within these studies, many times, researchers collected the demographics and psychographics (Edgar et al., 2009). Demographics

are characteristics survey audiences possess, such as age, gender, education, and income level, while psychographics combine the audience's values and lifestyle choices (Telg & Irani, 2011). Identifying an audience's demographics and psychographics can help communicators develop a message targeted to their views and background (Telg & Irani, 2011).

Today, survey distribution services are available to assist with finding study participants. Many firms exist that specialize in survey distribution, data collection, and data processing to lessen the burden of not having enough participants for statistical power. Examples of said firms are Pollfish (www.pollfish.com/), Prolific (www.prolific.co), and Centiment (https://www.centiment.co/), to name just a few companies. These corporate services allow researchers to choose specific audience demographics and sample size needed for in their study.

Theoretical Framework

The theoretical basis for this investigation was the elaboration likelihood model (ELM). (Petty & Cacioppo, 1986). The elaborative likelihood model is the system through which people digest information and determine how convincing a topic is depending on the processing path. (Petty & Cacioppo, 1986). When information is processed centrally, the individual adopts a methodical approach and is highly driven to comprehend the subject. (Petty & Cacioppo, 1986). In contrast, when information is processed peripherally, the desire to process is minimal; as a result, heuristic cues tend to capture viewers' attention. (Petty & Cacioppo, 1986). The ELM has been used multiple times in agricultural communications research for customer trust and education.

Based on the ELM's propensity, individuals with a low amount of food familiarity (low motivation) should process the information that grabs their attention through their peripheral route by way of hedonic cues. Individuals with a higher food familiarity may be more likely to

process the information through their central processing route because they are more motivated to understand the information (Hiltbrand et al., 2023).

Objectives

The purpose of this study was to identify perceptions regarding beef production and the fluctuation of consumer trust through viewing YouTube videos. Specifically, this study considers how consumer knowledge of the food production industry relates to how susceptible they are to both factual and false information about the beef industry. In addition, the study was designed to examine see if communicators can revert those perceptions among participants who have been preciously misinformed. Researchers pursued the following research objectives:

1. Investigate if consumers susceptibility to believe false information is dependent on their familiarity with the food production industry.
2. Explore whether consumers can pinpoint accurate and inaccurate information about the beef industry.
3. Determine if perceptions present after viewing a video with misinformation can be altered by viewing a video with correct information.

Methods

Generation Z is the most technologically advanced generation to (Mitchell, 2020) and Millennials are not far behind (Mitchell, 2020). The generations are poised with both an opportunity and a challenge when it comes to learning about the world around them. Because the generations have instantaneous access to ubiquitous amount of information at their disposal to aid in learning, but as consumers they must sift and search through all the content and messaging that can be published by any author or citizen journalist.

Research Design

A sample population of young consumers were utilized to enable analysis of responses to the following research questions focused on improving effectiveness of communications within a video modality in relation to a target audience's age and level of prior knowledge of the food industry.

This study's research questions were as follows:

RQ1: Is there a relationship between levels of food production knowledge and preference for two YouTube videos differing in factual content?

RQ2: Can representatives of next generation consumers distinguish credibility accuracy of two YouTube videos differing in credibility?

RQ3: What characteristics among YouTube videos about agriculture influence young consumers trust of informational content?

To achieve the study's objectives, a mixed methods design was utilized to survey both qualitative and quantitative data. Prolific (Version 2022, London, England), a paid survey platform, was utilized to recruit within defined demographic boundaries. Participants (*n*=209) were recruited using purposive sampling and were filtered for Generation Z and Millennial participants. The sample population criteria were defined as a representative sample of U.S. males to females who were either born after 1996 and fall in the generation Z age range or were born from 1981 to 1996 for the millennial age range (Pew Research, 2020). Demographics of interest included age, ethnicity, gender, purchase or sourcing method of animal protein, source of information, political affiliation, upbringing location category, and area education or area of industry. If a potential sample participant did not meet the age criteria, they were not permitted to take the survey. Participant demographics can be found in Table 11.

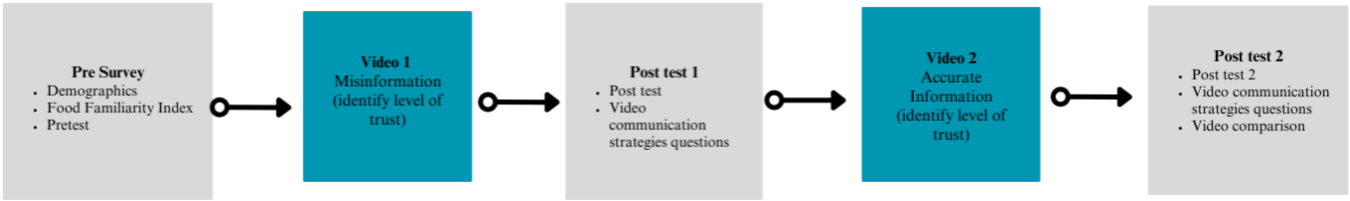
Experienced survey researchers verified the survey for proper design. The survey was housed online using Qualtrics Survey software (Version 2022, Provo, Utah, U.S.) and was distributed on Prolific (Version 2022, London, England). The qualitative and quantitative data were examined separately, and then simultaneously after data collection to develop comprehensive takeaways regarding the study.

Survey

Before beginning recruitment, the Auburn University Institutional Review Board approved survey elements, and study #22-428 was categorized as exempt. The flow of the survey began with an explanation of the study and IRB overview. Participants first completed the demographics, the Food Familiarity Index (FFI), following a pre-test about beef industry perceptions, and then participants viewed video one (misinformation about environmental sustainability of the beef industry). After concluding the first video, participants were instructed to complete post-test one regarding beef industry perceptions, then watch video two (evidence-based information about the environmental sustainability of the beef industry), and next complete the post-test two as well as complete some open response questions (see Figure 4). The survey was constructed, validated, and approved by trained personnel.

Figure 4.

Flow of Survey of Prolific Beef Perceptions Study



The Food Familiarity Index (FFI) (Hiltbrand et al., 2023), was adapted from the Agriculture Involvement survey (Tarpley, 2020) and the sports team allegiance questionnaire

(Wann & Branscombe, 1997). The FFI instrument aims to identify participants level of knowledge (familiarity) of food production (Hiltbrand et al., 2023). The FFI is comprised a 12-item questionnaire and a 10-point Likert scale (Hiltbrand et al., 2023). The Likert scale allowed participants to rank their agreements on a scale from 0 to 10 (0=strongly disagree, 10=strongly agree). Based on the sum of the response to the 12 questions individuals were divided into three categories: low group (sum ≤ 40), medium group (sum ≥ 40 and sum ≤ 80), and high (sum ≥ 80) food familiarity group (Hiltbrand et al., 2023). After concluding the FFI portion of the survey, participants were presented with a 15-question pre-test about the beef industry, quantified using a five-point Likert scale.

Table 10.

Food and Agriculture Familiarity Index (FFI)[1]

FFI Item
I go out of my way to accommodate purchase of preferred foods.
I am emotionally connected to procedures and conditions in which food is produced/grown.
I would say that I know something about how a majority of the food I eat is raised.
I devote time and energy to learning about different food systems and current agricultural practices used in food production.
When food is a topic of conversation, I am willing to share my knowledge about how food is grown/produced with others.
I devote time to growing my own food and/or food for others (people or animals) to consume.
I would be concerned if I were not able to study and learn about food and agriculture.
I support agriculture and food production systems.
I make buying decisions based on how and/or where a specific food item was produced.
I seek out others who also know or care about where their food comes from.
I am familiar with safety, quality, and marketing factors of food.

[1] (Hiltbrand et al., 2023)

After completing the pretest survey, participants viewed a YouTube video that included misinformation about the agriculture industry (refer to stimuli section). After watching the video, participants ranked their overall level of trust in the video on a scale of 0 to 100 with 50 being neutral. Next, participants were prompted to take post-test one, which included the same questions as the pretest to see if any views had been influenced from video one, as well as 12

additional questions relating to video communication strategies on general (two qualitative questions) (Appendix 1.4).

After completing post-test one, survey-takers were instructed to view the second YouTube video that presented accurate information in the same areas of agriculture. As with the first video, participants were instructed to rate their level of trust on a scale of 0-100 after the video concluded. To conclude the study, individuals were asked to complete post-test two, which included 15 questions about their perceptions of the beef industry, 12 questions about communications strategies (two qualitative questions), and then 13 comparative questions regarding videos one and two. The survey questions can be found in appendix 2.0

Videos

The two videos that were selected to gauge consumer susceptibility to misinformation both contained information regarding the effects of agriculture on the environment, human health, and animal welfare. Videos were publicly found on well-known YouTube channels. "Feeding Bill Gates, a Fake Burger (to Save the World)" is the title of the first video, which was published on YouTube by Mark Rober and initially lasted 16 minutes and 39 seconds (Mark Rober, 2020). The video needed to be brief to keep the audience's interest (Tarpley, 2020). To align videos with congruent content the second video, for the sake of this study, the first video (https://youtu.be/ZAG0mTeFON4) was shortened to 2 minutes and 23 seconds. Videos were referred to as "video one" and "video two" in the study and without a title to minimize bias.

The second video, titled "Eating Less Meat Won't Save the Plant, here's why," was shown to survey respondents and originally was 23 minutes and 11 seconds (What I've Learned, 2021). This video (https://youtu.be/VJLSewiVOys) was condensed to 3 minutes and 50 seconds for the purposes of this study to allow comparable information to align with the first video and retain

viewers' attention. The order in which the videos were shown remained consistent throughout the study, given that it was important to see if the second video could shift any misconceptions about agriculture depicted in the first video.

Participants

At initial recruitment, 276 individuals were identified through Prolific. Participants were filtered for the appropriate age and degree of survey completion. After filtering the convenience sample 209 young consumers (*n*=209) had complete data. Of the 209 responses, 44.0% (*n*=92) of the participants identified as male, 52% (*n*=109) acknowledged as female, 3.3% (*n*=7) identified as non-binary, and .5% *(n*=1) preferred not to answer. The range of ethnicities represented included Hispanic of any race, 17.2% (*n*=36); American Indian or Alaska Native, .5% (*n*=1); Asian, 12.0% (*n*=25); Black or African American, 15.3% *(n*=21); White, 50.2% (*n*=105), and lastly "two or more races," 4.8% (*n*=10). Three political affiliations were represented in this study, including 15.8% (*n*=33) conservatives, 21.1% *(n*=22) moderates, and 62.2% (*n*=130) liberals. Of the participants, 37.8% (n=79), the largest group of individuals had attended college but had not completed their degrees. The division between participant backgrounds was fairly equal, as rural represented 30.0% (*n*=67) of the participants, suburban represented 23.8% (*n*=53), and urban represented the largest amount at 39.9% (*n*=89)

Of the participants, 35.4% (*n*=74) were represented in the high FFI group, 57.9% (*n*=121) were in the medium group, and 6.7% (*n*=14) fell into the low group. The participant pool reported that they utilized social media the most at 21.6% (*n*=152) when sourcing credible information. See Table 11 and Table 12 for comprehensive demographics.

Table 11.

Basic Demographics of Prolific Participants

Characteristics	*n*	*%*
Gender		
Male	92	44.0%
Female	109	52.3%
Non-Binary	7	3.30%
Prefer Not to Say	1	0.50%
Age		
18-22	158	75.6%
23-38	51	24.4%
Ethnicity		
Hispanics of any race	36	17.2%
American Indian or Alaskan Native	1	0.5%
Asian	25	12.0%
Black or African American	32	15.3%
White	105	50.2%
Two or more races	10	4.8%
Political Affiliation		
Conservative	33	15.8%
Moderate	22	21.1%
Liberal	130	62.2%
Other	2	1.0%
Level of Education		
Some high school or less	5	2.4%
High School Diploma or GED	48	23.0%
Some College but no degree	79	37.8%
Associates or Technical Degree	20	9.6%
Bachelor's degree	56	26.8%
Graduate Degree	1	0.5%
Zip Code		
Urban	89	39.9%
Suburban	53	23.8%
Rural	67	30.0%

Note. $n = 209$

Table 12.

Food Production Knowledge Related Demographics

Characteristics	*n*	*%*
Food Involvement Score (FFI)		
High	74	35.40%
Medium	121	57.90%
Low	14	6.70%
Source of accurate information		
Books	105	14.80%
Blogs	72	10.10%
News Outlets	20	2.80%
Podcasts	101	14.20%
Print Materials	44	6.20%

Search Engines	29	4.09%
Social Media	153	21.60%
YouTube	102	14.40%
Other	82	11.50%
Sources of Animal Protein		
Chain Grocery Store	189	52.90%
Directly from Farmers Market	12	3.30%
I raise my own protein source	2	0.05
I don't purchase animal protein	13	3.60%
Meat Market/Butcher	26	7.20%
Online (Amazon)	12	3.30%
Restaurant	98	27.40%
I hunt my own proteins	2	0.05%
Other	3	0.08%

Note. n = 209

The appropriate sample size of 246 individuals was selected using the table, *Completed Sample Sizes Needed for Population Sizes and Characteristics at Three Levels of Precision* (Vaske, 2008; Dillman, 2007; Salant and Dillman, 1994; p. 180). This value was appropriate for a 95% confidence considering the population of the United States, with a ± 5% sampling error with an 80/20 split.

Analysis

To analyze the quantitative and qualitative survey data a mixed-methods design was employed. The survey data were exported from Qualtrics and then was imported into Excel (Microsoft Excel, 2023). Once in Excel, participants were filtered for incomplete surveys. Zip codes were coded for rural, suburban, or rural areas based on the population (United States Zip Codes, n.d.). Urban areas were categorized as 3,000 people per or more per square mile, suburban was 1,000 to 3,000 people per square mile, and rural were considered less than 1,000 people per square mile (Great Data, n.d.).

Quantitative data were analyzed using SAS v. 9.4 (SAS Institute, Inc., Cary, NC, desktop version) and SPSS (SPSS, Version 28) statistical software. There were two alpha and significance levels outlined for this study. The initial, $\alpha_1 = 0.05$ where data were considered

significant if $p < 0.05$. The other is $\alpha_2 = 0.10$, such that propensities for changes among participants would be acknowledged when $0.05 \leq p < 0.10$. Exact *p*-values are presented to allow the reader to develop independent interpretations.

To answer RQ1, non-parametric Kruskal-Wallis (KW) chi-square analysis was used to determine the change in responses across a series of surveys as compared to participants' level of food familiarity. To answer RQ2, group means were determined and compared to answer which video participants had more trust in, and frequencies were reported of the video comparison question at the conclusion of posttest 2, and a one-way ANOVA was run. Open-ended video comments were also reported to draw and takeaway conclusions from participants. To answer RQ3, frequencies were reported of the video communication style or feature preferences and overall video preference.

Results

RQ1: Is there a relationship between levels of food production knowledge and preference for two YouTube videos differing in factual content?

The first research question analyzed if either video resulted in a substantial change in participants' perceptions toward the beef industry based on their understanding of food production. A non-parametric one-way Kruskal Wallis chi-square analysis was utilized to analyze if there was an association between how participants were affected by either of the videos based on their FFI value (Table 13 & 14).

The KW test revealed that amongst FFI groups, there were tendencies to be different in being assured the viewers have access to a safe food supply after watching the first video [$\chi^2(2) = 5.96$, $p = 0.0498$]. Inspection of group means suggests that belief in efficiency of food

production perception increased the most in the medium group, and the least in the low group after watching the first video. KW tests report differences amongst FFI groups referring to perceptions the ability to improve food-insecurity if we raised less beef [$\chi^2(2) = 15.58$, $p = 0.0007$]. Specifically, after analyzing group means it was found the medium group perception decreased the most in their perception of the ability 'to improve food-insecurity if we raised less beef' after watching the two videos. Statistical analysis showed tendencies to be different across FFI groups regarding 'land for grazing animals surpassing land used to grow crops' [$\chi^2(2) = 5.82$, $p = 0.0543$], where the medium and low group equally disagreed that 'land for grazing animals surpassing land used to grow crops' after watching the first video. Those in the high group opinions didn't not change after watching video one or two.

Table 13.

Non-Parametric Analysis of Test-to-Test Change Response: Pre-Test Versus Post-Test 1.[1]

Question	Group	*n*	M^2	*p*-value
2. I believe I have access to a safe food supply.	Pre-Post High	14	80.9	
	Pre-Post Medium	121	101.8	0.0598
	Pre-Post Low	74	114.6	
13. We could improve food-insecurity if we raised less beef.	Pre-Post High	14	53	
	Pre-Post Medium	121	104	0.0007
	Pre-Post Low	74	116.3	
14. Land for grazing animals surpasses land used to grow crops.	Pre-Post High	14	85.7	
	Pre-Post Medium	121	99.7	0.0543
	Pre-Post Low	74	117.3	

[1] Survey utilizing Qualtrics ($n = 209$); data are pre and post-test results for video one.
[2] M = mean
* $p > .05$
** $p > .10$

There was only one question that was significant from post test 1 to post test 2 in perception after viewing the second video (Table 14). Another KW test revealed differences

amongst various the tendencies feeling assured that viewers have access to a safe food supply after watching the second video [$\chi^2(2) = 4.67$, $p = 0.0967$]. Inspection of the group means suggest that those in the medium group had a lower level of trust in the efficiency of food production after watching video one.

Table 14.

Non-Parametric Analysis of Test-to-Test Change Response: Post 1-Test Versus Post 2-Test.[1]

Question	Group	*n*	M^2	*p*-value
2. I believe I have access to a safe food supply.	Pre-Post High	14	129.8	
	Pre-Post Medium	121	104.8	0.0947
	Pre-Post Low	74	100.6	

[1] Survey utilizing Qualtrics ($n = 209$)
[2] M = mean
** $p > .05$*
*** $p > .10$*

RQ2: Can representatives of next generation consumers distinguish credibility accuracy of two YouTube videos differing in credibility?

For research question 2 the average trust level for video 1 was 72.51 (*SD*=23.23) (Table 15). The average trust level for the low FFI group in video 1 was 70.20 (*SD*=24.31). The average trust level for the medium FFI group in video 1 was 73.43 (*SD*=22.38). The average trust level for the high FFI group in video 1 was 76.20 (*SD*=25.31). In video 2 the average trust level for was 72.62 (*SD*=20.48). The average trust level for the low FFI group in video 2 was 69.55 (*SD*=21.52). The average trust level for the medium FFI group in video 2 was 69.88 (*SD*=20.36). The average trust level for the high FFI group in video 2 was 76.20 (*SD*=25.31).

Trust change scores were subjected to a one-way analysis of variance having two levels of message credibility (misinformation, accurate information) and three levels of food familiarity

understanding (high, medium, and low). A one-way ANOVA demonstrated that the effect of misinformation was not significant between the food familiarity groups, $F_{(2, 206)} = .694$, $p = .501$. A one-way ANOVA demonstrated that the effect of accurate information was not significantly different between the food familiarity groups, $F_{(2, 206)} = .741$, $p = .478$. After watching each video, participants were encouraged to leave any comments they thought needed to be addressed, and these are found in Table 16.

Table 15.

Means indicating Trust Between Video 1 and 2[1]

		n	*M*	*SD*
Video 1[2]				
	Low Group	74	70.20	24.31
	Medium Group	121	73.43	22.38
	High Group	14	76.79	25.31
	Total	209	72.51	23.24
Video 2[3]				
	Low Group	74	69.55	21.52
	Medium Group	121	69.88	20.36
	High Group	14	76.64	15.45
	Total	209	70.22	20.48

[1] Survey utilized Qualtrics (*n*=209)
[2] Video included misinformation, [3] video included accurate information.

Table 16.

Open Ended Participant Video Comments

Video 1[2]	"I was very surprised that the production of beef surpasses the amount of greenhouse gasses emitted from planes, trucks, and cars."
	"I am well aware of the figure in this video, Mark Rober, so I am also aware of a lot of his other videos and claims and overall informative and scientific approach to modern day problems. Essentially, I trust this creator's ability to objectively look at problems and to not provide false information making me more inclined to trust what he says as true."
	"I feel less trusting of sources of information that don't offer an opposing perspective to take into account. It feels somewhat misleading to only offer one side of a story without giving the other any consideration. There's always options to weigh and not everything is black and white."
	"I don't think that video is a fair representation of everything, there's a lot more that goes into "plant vs beef" than what they talk about. I especially take problem in acting like if we ate what we fed cows there would be less food insecurity in the world; Food insecurity is not a product of not having enough food available, look at how much food waste there is. Food insecurity is spawned by greedy practices, and people's lack of money/being able to afford to eat. Not to mention the entire concept of "food deserts". I take a lot of issue with this video because I feel as though they are acting like its very simple solution, everything is cut and dry, when it's not."
	"I think it's a good eye opener into the reality of our food industry."

	"I already have reduced my consumption of beef and meat in general after seeing similar content to this in the past 4-5 years."
Video 2[3]	"Video 2 seemed less credible."
	"It feels like this was the other side of the story I'd been looking for, and logically makes sense considering how we Humans have been raising livestock for thousands of years. It makes sense that biological waste from plant food production is fed back into livestock, and that perhaps the problem is grossly misconstrued to sell more plant products, which are becoming a very expensive alternative as "alternative proteins" become more and more of a marketing ploy rather than a solution to any problem. It preys on people's lack of understanding of food and nutrients and feels comparable to "detox" movements and holistic crystal healing crap. Buzzwords like "superfoods" are thrown around when people don't actually know what it means. My only concern is that there is a possibility this video is represented in part by the livestock industry looking to guard their ways and might be equally as misleading as the first video. I feel like most information online is perpetuated by companies looking to sell their products and influence the population at a very basic level to sway them."
	"The guy in the blue shirt in video 2 who was arguing that animal agriculture does not use too many resources did not sound very confident in terms of speech and demeanor, so I just strongly feel like video 1 is much more factual and believable than video 2."
	"Neither video actually gets into the finer details of this topic and only glance over the most basic talking points to pander to the already agreeing audience. Neither is completely factual, but video 1 has a much more overt agenda and is borderline propaganda, whereas video 2 is more of a sin of omission."
	"Video 2 confused a little, though I understand the general point they were making. It wasn't as professional (in terms of graphics and script) as Video 1 which influenced how believable I saw Video 2."
	"They were both good, I'm not sure which one is more factual Surprisingly while this video did touch on the problems, I had with the previous one there were more parts in this that I found to be outright hard to believe. Such as the claim that a difference in a measure under 1% is "unmeasurable".

[1] Survey utilized Qualtrics (*n*=52).
[2] Video included misinformation, [3] video included accurate information.

RQ3: What are characteristics among YouTube videos about agriculture which influence young consumers trust of informational content?

For research question three, frequencies were ran using SPSS. The participants ~~(*n*=209)~~ reported their preferences regarding how messages are communicated (Table 17) and which video they ultimately preferred (Table 18).

Participants were asked to select words they associate with each video. Participants reported: informative, believable, engaging, concerning and factual as their top five words for both video one and video two.

Table 17.

Frequency Table of Communication Characteristics.[1]

Question	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	*M*	*SD*
Video quality is highly produced.							
Video 1	1.0%	5.7%	11.0%	46.4%	35.9%	4.1	.8
Video 2	1.9%	11.0%	19.6%	34.0%	33.5%	3.8	1.0
I recognize a character in this video.							
Video 1	17.2%	9.6%	4.8%	17.7%	50.7%	3.7	1.5
Video 2	1.4%	15.8%	13.9%	46.4%	22.5%	3.7	1.0
The video kept my attention, and I found the content interesting							
Video 1	1.4%	4.3%	8.1%	32.5%	53.6%	4.3	.9
Video 2	55.0%	26.3%	5.3%	6.2%	7.2%	1.8	1.2
The visuals and infographics made sense and helped me understand the topic							
Video 1	0.5%	1.9%	6.7%	29.7%	61.2%	4.3	.7
Video 2	2.4%	9.1%	11.5%	41.6%	35.4%	3.9	1.0
This video utilizes effective storytelling.							
Video 1	0.5%	2.9%	8.6%	38.3%	49.8%	4.7	.56
Video 2	1.9%	6.7%	10.5%	43.1%	37.8%	4.0	0.9
I was able to understand the concepts in video X.							
Video 1	0.5%	0.0%	2.4%	23.4%	73.7%	4.5	.68
Video 2	0.0%	6.7%	6.7%	26.7%	60.0%	3.8	1.0
Video X script was effective at communicating the purpose of the video.							
Video 1	1.0%	0.5%	3.8%	28.7%	66.0%	3.8	1.1
Video 2	6.7%	6.7%	0.0%	40.0%	46.7%	4.4	0.7
I trust what the speakers are telling me.							
Video 1	5.3%	9.1%	9.6%	44.0%	32.1%	3.8	1.1
Video 2	13.3%	20.0%	13.3%	33.3%	20.0%	4.2	0.8
I would tell someone else about this video or share it on social media.							
Video 1	13.9%	15.3%	23.3%	27.7%	17.2%	3.2	1.2
Video 2	0.0%	26.7%	13.3%	20.0%	26.7%	3.5	1.0
I want to look for more information after watching this video.							
Video 1	7.7%	12.4%	24.4%	30.6%	24.9%	3.5	1.2
Video 2	13.3%	26.7%	13.3%	20.0%	26.7%	2.8	1.2

[1] Survey utilizing Qualtrics (n = 209)

Table 18.

Frequency Table of Video Preferences.[1]

Question	Video 1	Video 2	No Difference	*M*	*SD*
Script was effective…	49.8%	25.4%	24.9%	1.7	0.8
Image/visuals/illustration of key points were effective…	66.0%	17.7%	16.3%	1.5	0.7
Message was evident and easy to understand…	48.8%	14.4%	36.8%	1.8	0.9
Video was believable…	34.0%	23.4%	42.6%	2.0	0.8
Has a motivating "call to action"	53.3%	20%	26.7%	1.6	0.8
I am more likely to share…	42.6%	24.4%	33.0%	1.9	0.8
Most effective storytelling…	55.5%	19.6%	24.9%	1.6	0.8
I found this this video more credible…	37.8%	33.5%	28.7%	1.9	0.5
Professional quality…	59.8%	13.9%	26.3%	1.6	0.8
I was able to relate to this video more…	39.7%	24.4%	35.9%	1.9	0.8
Offered more facts, figures and was more scientific…	25.4%	44.5%	30.1%	2.0	0.7
Appealed more to my emotions…	46.4%	15.8%	37.8%	1.9	0.9

[1] Survey utilizing Qualtrics (n = 209)

Discussion

The accessibility of information at our fingertips comes with elevated convenience but also consequences. In New York Times column (Freidman, 2023), Thomas L. Friedman commented on a technological change of chatbot ChatGPT (AI) in affecting communication in the infosphere, "A Promethean moment — one of those moments in history when certain new tools, ways of thinking or energy sources are introduced that are such a departure and advance on what existed before that you can't just change one thing, you have to change everything. That is, how you create, how you compete, how you collaborate, how you work, how you learn, how you govern and, yes, how you cheat, commit crimes and fight wars."

With information being so accessible and vulnerable to manipulation, it is ever important that consumers flex their evaluation muscle to pinpoint credible information from the pervasive world of misinformation and disinformation (Zompetti et al., 2022), especially regarding agriculture and beef production. The primary objective of this study was to identify the perceptions of young consumers regarding beef production and if there was an opportunity to alter trust after an individual has been misinformed. Overall, there was a high level of trust regarding the beef industry (Table 15) for both the video that included misinformation and accurate information. These results suggest alignment with Littlejohn and Foss's (2010) proposal that, "Media dependency can cause individuals to be affected cognitively, affectively, and behaviorally" since the first location young consumers go to source credible information is on social media (see Table 11). The combination of trust of both videos, added to the media dependency that exists, and the amount of time spent on social media, all suggests that young consumers are more likely to take what they see on the internet or among members of their social media tribe as true with little intention of questioning the information.

Based on the data, suggests that there are limitations to opportunities to grow trust in consumers after having been misinformed, also known as the continued influence effect (CIE) (Eckler et at., 2022). The CIE is defined as the mechanism when misinformation continues to effect individuals' judgement after receiving truthful information (Eckler et al., 2022). Individuals who had a low to medium level of food familiarity were less likely to trust accurate information after they had been presented inaccurate information (Table 15). According to Eckler et al., (2022), some interventions to combat misinformation are "fact-based correction", "identifying the logical fallacies common in disinformation", "undermining the plausibility of

the misinformation or the credibility of the source," as well as pre-emptive intervention (prebunking), and reactive intervention (debunking).

Individuals who reached a high level of food familiarity were more unwavering in changing their opinions based on the two videos. Knowing this, it is important that audiences are targeted as accurately as possible. Fischer (2020) suggests utilizing value-oriented messaging to increase motivational saliency. Other research recommends that communicators intentionally craft messages with video length in mind to influence perceptions of message favorability (Randolph et al, 2021). Utilizing the correct framing when creating a video is relevant, as narrative videos correlate to higher cognitive elaboration, and analytically designed videos result in improved attitudes (Randolph et al, 2021).

It is critical that agricultural communications practitioners and spokespeople for the agriculture industry are not "speaking to the choir" but rather that they are speaking to those more susceptible audiences. As illustrated in the high level of food familiarity group, when familiar messages reach an audience, it perpetuates what they already believe rather than reaching those who are looking to learn new information. Social media algorithms are built to suggest topics that consumers are interested in, so the chance of internet users getting caught in like-minded echo chambers or information silos is extremely likely (Zompetti et al., 2022). As stated by Zompetti (2022), the exact programming for social platforms is unknown to layman, yet it is well known that the platforms do share "presumed characteristics of users and then spread individualized recommendations to and then spread individualized recommendations to users." While sharing user-specific content keeps consumers' attention, largely, the information presented reinforces what they already know or have been exposed to previously. This attracts young, already social media-dependent individuals to reinforce their preexisting attitudes. The

notion, “you are who you surround yourself with,” is in essence what social media algorithms foster, a community of reinforcing, like-minded content (Desai et al., 2020).

Knowing that those who have a lower knowledge of the food industry are both trusting of what they see online as well as more susceptible to impact, also puts agricultural communicators in a position of great opportunity to elicit change in perception if the intended messages reach the proposed audience.

Confusion and blanketed trust.

Our results show that there is abundant confusion that exists regarding what consumers believe about production practices in the beef industry. This confusion is illustrated by the abundance of individuals scoring in the low or medium food familiarity group, yet still having a high level of trust on both videos shown in the study. This aligns with Fraiture et al. (2015), regarding how misinformation leads to consumer confusion about biotechnology in food which is much like the way misinformation confuses consumers about the beef industry.

Of all the pre to post, and post to post questions (30 pairs total), there were only four pairs that were significant or tended to be significant (Table 13 and Table 14). This suggests to us as researchers a few potential conclusions. First, it suggests that young consumers are unwavering in their beliefs and are unwilling to change their attitudes regarding beef production as knowledge can have either a positive or negative effect on the perception of science (Koswatta et al., 2022). Or it implies, that they trust other false information they consume which relates to similar conclusions in Clayton et al. (2009). The type of science also plays a key role in consumers perception of science (Koswatta et al., 2022), so it is plausible that viewers simply are not interested in the topic enough to process it and harness their critical thinking skills.

Video one prompted the most change in the perception of areas of beef production efficiency, food security, and regarding how much land that ranchers use for grazing in the medium and low groups. Video one and video two prompted significant change regarding just one statement, "I believe I have access to a safe food supply." The medium food familiarity was experienced the largest change in perception. The latter suggests that young consumers are highly susceptible to the information that they consume. It may also suggest that the initial information individuals ingest makes a large impact on what they believe, which is why prebunking could be an effective mechanism to mitigate the spread of misinformation (Eckler et al., 2022).

Best-Practices when utilizing video to communicate to young consumers.

When communicating with Gen Zer's and young consumers, it is also important to be aware of what they care about and are passionate about (Fromm, 2022). Generation Z are passionate about being socially and environmentally conscious, they are self-aware and value their mental wellness, and when product values connect, they are more inclined to build consumer loyalty (Fromm, 2022). The generational theory distinguishes different generations via three constructs, including perceived membership, common beliefs, and behaviors or common locations (Howe & Strauss, 2000). The last five generations all have different characteristics and share differing foundational values and outlooks. Representing 25% of the population Generation Z is the most ethnically diverse population to exist (Suarez et al., 2018). Their connectivity to the internet has both helped and hindered their ability to communicate with other people but has subjected them to an understanding and closeness with historical events thanks to online resources (Suarez et al., 2018). Likewise, their constant connection to peers has been attributed to their ability to empathize with other people and their motivation to understand others (Suarez

et al., 2018). Members of this generation are aware, they look for quick solutions and short-term commitments and are used to multitasking (Suarez et al., 2018). It is important to provide clear direction; praise, rewards, and feedback; provide flexibility, and embrace technology when engaging with Gen Z individuals (Suarez et al., 2018).

With Generation Z being so well-versed in accessing information via resources on the internet, researchers have looked at utilizing video-based learning. Video has the potential to engage the three learning domains: cognitive, affective, and psychomotor (Anggraeni et al., 2020). Message comprehension is not directly impacted by the platform (Coletti et al., 2022); knowing this, the results suggest that messaging be solution-oriented and consider both sides of any critical topic (Table 16). From the study done by Anggraeni et al. (2020), Gen Z high school students preferred a combination of text captions, pictures, animations, special effects, and transitions that help with student comprehension and understanding (Anggraeni et al., 2020). Further, message comprehension is not directly impacted by the platform (Coletti et al., 2022); knowing this, the results suggest that messaging be solution-oriented and consider both sides of any critical topic (Table 16). Anggraeni recommended that close attention should be paid to the selection of the narrators and hosts in the video, and students' feasibility assessment revealed that it would be very feasible to use video as a method to assist in teaching an Agricultural Products Processing course (Anggraeni et al., 2020).

The selection of sources plays a role in trust; this aligns with Eckler et al. (2022), as the research suggested, “people trust human information sources more if they perceive the source as attractive, powerful, and similar to themselves.” In video one, Bill Gates and Mark Rober are easily recognizable public figures, while Dr. Mitloehner, the main source in video two and a professor of air quality in the Department of animal science at UC Davis, was not recognized by

anyone. It is also important to note that trust is higher in political elites and subject experts, which some would describe as Bill Gates (Eckler et al., 2022).

Conclusions/Implications

In a sea of information, it is easy for consumers to grab onto the wrong information unintentionally. The key is knowing how to distinguish credible information from misinformation. It is impossible for everyone to know everything about every topic. Knowing this, consumers turn to other characteristics, processes, and methodologies to assist them in determining believability. Based on the findings of this research, it is suggested that those who have marginal levels of knowledge of how food is produced, specifically in the beef industry, are perhaps more susceptible to believing the information that they consume via the internet. As communicators, this presents us with both advantages and disadvantages. This is a disadvantage because young people are constantly being bombarded with stimuli from electronic devices, so it makes it difficult for curated information to reach the intended audience. Consumers' susceptibility to trust is a disadvantage because they are not necessarily interested in learning about the topic of food production. While younger audiences exhibited high amounts of trust, the amount was not largely impacted by the intervention of accurate information. Lastly and unfortunately, this study provided evidence that young consumers are extremely vulnerable to trusting misinformation. The introduction of both videos brought about degrees of confusion about the topic rather than clarity. To inhibit misinformation, Zompetti et al. (2022) supports decreasing excessive amounts of social media use among young people, encourages consumers to critically evaluate sources, improve overall digital literacy skills, and finally discourages others form “sharing, reposting, or liking” any misinformation the is published.

Limitations & Future Research

Within this study, there were various limitations. First, a larger number of study participants would allow for a more generalizable set of results. Another limitation is that the videos were, by design, presented in the same order in every replication. This was set up intentionally in the study to test if there was an opportunity to reinform individuals that had previously been misinformed. From the study results, it was shown that the participants thought positively about the first video until they were shown the second video. Another limitation was the long survey length. Once a survey lasts more than 7-8 minutes, participant completion rates drop from 5% to 20% (Chudoba, n.d.). Our studies survey lasted anywhere from 20 to 30 minutes in length, depending on the participant.

The are many opportunities to build upon this research. Having analyzed the results, it would be insightful to see if participants change their buying decisions based on the misinformation they consume. While trust exists, this doesn't necessarily correlate to behavior change. The theory of the attitude-behavior gap states that attitudes alone are frequently ineffective predictors of behavioral intention or marketplace behavior (Kraus, 1995; Vermir et al., 2001). Ajzen and Fishbein (1974) conjectured that "the premise that positive attitudes towards buying sustainable food products are not necessarily followed by positive intentions, in contrast with the theory of reasoned action." It would be beneficial to see if attitudes result in any changes in behavior regarding misinformation.

It is important that methods of communication continue to be researched for the effectiveness of agricultural message dissemination. It may be of interest to audit the main sources of misinformation that exist in the digital space to truly gauge the vastness of misinformation we must deal with. Computer-generated AI will likely be designed to search the

global collective of facts, incorporate them, and perhaps promote a suggested behavioral response, but hypothetically without human-induced subjectivity nor bias.

Politicians are huge drivers of regulation, so developing conduits to those audiences with evidence-, research-based information is critical. Perhaps research surveying the population of elected politicians and staffers for their level of knowledge of the food familiarity realm would be beneficial to understand how policymakers may be impacted by misinformation which in turn affects how they may or may not construct policy.

Literature Cited

Abbasi, M. & Mohammah-H, H., & Fereshteh, R. (2019). Internet of Things in agriculture: A survey. 1-12. 10.1109/IICITA.2019.8808839

Ajzen, I. (2001).‘‘Nature and Operation of Attitudes,’’ *Annual Review of Psychology*. 52, pp. 27–58.

Anggraeni, A. & Surya, S. (2020). Developing a Demonstration Video on Making Dry Banana Preferred by Generation Z. *Journal of Physics: Conference Series.* 10.1088/1742-6596/1737/1/012037

Bhattacherjee, A. (2012). *Social Science Research: Principles, Methods, and Practices. Textbooks Collection. 3.* https://digitalcommons.usf.edu/oa_textbooks/3

Butler-Hortan, M. (2021). *College Students' Perceived Ability Versus Actual Ability to Identify Fake News on Agricultural Topics*. [unpublished manuscript]. Agricultural Communications, Texas Tech University. https://ttu-ir.tdl.org/bitstream/handle/2346/88708/BUTLER-THESIS-2021.pdf?sequence=1&isAllowed=y

Burnett, E., Holt, J., & Borron, A., & Wojdynski, B. (2019). Interactive Infographics' Effect on Elaboration in Agricultural Communication. *Journal of Applied Communications.* 103. 10.4148/1051-0834.2272

Cacioppo, J. T., Petty, R. E., Kao, C. F., & Rodriguez, R. (1986). Central and peripheral routes to persuasion: An individual difference perspective. *Journal of Personality and Social Psychology*. 51(5), 1032–1043. https://doi.org/10.1037/0022-3514.51.5.1032

Chudoba, B. (n.d). *Survey Monkey.* https://www.surveymonkey.co.uk/curiosity/survey_completion_times/

Coletti, A., McGloim, R., Oeldford-Hirsh, A., & Hamlin, E. (2022). Science Communication on Social Media Examining Cross Platform Behavioral Engagement. *The Journal of Social Media in Society.* 11(2), 236-263. https://thejsms.org/index.php/JSMS/article/view/995/601

Desai, A., Ruidera, D., Steinbrink, J., Granwehr, B., & Heun Lee, D. (2022). Misinformation and Disinformation: The Potential Disadvantages of Social Media in Infectious Disease and How to Combat Them, *Clinical Infectious Diseases*, 74 (e34–e39). https://doi org.spot.lib.auburn.edu/10.1093/cid/ciac109

Dillman, D., Smyth, J., & Christian, L. (2014). Internet, phone, mail, and mixed-mode surveys: The Tailored Design Method. *Wiley*.

Eckler, U., Lewandowsky, S., Cook, J., Schmid, P., Fazio, L., Brashier, N., Kendeou, Vraga, E., & Amazeen, M. (2022). The psychological drivers of misinformation belief and its resistance to correction. *NATURE REVIEW-Psychology*, 1, 13-29. https://doi.org/10.1038/s44159-021-00006-yhttps://doi.org/10.1038/_s44159-021-00006-y

Edgar, L., Rutherford, T., & Briers, G. (2009). Research themes, authors, and methodologies in the Journal of Applied Communications: a ten-year overview. *Journal of Applied Communications*, 93(1-20). link.gale.com/apps/doc/A329901364/AONE?u=tel_oweb&sid=bookmark-AONE&xid=11c8a493

Fishbein, M., & Ajzen, I. (1974) Attitudes towards objects as predictors of single and multiple behavioral criteria. *Psychological Review, 81*(1), 5974. https://doi.org/10.1037/h0035872

Fischer, L., Meyers, C., Cummins, G., Gibson, C., and Baker, M. (2020). Creating Relevancy in Agricultural Science Information: Examining the Impact of Motivational Salience, Involvement and Pre-Existing Attitudes on Visual Attention to Scientific Information, *Journal of Applied Communications*, 104(2). https://doi.org/10.4148/1051-0834.2287

Fraiture, M., Herman, P., Taverniers, I., De Loose, M., Deforce, D. and Roosens, N. (2015). Current and new approaches in GMO detection: challenges and solutions, *BioMed Research International*, 2015(1-22).

Friedman, T. (2023, March 21). Our New Promethean Moment. New York Times. https://www.nytimes.com/2023/03/21/opinion/artificial-intelligence-chatgpt.html

Fromm, J. (2022). As Gen Z's Buying Power Grows, Businesses Must Adapt Their Marketing. *Forbes*, *Forbes Magazine*, https://www.forbes.com/sites/jefffromm/2022/07/20/as-gen-zs-buying-power-grows-businesses-must-adapt-their-marketing/?sh=1e58b3c32533.

Glock, C. (1967). *Survey Research in the Social Sciences*. Russel Sage Foundation.

Great Data. *Rural Urban Suburban Data.* (n.d.). https://greatdata.com/product/urban-vs-rural#:~:text=Also%2C%20the%20Department%20of%20Defense,1%2C000%20persons%20per%20square%20mile

Hiltbrand, K., Corbitt, K., Coursen, K, Martin, D., Mullenix, K., Smith, B., Youngblood, E., Ross, and Mulvaney, D. (2023). *Food for Thought: How Influenceable is the Next Generation Consumer* [Unpublished Manuscript]. Auburn University, Auburn.

Howe, N. and Strauss, W. (2000). *Millennials Rising: The Next Great Generation*. New York: Vintage Books.

Kraus, S. J. (1995). Attitudes and the Prediction of Behavior – a Meta-Analysis of the Empirical Literature, *Personality and Social Psychology Bulletin* 21(1), 58–75.

Lemmons, L. & Landrum, A. (2018). *Mad cows, Oprah Winfrey and communicating the science in a high-profile court case*. The Conversation. https://theconversation.com/mad-cows-oprah-winfrey-and-communicating-the-science-in-a-high-profile-court-case-91814

Littlejohn, S., & Foss, K. (2010). Theories of human communication. Waveland Press Long. Grove, Illionis.

Mitchell, T. (2020). *On the cusp of adulthood and facing an uncertain future: What we know about gen Z so far*. Pew Research Center's Social & Demographic Trends Project. Retrieved][]March 27, 2023, from https://www.pewresearch.org/social-trends/2020/05/14/on-the-cusp-of-adulthood-and-facing-an-uncertain-future-what-we-know-about-gen-z-so-far-2/

Mark Rober. (2020, February 12). *Feeding Bill Gates, a Fake Burger (to save the World).* [Video]. YouTube. https://www.youtube.com/watch?v=-k-V3ESHcfA&t=606s

Randolph, L., Telg, R., Rumble, J., Galindo, S., and Lindsey, A. (2021). Measuring the Effects of Narrative and Analytical Messages in Video Production, *Journal of Applied Communications*, 105(1) https://doi.org/10.4148/1051-0834.2361

Ryan, C. D., A. J., Butner, R. & Swarthout, J. T. (2020). Monetizing disinformation in the attention economy: The case of genetically modified organisms (GMOs). European Management Journal, 38(1), 7-18. https://doi.org/10.1016/j.emj.2019.11.002

Oesterreicher, S., Lundy, L., Rumble, J., & Telg, R. (2018). Collegiate Millennials' Perceptions of Locally Produced Beef, *Journal of Applied Communications*, 102(4). https://doi.org/10.4148/1051-0834.2226

Petrosyan, A. (2022). Internet usage in the United States - Statistics & Facts. Statista. https://www.statista.com/topics/2237/internet-usage-in-the-united-states/#topicOverview

Seemiller, C. & Grace, M. (2016). *Generation Z goes to college.* San Francisco, CA: Jossey-Bass.

Suarez, E. & McKee, V. (2018). *Preparing to Work with Generation* Z. EDIS. 10.32473/edis-wc311-2018

Tarpley, Troy G.; Fischer, Laura Morgan; Steede, Garrett M.; Cummins, R. Glenn; and McCord, Amber (2020). How Much Transparency is Too Much? A Moment-to-Moment Analysis of Viewer Comfort in Response to Animal Slaughter Videos, *Journal of Applied Communications.* 104(2). https://doi.org/10.4148/1051-0834.2302

Telg, R. & Irani, T. (2011). *Agricultural Communications in Action: A Hands-On Approach*, Delmar Cengage Learning.

United States Zip Codes, (n.d.). [Website] https://www.unitedstateszipcodes.org/36832/

Van Eenennaam, A. (March 23, 2022) *Misinformation in the Agricultural Sciences* [Zoom Presentation]. Center of Vet Study. University of Illinois. https://mediaspace.illinois.edu/media/t/1_k0b1s1mh

Vaske, Jerry J. (1994). *Survey Research and Analysis: Applications in Parks, Recreation and Human Dimensions*, Venture Publishing.

Vermeir, I. & Verbeke, W. (2006). Sustainable Food Consumption: Exploring the Consumer ‘‘Attitude – Behavioral Intention’’ Gap. *Journal of Agricultural and Environmental Ethics.* 19, 169–194. DOI 10.1007/s10806-005-5485-3

Wann, D. & Branscombe, N. (1993). Sports fans: Measuring degree of identification with their team. *International Journal of Sport Psychology, 24*(1), 1–17. https://psycnet.apa.org/record/1994-00035-001

What I’ve Learned. (2021, April 5). *Eating Less Meat won’t save the Plant. Here’s Why.* [Video]. YouTube. https://www.youtube.com/watch?v=sGG-A80Tl5g

Zompetti, J., Severino, M., & Delorto, H. (2022).The Rhetorical Implications of Social Media Misinformation: Platform Algorithms During a Global Pandemic. *The Journal of Social Media in Society.* 11(2)296-329. https://thejsms.org/index.php/JSMS/article/view/1179/607

Appendix

Appendix 1. ***Food for Thought: How Influenceable is the Next Generation Consumer***

Table A1.

Sub Themes, Codes, and Frequencies Regarding ***Elements of Trust*** *from Focus Groups.*

Sub Theme	Code	*f*
Fosters	EMOTIONAL TIE	7
Trust	SOLUTIONS	3
	TRUST	5
Prefer	DISTRUST OF VIDEO 2	4
Video 1	TRUSTED VIDEO 1	10
	VIDEO 1 BETTER QUALITY	10
Prefer	TRUSTED VIDEO 2	15
Video 2	CREDIBILITY VIDEO 2	6

Note: $n = 60$

Table A2.

Codes and Frequencies Regarding ***Importance of Sources*** *from Focus Groups.*

Code	*f*
SOURCES	45
CREDIBILITY	18
BILL GATES	12
INDUSTRY PROFESSIONAL	3
SCIENTIST	3
INFLUENCERS	3
MARK ROBER	9
FARMER TRUST	18
FRANK MITLOEHNER	4

Note: $n = 115$

Table A3.

Sub Themes, Codes, and Frequencies Regarding ***Consumer Concerns About Beef*** *from Focus Groups.*

Sub Theme	Code	*f*
Areas of	WATER USAGE	12
Concern	HEALTH	3
	PRICE	5
	CONFUSION	7
	ENVIRONMENT	9
	NUTRITION	11
	BEEF ISSUES	5
Reasons	DISTRUST	7
for	PUSHING AGENDA	8
Distrust	PROPAGANDA	2
	POOR EXAMPLES	9

Note: $n = 78$

Table A4.

Sub Themes, Codes, and Frequencies Regarding ***Beef Perceptions*** *from Focus Groups.*

Sub Theme	Code	*f*
Areas of	DISTRUST	6
Distrust	REDUCE BEEF INTAKE	3
	VEGAN/VEGETARIAN DIET	3
	FAIR OAKS	3
	INACCURATE THOUGHT	2
	NEGATIVE PERCEPTION	4
	AVOIDS PURCHASING BEEF	7
Beef	BEEF TRANSPORTATION	1
Topics	BEEF INDUSTRY	1
	ANIMAL WELFARE	3
	ALTERNATIVE FEEDSTUFFS	3

Note: $n = 36$

Table A5.

*Sub Themes, Codes, and Frequencies Regarding **Means for Elevated Communication** from Focus Groups.*

Sub Theme	Code	*f*
Video Platform	SOCIAL MEDIA	9
	YOUTUBE	9
	SOCIAL CURRENCY	9
	VIDEO QUALITY	3
	CITATIONS	2
Preferred Video 1	DISTRUST OF VIDEO 2	4
	TRUSTED VIDEO 1	10
	EASE OF VIDEO COMPREHENSION	1
	ENTERTAINMENT VALUE	1
Preferred Video 2	TRUSTED VIDEO 2	15
	CREDIBILITY VIDEO 2	6
Conceptual Modification	SUGGESTIONS	15
	BIG PICTURE	6
	ENGAGING	1
	IN PERSON COMMUNICATION	1
	GOOD EXAMPLES	3
	OPPOSING ARGUMENT	7
Print	ARTICLES	1
	ACADEMIC JOURNAL	2

n = 105

Appendix 1.1

Recruitment E-mail

My name is Karen Hiltbrand and I am a graduate student assistant in the Department of Animal Sciences. I would like to invite you to participate in my research study to examine how next generation consumers knowledge of agriculture affect their perception of the food industry. You are welcome to participate if you are an undergraduate student enrolled at Auburn University.

As a participant, you will be asked to participate in an 60–90-minute study in the L.U.C.I.A. Lab in Haley at Auburn University. In the study you be asked to watch two different videos while measuring your level of trust and then participate in a focus group.

If you choose to participate you will be compensated. Interviews will be transcribed and anonymized. We will keep identifying information confidential. We will use the findings from this study in presentations and for publication.

If you would like to participate in this research study, please click here (link to prescreening survey), to complete this pre-screening survey and provide your email at the end of the survey when prompted.

Thank you for your consideration,
Karen Hiltbrand

Karen Hiltbrand
Graduate Student Assistant, Department of Animal Sciences
Upchurch Hall, Auburn University | 513.257.1672 | kzh0119@auburn.edu

Appendix 1.2

Pre Survey

Information Letter for a Research Study entitled
"Agricultural Competencies Role in Agricultural Communicators ability to Influence Audiences."

You are invited to participate in a research study to determine whether next generation consumers of media are susceptible to be influenced by inaccurate information based on their level of knowledge of the food industry. The study is being conducted by Karen Hiltbrand, Auburn Animal Science master's student as the student Primary Investigator (PI) under supervision provided by Dr. Donald Mulvaney. You are invited to participate because you are a current student enrolled in classes at Auburn University and you 19 years of age or older.

What will be involved if you participate? Your participation is completely voluntary. If you decide to participate in this research study, you will be asked to take part in a beef perceptions study in the Lab for Usability, Communication Interaction, and Accessibility (LUCIA), watch a 2-4-minute video, and complete a post-test focus group. The study instrument being used is the Perceptions Analyzer and your total time commitment will be no more then two hours.

Will you receive compensation for participating? Yes, you will be compensated $25 for your time and participation in the form of a visa gift card after the conclusion of the study.

Risks and Benefits For this study students will be in the same room as a faculty member as well as other participants, so exposure to Covid-19 is possible. Participants and faculty are encouraged to be vaccinated for Covid-19 and are welcome to wear face coverings. This study is a Category C Low Risk study involving Low-Risk Procedures for COVID-19 transmission. Precautions will be implemented using the COVID-19 2022 Precautions Matrix to determine appropriate precautions at the time of data collection(s) for a Category C study and will follow Auburn's Covid-19 guidance protocol. Your identity is unlikely to be known, your identity should be protected. Projected benefits of participating is

assisting agricultural communicators in figuring out how to better share information about how food is produced.

Will there be any costs? If you decide to participate, there are no costs to you other than the estimated 2 hours of required to complete the study.

If you change your mind about participating, you can withdraw at any time by notifying the research staff. You may skip questions you do not want to answer. Once you've finished the study data, it cannot be withdrawn since it will be unidentifiable. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University, the Department of Animal Sciences or the College of Agriculture.

Your privacy will be protected. Any data obtained in connection with this study should remain anonymous. Researchers do not anticipate risks. We will protect your privacy and the data you provide by maintaining all data on a single password-protected computer. Information collected through your participation may be used for presentations at academic conferences or for publication in academic journals.

If you have questions about this study, please contact Karen Hiltbrand, graduate student assistant in the Department of Animal Sciences at 513-257-1672 or kzh0119@auburn.edu under the advisement of Dr. Donald Mulvaney.

If you have questions about your rights as a research participant, you may contact the Auburn University Office of Research Compliance or the Institutional Review Board by phone (334) 844-5966 or e-mail at IRBadmin@auburn.edu or IRBChair@auburn.edu. HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH TO PARTICIPATE IN THIS RESEARCH STUDY. YOUR PARTICIPATION MOVING FORWARD PROVIDES AS CONSENT INDICATES YOUR WILLINGNESS TO PARTICIPATE.

Please indicate if you would like to opt to be a part of the potential participant pool. Upon agreeing you will be asked to complete the screening survey.

- ○ Yes, I would like to participate. Please include your email if you are interested in participating. We will use your email to send details about the in person portion. (1) _____
- ○ No, I am not interested in participating. (2)

What is your age?

- ○ 18-22 (1)
- ○ 23-38 (2)
- ○ 39-54 (3)
- ○ 55-73 (4)

Ethnicity (or Race): Please specify your ethnicity:

- ○ Hispanics of any race (1)
- ○ American Indian or Alaska Native (2)
- ○ Asian (3)
- ○ Black or African American (4)
- ○ Native Hawaiian or Other Pacific Islander (5)
- ○ White (6)
- ○ Two or more races (7)
- ○ Race and Ethnicity Unknown (8)
- ○ Prefer not to respond (9)
- ○ Other (please specify) (10)

Gender: What is your gender?

- ○ Male (1)
- ○ Female (2)
- ○ Non-binary / third gender (3)
- ○ Prefer not to say (4)

What college are you a part of?

- ○ College of Agriculture (1)
- ○ College of Architecture, Design, and Construction (2)
- ○ College of Pharmacy (3)
- ○ Raymond J. Harbert College of Business (4)
- ○ College of Education (5)
- ○ Samuel Ginn College of Engineering (6)
- ○ School of Forestry and Wildlife Sciences (7)
- ○ College of Human Sciences (8)
- ○ College of Liberal Arts (9)
- ○ School of Nursing (10)
- ○ College of Sciences and Mathematics (11)
- ○ College of Veterinary Medicine (12)

Select which describes where you grew up…

- ○ Urban (Metropolitan areas with at least a million people) (1)
- ○ Suburban (Suburbs small/ metros) (2)
- ○ Rural Community but not involved in agriculture (non-metropolitan areas, low density of people, some land is utilized for agricultural use) (3)
- ○ I grew up involved in agriculture or I currently work in agriculture. (4)

Appendix 1.3

Information Letter

AUBURN UNIVERSITY

COLLEGE OF Agriculture

Department of Animal Science

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS IRB APPROVAL INFORMATION WITH CURRENT DATES HAS BEEN ADDED TO THIS DOCUMENT.)

Information Letter for a Research Study entitled

"Agricultural Competencies Effect in Agricultural Communicators' Ability to Influence Audiences"

You are invited to participate in a research study to measure the effectiveness of different types of videos related to agricultural science education. The study is being conducted by Donald Mulvaney, Associate Professor in the Department of Animal Science and Karen Hiltbrand, Auburn Animal Science Master's student, which is housed within the College of Agriculture. You are invited to participate because you are a current student enrolled in classes at Auburn University and you 19 years of age or older.

What will be involved if you participate? Your participation is completely voluntary. If you decide to participate in this research study, you will be asked to take part in a beef perceptions study in the The Lab for Usability, Communication Interaction, and Accessibility (LUCIA), watch a 2-4-minute video, and complete a short post-test focus group. The study instrument being used is the Perceptions Analyzer instrument and your total time commitment will be no more then 90 minutes.

Risks and Benefits No risks to participants are anticipated because study procedures are confidential and can be exited at any time. Your identity is unlikely to be known, your identity should be protected.

Will you receive compensation for participating? Yes you will compensated $25 for your time and participation.

Version Date (date document created): 09.17.2022

Will there be any costs? If you decide to participate, there are no costs to you other than the estimated 90 minutes of required time to complete the study.

If you change your mind about participating, you can withdraw at any time by notifying the study proctor. You may skip questions you do not want to answer. Once you've finished the study data, it cannot be withdrawn since it will be unidentifiable. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University, the Department of Animal Sciences or the College of Agriculture.

Your privacy will be protected. Any data obtained in connection with this study should remain anonymous. Researchers do not anticipate risks. We will protect your privacy and the data you provide by maintaining all data on a single password- protected computer. Information collected through your participation may be used for presentations at academic conferences or for publication in academic journals.

If you have questions about this study, please contact Karen Hiltbrand, graduate student assistant in the Department of Animal Sciences at 513-257-1672 or kzh0119@auburn.edu.

If you have questions about your rights as a research participant, you may contact the Auburn University Office of Research Compliance or the Institutional Review Board by phone (334) 844-5966 or e-mail at IRBadmin@auburn.edu or IRBChair@auburn.edu.

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH TO PARTICIPATE IN THIS RESEARCH STUDY. YOUR ORAL CONSENT INDICATES YOUR WILLINGNESS TO PARTICIPATE.

Version Date (date document created): 09.17.2022

Appendix 1.4

Food for Thought: How Influenceable is the Next Generation Consumer Qualtrics Survey

Information Letter for a Research Study entitled
"Agricultural Competencies Role in Agricultural Communicators ability to Influence Audiences."
You are invited to participate in a research study to determine whether next generation consumers of media are susceptible to be influenced by inaccurate information based on their level of knowledge of the food industry. The study is being conducted by Karen Hiltbrand, Auburn Animal Science master's student as the student Primary Investigator (PI) under supervision provided by Dr. Donald Mulvaney.

If you have questions about this study, please contact Karen Hiltbrand, graduate student assistant in the Department of Animal Sciences under the advisement of Dr. Donald Mulvaney at 513-257-1672 or kzh0119@auburn.edu.

PrD1 What is your age?

- ○ 18-22 (1)
- ○ 23-38 (2)
- ○ 39-54 (3)
- ○ 55-73 (4)

PrD2 Ethnicity (or Race): Please specify your ethnicity:

- ○ Hispanics of any race (1)
- ○ American Indian or Alaska Native (2)
- ○ Asian (3)
- ○ Black or African American (4)
- ○ Native Hawaiian or Other Pacific Islander (5)
- ○ White (6)
- ○ Two or more races (7)
- ○ Race and Ethnicity Unknown (8)
- ○ Prefer not to respond (9)
- ○ Other (please specify) (10) _____

PrD3 Gender: What is your gender?

- ○ Male (1)
- ○ Female (2)
- ○ Non-binary / third gender (3)
- ○ Prefer not to say (4)

PrD4 Where do you purchase/source your animal protein most of the time? (Please check all that apply)

- [ ] Chain Grocery Store (1)
- [ ] Directly from the farmer or farmers market (2)
- [ ] I raise my own protein source (3)
- [ ] I don't purchase animal protein (4)
- [ ] Meat Market/Butcher (5)
- [ ] Online (Amazon) (6)
- [ ] Restaurant/Fast Food (7)
- [ ] I hunt my own protein (9)
- [ ] Other (8) _____

PrD5 Where do you source accurate/factual information from? (Please check all that apply)

- ☐ Academic Journals (1)
- ☐ Books (2)
- ☐ Blogs (3)
- ☐ News Outlets (4)
- ☐ Podcasts (5)
- ☐ Print materials (newspaper and/or magazine) (6)
- ☐ Search Engines (7)
- ☐ Social Media (8)
- ☐ YouTube (9)
- ☐ Other (10) _____

PrD6 How would you describe your political views?

- ○ Conservative (1)
- ○ Moderate (2)
- ○ Liberal (3)
- ○ Other (please specify) (4) _____

PrD7 What college are you a part of?

- ○ College of Agriculture (1)
- ○ College of Architecture, Design, and Construction (2)
- ○ College of Pharmacy (3)
- ○ Raymond J. Harbert College of Business (4)
- ○ College of Education (5)
- ○ Samuel Ginn College of Engineering (6)
- ○ School of Forestry and Wildlife Sciences (7)
- ○ College of Human Sciences (8)
- ○ College of Liberal Arts (9)
- ○ School of Nursing (10)
- ○ College of Sciences and Mathematics (11)
- ○ College of Veterinary Medicine (12)

PrD8 Please include your zip code.

_____

Q103 On the table in front of you will see a name tag with an alias name and number on it. Please include the alias name below and number.

_____

FFI Please answer each statement appropriately.
(0 - I strongly disagree, 10 - I strongly agree)

	Strongly Disagree 0 (0)	1 (1)	2 (2)	3 (3)	4 (4)	Neutral 5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	Strongly Agree 10 (10)
I go out of my way to accommodate the purchase of preferred foods. (1)	○					○					○
I am emotionally connected to procedures and conditions in which food is produced/grown. (12)	○					○					○
I would say that I know something about how a majority of the food I eat is raised. (13)	○					○					○
I devote time and energy to learning about different food systems and current agricultural practices used in food production. (14)	○					○					○
When food is a topic of conversation, I am willing to share my knowledge about how food is grown/produced with others. (15)	○					○					○

I devote time to growing my own food and/or food for others (people or animals) to consume. (2)	○					○				○
I devote time to growing my own food and/or food for others (people or animals) to consume. (3)	○					○				○
I would be concerned if I were not able to study and learn about food and agriculture. (19)	○					○				○
I support agriculture and food production systems. (20)	○					○				○
I make buying decisions based on how and/or where a specific food item was produced. (4)	○					○				○
I seek out others who also know or care about where their food comes from. (21)	○					○				○
I am familiar with safety, quality, and marketing factors of food. (5)	○					○				○

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Consuming beef supports the environment. (1)	○	○	○	○	○
I believe I have access to a safe food supply. (2)	○	○	○	○	○
An efficient food production and distribution system is essential to feeding a growing population. (3)	○	○	○	○	○
Plant based protein products are better for the environment compared to animal derived proteins. (4)	○	○	○	○	○
I believe the beef industry emits a large portion of greenhouse gases which includes methane. (5)	○	○	○	○	○
I believe that the U.S. beef industry is sustainable. (6)	○	○	○	○	○
I trust the farmers/ranchers who produce the food I eat. (7)	○	○	○	○	○
I trust the information I read/watch about how food is raised. (8)	○	○	○	○	○
I believe beef is healthier than alternative proteins. (9)	○	○	○	○	○
I have a positive perception of how beef is raised. (10)	○	○	○	○	○
I believe there is a place in the market for alternative proteins. (11)	○	○	○	○	○
Beef production uses too much water. (12)	○	○	○	○	○
We could improve food-insecurity if we raised less beef. (13)	○	○	○	○	○

Land for grazing animals surpasses land used to grow crops. (14)	○	○	○	○	○
Eating beef has a negative environmental impact. (15)	○	○	○	○	○

Q107. You have been placed in Group B.

If you have reached this page please wait for directions from the research study moderator. Thank you!

Q107. You have been placed in Group C.

If you have reached this page please wait for directions from the research study moderator. Thank you!

Q108. You have been placed in Group A.

If you have reached this page please wait for directions from the research study moderator. Thank you!

Q115. Please select the most appropriate response.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Consuming beef supports the environment. (1)	○	○	○	○	○
I believe I have access to a safe food supply. (2)	○	○	○	○	○
An efficient food production and distribution system is essential to feeding a growing population. (3)	○	○	○	○	○
Plant based protein products are better for the environment compared to animal derived proteins. (4)	○	○	○	○	○
I believe the beef industry emits a large portion of greenhouse gases which includes methane. (5)	○	○	○	○	○
I believe that the U.S. beef industry is sustainable. (6)	○	○	○	○	○
I trust the farmers/ranchers who produce the food I eat. (7)	○	○	○	○	○

I trust the information I read/watch about how food is raised. (8)	○	○	○	○	○
I believe beef is healthier than alternative proteins. (9)	○	○	○	○	○
I have a positive perception of how beef is raised. (10)	○	○	○	○	○
I believe there is a place in the market for alternative proteins (11)	○	○	○	○	○
Beef production uses too much water. (12)	○	○	○	○	○
We could improve food-insecurity if we raised less beef. (13)	○	○	○	○	○
Land for grazing animals surpasses land used to grow crops. (14)	○	○	○	○	○
Eating beef has a negative environmental impact. (15)	○	○	○	○	○
I would describe this video's quality as highly produced. (16)	○	○	○	○	○

I recognize a character in this video. (17)	○	○	○	○	○
The video kept my attention, and I found the content interesting. (18)	○	○	○	○	○
The visuals and infographics made sense and helped me understand the topic. (19)	○	○	○	○	○
This video utilizes effective storytelling. (20)	○	○	○	○	○
I was able to understand the concepts in the video. (21)	○	○	○	○	○
The script was effective at communicating the purpose of the video. (22)	○	○	○	○	○
I trust what the speakers are telling me. (23)	○	○	○	○	○
I would tell someone else about this video or share it on social media. (24)	○	○	○	○	○
I want to look for more information after watching this video. (25)	○	○	○	○	○

PoS26 Please rank your top 5 of the following words to finish the statement. If you were to describe this video, would you say the video is ….
_____ Believable (1)
_____ Concerning (2)
_____ Empowering (3)
_____ Emotional (4)
_____ Engaging (5)
_____ Factual (6)
_____ Informative (7)
_____ Memorable (8)
_____ Misleading (9)
_____ Scientific (10)
_____ Solution Focused (11)
_____ Tells a Story (12)
_____ Other (13)

PoS27 After watching the video, I am more likely to reduce consumption or purchase of beef.

- Strongly disagree (1)
- Somewhat disagree (2)
- Neither agree nor disagree (3)
- Somewhat agree (4)
- Strongly agree (5)

PoS28 Please be encouraged to include any thoughts or opinions you would like to be taken into consideration about this video.

Q84. If you have reached this page please wait for directions from the research study moderator. Thank you!Q116. Please select the most appropriate response.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Consuming beef supports the environment. (1)	○	○	○	○	○
I believe I have access to a safe food supply. (2)	○	○	○	○	○
An efficient food production and distribution system is essential to feeding a growing population. (3)	○	○	○	○	○
Plant based protein products are better for the environment compared to animal derived proteins. (4)	○	○	○	○	○
I believe the beef industry emits a large portion of greenhouse gases which includes methane. (5)	○	○	○	○	○
I believe that the U.S. beef industry is sustainable. (6)	○	○	○	○	○
I trust the farmers/ranchers who produce the food I eat. (7)	○	○	○	○	○

I trust the information I read/watch about how food is raised. (8)	○	○	○	○	○
I believe beef is healthier than alternative proteins. (9)	○	○	○	○	○
I have a positive perception of how beef is raised. (10)	○	○	○	○	○
I believe there is a place in the market for alternative proteins (11)	○	○	○	○	○
Beef production uses too much water. (12)	○	○	○	○	○
We could improve food-insecurity if we raised less beef. (13)	○	○	○	○	○
Land for grazing animals surpasses land used to grow crops. (14)	○	○	○	○	○
Eating beef has a negative environmental impact. (15)	○	○	○	○	○
I would describe this video's quality as highly produced. (16)	○	○	○	○	○

I recognize a character in this video. (17)	○	○	○	○	○
The video kept my attention, and I found the content interesting. (18)	○	○	○	○	○
The visuals and infographics made sense and helped me understand the topic. (19)	○	○	○	○	○
This video utilizes effective storytelling. (20)	○	○	○	○	○
I was able to understand the concepts in video 2. (21)	○	○	○	○	○
Video 2's script was effective at communicating the purpose of the video. (22)	○	○	○	○	○
I trust what the speakers are telling me. (23)	○	○	○	○	○
I would tell someone else about this video or share it on social media. (24)	○	○	○	○	○
I want to look for more information after watching this video. (25)	○	○	○	○	○

PoSII25 Please rank your top 5 of the following words to finish the statement. If you were to describe video 2, would you say the video is ….
_____ Believable (1)
_____ Concerning (2)
_____ Empowering (3)
_____ Emotional (4)
_____ Engaging (5)
_____ Factual (6)
_____ Informative (7)
_____ Memorable (8)
_____ Misleading (9)
_____ Scientific (10)
_____ Solution Focused (11)
_____ Tells a Story (12)
_____ Other (14)

PoSII26 After watching the video, I am more likely to reduce consumption or purchase of beef.

- ○ Strongly disagree (1)
- ○ Somewhat disagree (2)
- ○ Neither agree nor disagree (3)
- ○ Somewhat agree (4)
- ○ Strongly agree (5)

PoSII27 Which video was favored for the following parameters?

	Video 1 (1)	Video 2 (2)	No Difference (3)
Script was effective (1)	○	○	○
Image/visuals/illustration of key points were effective (2)	○	○	○
Message was evident and easy to understand (3)	○	○	○
Video was Believable (4)	○	○	○
Has a motivating "call to action" (5)	○	○	○
I am more likely to share... (6)	○	○	○
Most effective storytelling (7)	○	○	○
I found this this video more credible (8)	○	○	○
Professional quality (9)	○	○	○
I was able to relate to this video more (10)	○	○	○
Offered more facts, figures and was more scientific (11)	○	○	○
Appealed more to my emotions (12)	○	○	○

PoSII28 Please be encouraged to include any thoughts or opinions you would like to be taken into consideration about this video.

_____

End of Block: Post Test #2

Appendix 1.5

Study Script and Focus Group Questions

Welcome everybody! First, thank you so much for volunteering your time to help with this study. As you read in the informed consent letter you are invited to participate in a research study regarding consumer perception of food industry communications. The study is being conducted by myself, Karen Hiltbrand, under supervision of my major professor Dr. Donald Mulvaney.

Your participation is completely voluntary and if you decide to, you can choose to leave at any time if need be. Additionally, we have masks and sanitizer available throughout the study. Your time here should last no more than 90 minutes total.

To participate in this study, we ask that you use your personal computer and provide us your undivided attention. To begin, we ask that you please turn your phones on airplane mode and shut your computers please. We have placed a card with an alias name in front of you which myself and others will address you as during the study to keep your identity anonymous.

Before we start, we have placed a card with an alias name in front of you which myself and others will address you as during the discussion to keep you identify anonymous.

First, I will walk you through how to use the Perception Analyzer tool. It is important that we understand your opinions and get your feedback. In a moment, I will show you a practice video and using your dial, you will rate how funny you think this video is as you watch the video. As you watch the video, starting at 50 as a baseline please rate how funny the video is on a continuous scale of 0 to100 by turning your dial to the right for funny or left for less funny. It is important that if you think one part of the video is more or less funny that you depict that with your dial as you are watching the video.

[Show test video]

Does anyone have any questions on this portion before we begin?

If there are no other questions we will be begin. To begin please open your laptops and go to the website you see on the PowerPoint slide and begin the survey. Once you have reached the page titled, "Information Letter for a Research Study entitled **"Agricultural Competencies Role in Agricultural Communications,"** please begin the survey. Once you reach the screen that says "If you have reached this page, please wait for directions from the research study moderator. Thank you!" please stop and shut your laptop or put your tablet down please.

[Wait for completion of pretest]

If everyone is finished, we will begin the next portion of the study. Next, if you grab your dial, I will have a hand full of demographic questions for you to answer. Please, follow along with the screen to select the appropriate response by turning your dial for the demographic questions.

[Demographics]

1. What is your age?
    1. 18-22
    2. 23-38
    3. 39-54
    4. 55-73

2. Ethnicity (or Race): Please specify your ethnicity:
    1. Hispanics of any race
    2. American Indian or Alaska Native
    3. Asian
    4. Black or African American
    5. Native Hawaiian or Other Pacific Islander
    6. White
    7. Two or more races
    8. Race and Ethnicity Unknown
    9. Other
    10. Prefer not to respond

3. Gender: What is your gender?
    1. Male
    2. Female
    3. Transgender
    4. Nonbinary
    5. Other
    6. Prefer not to respond

4. How would you describe your political views?
    1. Conservative
    2. Moderate
    3. Liberal
    4. Other

5. What college are you a part of?
    1. College of Agriculture
    2. College of Architecture, Design, and Construction
    3. College of Pharmacy
    4. Raymond J. Harbert College of Business
    5. College of Education
    6. Samuel Ginn College of Engineering
    7. School of Forestry and Wildlife Sciences
    8. College of Human Sciences
    9. College of Liberal Arts
    10. School of Nursing
    11. College of Sciences and Mathematics
    12. College of Veterinary Medicine

6. Select which describes where you grew up. I grew up in a…

    1. Urban area (Metropolitan areas with at least a million people)
    2. Suburban area (Suburbs small/ metros)
    3. Rural Community (non-metropolitan areas, low density of people, some land is utilized for agricultural use)

7. In the survey you took you were assigned a group. Please indicate that group below.
    1. Group A
    2. Group B
    3. Group C

Now we will start the first video of the study. For video one let us know, moment to moment, if you trust the information being presented. Starting at 50 which is neutral, turn your dial to the left to the degree you do not trust the information being presented, and to the right to the degree you trust the information being presented. For example, if you fully trust what you are seeing and hearing, you would turn your dial all the way to the right. Are there any questions?

[Video 1]

We will now move to the post-test. Please open your laptops and press the orange arrow to continue to the next portion of the survey. Just like last time, once you reach the screen that says "If you have reached this page please wait for directions from the research study moderator. Thank you!" please stop and shut your laptop or put your tablet down please.

[Pause for Posttest]

In a moment we will start the second video of the study. For video two let us know, moment to moment, if you trust the information being presented. Starting at 50 which is neutral, turn your dial to the left to the degree you do not trust the information being presented, and to the right to the degree you trust the information being presented. For example, if you fully trust what you are seeing and hearing, you will turn your dial all the way to the right. Are there any questions?

[Video 2]

We will now move to the final post-test. Please open your laptops and press the orange arrow to continue to the next portion of the survey. Just like last time, once you reach the screen that says, "thank you for taking the survey," please shut your computer or set down your tablet.

[Pause for Posttest 2]

Awesome! That concludes the Perceptions Analyzer Portion of the study. You may set your computer aside if you would like.

For the next portion, we will be asking you a few questions about what you watched. I will serve as the moderator for this discussion, and my lab mate, Katie Corbitt will be taking notes. The results will be used to help gauge how different individuals perceive information in agriculture.

Here are a few guidelines that we will stick to throughout our discussion.

There are no right or wrong answers, only differing points of view. We're recording, so one person speaking at a time please. You don't need to agree with others, but you must listen respectfully as others share their views. My role as moderator will be to guide the discussion.

Remember, we have placed a card with an alias name in front of you which myself and others will address you as during the discussion. To start we will have you introduce yourself using your alias name please…Thank you! Let's get started.

1. Which video did you trust more?
2. What would you have changed about the video to have increased your trust of the information presented?
3. How do these two videos leave you feeling about the beef industry?
4. Were there any moments in either of the videos that were particularly impactful and why?
5. Will anything you learned today impact if/how you purchase beef?
6. Have we missed anything or does anyone have any remaining thoughts?

Thank you again for participating (distribute gift cards to participants). I am so appreciative of all your help. Please let me know if you have any questions or concerns.

Have a great day and War Eagle! Happy Thanksgiving!

Appendix 2. *Next Generation Vulnerabilities to Beef Misinformation* - Survey

Information Letter for a Research Study entitled

"Agricultural Competencies Role in Agricultural Communicators ability to Influence Audiences"

You are invited to participate in a research study to determine whether next generation consumers of media are susceptible to be influenced by inaccurate information based on their level of knowledge of the food industry. The study is being conducted by Karen Hiltbrand, Auburn Animal Science Master's student as the student Primary Investigator (PI) under supervision provided by Dr. Donald Mulvaney.

What will be involved if you participate? Your participation is completely voluntary. If you decide to participate in this research study, you will be asked to complete a survey which includes, watching 2 short videos.

Risks and Benefits. No risks to participants are anticipated because study procedures are confidential and can be exited at any time. Your identity is unlikely to be known, your identity should be protected. Projected benefits of participating is assisting agricultural communicators in figuring out how to better share information about how food is produced.

If you change your mind about participating, you can withdraw at any time by notifying the research staff. You may skip questions you do not want to answer. Once you've finished the study data, it cannot be withdrawn since it will be unidentifiable. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University, the Department of Animal Sciences or the College of Agriculture.

Any data obtained in connection with this study should remain anonymous. Researchers do not anticipate risks. We will protect your privacy and the data you provide by maintaining all data on a single password- protected computer. Information collected through your participation may be used for presentations at academic conferences or for publication in academic journals.

If you have questions about this study, please contact Karen Hiltbrand, graduate student assistant in the Department of Animal Sciences under the advisement of Dr. Donald Mulvaney at 513-257-1672 or kzh0119@auburn.edu. If you have questions about your rights as a research participant, you may contact the Auburn University Office of Research Compliance or the Institutional Review Board by phone (334) 844-5966 or e-mail at IRBadmin@auburn.edu or IRBChair@auburn.edu.

Thank you for your participation in advance.

End of Block: Intro

Start of Block: Demographics

Q1 What is your age?

- 18-22 (1)
- 23-38 (2)
- 39-54 (3)
- 55-73 (4)

Q2 Ethnicity (or Race): Please specify your ethnicity:

- ○ Hispanics of any race (1)
- ○ American Indian or Alaska Native (2)
- ○ Asian (3)
- ○ Black or African American (4)
- ○ Native Hawaiian or Other Pacific Islander (5)
- ○ White (6)
- ○ Two or more races (7)
- ○ Race and Ethnicity Unknown (8)
- ○ Prefer not to respond (9)
- ○ Other (please specify) (10)

_____

Q3 Gender: What is your gender?

- ○ Male (1)
- ○ Female (2)
- ○ Non-binary / third gender (3)
- ○ Prefer not to say (4)

Q4 Where do you purchase/source your animal protein most of the time? (Please check all that apply)

- [ ] Chain Grocery Store (1)
- [ ] Directly from the farmer or farmers market (2)
- [ ] I raise my own protein source (3)
- [ ] I don't purchase animal protein (4)
- [ ] Meat Market/Butcher (5)
- [ ] Online (Amazon) (6)
- [ ] Restaurant/Fast Food (7)
- [ ] I hunt my own protein (9)
- [ ] Other (8) _____

Q5 Where do you source accurate/factual information from?

- [ ] Academic Journals (1)
- [ ] Books (2)
- [ ] Blogs (3)
- [ ] News Outlets (4)
- [ ] Podcasts (5)
- [ ] Print materials (newspaper and/or magazine) (6)
- [ ] Search Engines (7)
- [ ] Social Media (8)
- [ ] YouTube (9)
- [ ] Other (10) _____

Q6 How would you describe your political views?

- ○ Conservative (1)
- ○ Moderate (2)
- ○ Liberal (3)
- ○ Other (please specify) (4) _____

Q8 Please include your zip code.

_____

Q84 What is the highest level of education you have completed?

- ○ Some high school or less (1)
- ○ High school diploma or GED (2)
- ○ Some college, but no degree (3)
- ○ Associates or technical degree (4)
- ○ Bachelor's degree (5)
- ○ Graduate or professional degree (MA, MS, MBA, PhD, JD, MD, DDS etc.) (6)
- ○ Prefer not to say (7)

Q120 Please include your unique Prolific ID in the text box below.

End of Block: Demographics

Start of Block: Area of Education

Q85 Please include your major/area of education.

End of Block: Area of Education

Start of Block: Area of industry

Q86 Please include your area of industry where you are employed/or work in.

Q1 Please answer each statement appropriately.

	Strongly Disagree 0 (0)	1 (1)	2 (2)	3 (3)	4 (4)	Neutral 5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	Strongly Agree 10 (10)
I go out of my way to accommodate the purchase of preferred foods. (1)	○	(	(	(	(	○	(	(	(	(	○
I am emotionally connected to procedures and conditions in which food is produced/grown. (12)	○	(	(	(	(	○	(	(	(	(	○
I would say that I know something about how a majority of the food I eat is raised. (13)	○	(	(	(	(	○	(	(	(	(	○
I devote time and energy to learning about different food systems and current agricultural practices used in food production. (14)	○	(	(	(	(	○	(	(	(	(	○
When food is a topic of conversation, I am willing to share my knowledge about how food is grown/produced with others. (15)	○	(	(	(	(	○	(	(	(	(	○

I devote time to growing my own food and/or food for others (people or animals) to consume. (2)	○	(	(	(	(	○	(	(	(	(	○
I devote time to growing my own food and/or food for others (people or animals) to consume. (3)	○	(	(	(	(	○	(	(	(	(	○
I would be concerned if I were not able to study and learn about food and agriculture. (19)	○	(	(	(	(	○	(	(	(	(	○
I support agriculture and food production systems. (20)	○	(	(	(	(	○	(	(	(	(	○
I make buying decisions based on how and/or where a specific food item was produced. (4)	○	(	(	(	(	○	(	(	(	(	○
I seek out others who also know or care about where their food comes from. (21)	○	(	(	(	(	○	(	(	(	(	○
I am familiar with safety, quality, and marketing factors of food. (5)	○	(	(	(	(	○	(	(	(	(	○

End of Block: FFI REVISED

Start of Block: Pre TEST

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Consuming beef supports the environment. (1)	○	○	○	○	○
I believe I have access to a safe food supply. (2)	○	○	○	○	○
An efficient food production and distribution system is essential to feeding a growing population. (3)	○	○	○	○	○
Plant based protein products are better for the environment compared to animal derived proteins. (4)	○	○	○	○	○
I believe the beef industry emits a large portion of greenhouse gases which includes methane. (5)	○	○	○	○	○
I believe that the U.S. beef industry is sustainable. (6)	○	○	○	○	○
I trust the farmers/ranchers who produce the food I eat. (7)	○	○	○	○	○
I trust the information I read/watch about how food is raised. (8)	○	○	○	○	○

I believe beef is healthier than alternative proteins. (9)	○	○	○	○	○
I have a positive perception of how beef is raised. (10)	○	○	○	○	○
I believe there is a place in the market for alternative proteins. (11)	○	○	○	○	○
Beef production uses too much water. (12)	○	○	○	○	○
We could improve food-insecurity if we raised less beef. (13)	○	○	○	○	○
Land for grazing animals surpasses land used to grow crops. (14)	○	○	○	○	○
Eating beef has a negative environmental impact. (15)	○	○	○	○	○

End of Block: Pre Test

Start of Block: Video 1

Q87 Please watch the video below. Please click the orange arrow at the bottom of the page to continue once you finish the video.

Q118 On a scale of 0-100 please move the slider to rate how much you trust the information presented in the video you just watched. (0 = I do not trust the information presented, 50 = I neither trust or distrust the information, 100 = I fully trust the information presented).

I do not trust the information. Neither agree nor disagree. I trust the information.

0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

I trust the information in the video I just watched. ()	

End of Block: Video 1

Start of Block: Post Test #1

Q117 Please select the most appropriate response.

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Consuming beef supports the environment. (1)	○	○	○	○	○
I believe I have access to a safe food supply. (2)	○	○	○	○	○
An efficient food production and distribution system is essential to feeding a growing population. (3)	○	○	○	○	○
Plant based protein products are better for the environment compared to animal derived proteins. (4)	○	○	○	○	○
I believe the beef industry emits a large portion of greenhouse gases which includes methane. (5)	○	○	○	○	○
I believe that the U.S. beef industry is sustainable. (6)	○	○	○	○	○
I trust the farmers/ranchers who produce the food I eat. (7)	○	○	○	○	○
I trust the information I read/watch about how food is raised. (8)	○	○	○	○	○

I believe beef is healthier than alternative proteins. (9)	○	○	○	○	○
I have a positive perception of how beef is raised. (10)	○	○	○	○	○
I believe there is a place in the market for alternative proteins. (11)	○	○	○	○	○
Beef production uses too much water. (12)	○	○	○	○	○
We could improve food-insecurity if we raised less beef. (13)	○	○	○	○	○
We could improve food-insecurity if we raised less beef. (14)	○	○	○	○	○
Eating beef has a negative environmental impact. (15)	○	○	○	○	○
I would describe this video's quality as highly produced. (16)	○	○	○	○	○
I recognize a character in this video. (17)	○	○	○	○	○
The video kept my attention, and I found the content interesting. (18)	○	○	○	○	○

The visuals and infographics made sense and helped me understand the topic. (19)	○	○	○	○	○
This video utilizes effective storytelling. (20)	○	○	○	○	○
I was able to understand the concepts in the video. (21)	○	○	○	○	○
The script was effective at communicating the purpose of the video. (22)	○	○	○	○	○
I trust what the speakers are telling me. (23)	○	○	○	○	○
I would tell someone else about this video or share it on social media. (24)	○	○	○	○	○
I want to look for more information after watching this video. (25)	○	○	○	○	○

Q51 Rank the top 5 following words (from most fitting to least) based on the statement. If you were to describe video 1, you would say the video is ….

_____ Believable (1)
_____ Concerning (2)
_____ Empowering (3)
_____ Emotional (4)
_____ Engaging (5)
_____ Factual (6)
_____ Informative (7)
_____ Memorable (8)
_____ Misleading (9)
_____ Scientific (10)
_____ Solution Focused (11)
_____ Tells a Story (12)
_____ Other (13)

Q53 After watching the video, I am more likely to reduce consumption or purchase of beef.

- ○ Strongly disagree (1)
- ○ Somewhat disagree (2)
- ○ Neither agree nor disagree (3)
- ○ Somewhat agree (4)
- ○ Strongly agree (5)

Q52 Please be encouraged to include any thoughts or opinions you would like to be taken into consideration about this video.

_____

_____

_____

_____

End of Block: Post Test #1

Start of Block: Video 2

Q89 Please watch the video below. Please click the orange arrow at the bottom of the page to continue once you finish the video.

Page Break

Q119 On a scale of 0-100 please move to slider to rate how much you trust the information presented in the video you just watched. (0 = I did not trust the information presented, 50 = I neither trust or distrust the information, 100 = I fully trust the information presented)

	I do not trust the information.	Neither agree nor disagree.	I trust the information.
	0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100		
I trusted the information in the video that I just watched. ()			

End of Block: Video 2

Start of Block: Post Test #2

Q1 Please select the most appropriate response

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
Consuming beef supports the environment. (1)	○	○	○	○	○
I believe I have access to a safe food supply. (2)	○	○	○	○	○
An efficient food production and distribution system is essential to feeding a growing population. (3)	○	○	○	○	○
Plant based protein products are better for the environment compared to animal derived proteins. (4)	○	○	○	○	○
I believe the beef industry emits a large portion of greenhouse gases which includes methane. (5)	○	○	○	○	○
I believe that the U.S. beef industry is sustainable. (6)	○	○	○	○	○
I trust the farmers/ranchers who produce the food I eat. (7)	○	○	○	○	○
I trust the information I read/watch about how food is raised. (8)	○	○	○	○	○

I believe beef is healthier than alternative proteins. (9)	○	○	○	○	○
I have a positive perception of how beef is raised. (10)	○	○	○	○	○
I believe there is a place in the market for alternative proteins. (11)	○	○	○	○	○
Beef production uses too much water. (12)	○	○	○	○	○
We could improve food-insecurity if we raised less beef. (13)	○	○	○	○	○
We could improve food-insecurity if we raised less beef. (14)	○	○	○	○	○
Eating beef has a negative environmental impact. (15)	○	○	○	○	○
Land for grazing animals surpasses land used to grow crops. (16)	○	○	○	○	○
I would describe this video's quality as highly produced. (17)	○	○	○	○	○
I recognize a character in this video. (18)	○	○	○	○	○

The video kept my attention, and I found the content interesting. (19)	○	○	○	○	○
The visuals and infographics made sense and helped me understand the topic. (20)	○	○	○	○	○
This video utilizes effective storytelling. (21)	○	○	○	○	○
I was able to understand the concepts in the video 2. (22)	○	○	○	○	○
Video 2's script was effective at communicating the purpose of the video. (23)	○	○	○	○	○
I trust what the speakers are telling me. (24)	○	○	○	○	○
I would tell someone else about this video or share it on social media. (25)	○	○	○	○	○
I want to look for more information after watching this video. (26)	○	○	○	○	○

Q79 Rank the top 5 following words (from most fitting to least) based on the statement. If you were to describe video 2, you would you say the video is ….

_____ Believable (1)
_____ Concerning (2)
_____ Empowering (3)
_____ Emotional (4)
_____ Engaging (5)
_____ Factual (6)
_____ Informative (7)
_____ Memorable (8)
_____ Misleading (9)
_____ Scientific (10)
_____ Solution Focused (11)
_____ Tells a Story (12)
_____ Other (13)

Q80 After watching the video, I am more likely to reduce consumption or purchase of beef.

- ○ Strongly disagree (1)
- ○ Somewhat disagree (2)
- ○ Neither agree nor disagree (3)
- ○ Somewhat agree (4)
- ○ Strongly agree (5)

Q82 Which video was favored for the following parameters

	Video 1 (1)	Video 2 (2)	No Difference (3)
Script was effective (1)	○	○	○
Image/visuals/illustration of key points were effective (2)	○	○	○
Message was evident and easy to understand (3)	○	○	○
Video was Believable (4)	○	○	○
Has a motivating "call to action" (5)	○	○	○
I am more likely to share... (6)	○	○	○
Most effective storytelling (7)	○	○	○
I found this this video more credible (8)	○	○	○
Professional quality (9)	○	○	○
I was able to relate to this video more (10)	○	○	○
Offered more facts, figures and was more scientific (11)	○	○	○
Appealed more to my emotions (12)	○	○	○

Q81 Please be encouraged to include any thoughts or opinions you would like to be taken into consideration about this video.

_____

_____

_____

_____

_____

End of Block: Post Test #2

Start of Block:

Q113 To ensure payment from Prolific, please click here, Prolific Link.

End of Block: