

**CONSUMERS' DEPENDENCY ON MEDIA FOR INFORMATION ABOUT
FOOD SAFETY INCIDENTS RELATED TO THE BEEF INDUSTRY**

A Thesis

by

ASHLEY DAWN CHARANZA

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of
MASTER OF SCIENCE

August 2011

Major Subject: Agricultural Leadership, Education, and Communications

Consumers' Dependency on Media for Information about Food Safety Incidents Related
to the Beef Industry

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ABSTRACT

Consumers' Dependency on Media for Information about Food Safety Incidents Related
to the Beef Industry. (August 2011)

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Food safety has become an important topic in today's mainstream media. Food safety incidents, specifically related to the beef industry, have the potential to damage the beef industry severely, and negative coverage in the media can alter consumers' perceptions and attitudes toward the beef industry. This study examined consumers' media dependency during normal times when a food safety incident is not occurring or is not expected to occur and during times of a potential food safety incident. This study also compared rural, urban, and suburban respondents' media dependencies and described consumer perceptions of the beef industry. The target population was Texas A&M University former students registered with a valid email address in a database maintained by The Association of Former Students. An online questionnaire was created on surveymonkey.com and sent to respondents over a four-week time period.

Most of the respondents were educated, married, 50 years of age, and had some agricultural experiences. Respondents reported using more media during normal times than during a potential food safety incident. There was a level of concern among respondents toward aspects of the beef industry, such as use of antibiotics and growth

hormones, and some concerns about respondent's health being affected by a food safety incident.

The researcher concluded that respondents use multiple mediums to receive information about any issue; therefore agricultural communicators should target consumer messages to multiple mediums. Messages also should be constructed to address concerns with the beef industry to ensure consumers that the beef food supply is safe. It was recommended that similar research be conducted during or immediately after a national food safety incident, and research could be conducted on a different population.

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CHAPTER I

INTRODUCTION

Background and Setting

Food safety is an important topic in today's mainstream media (Anderson, 2000). However, less than 30 years ago, consumers were not worried about where their food came from, and they accepted the idea that the food they bought was a safe product (Anderson, 2000). Various food scares, including *bovine spongiform encephalopathy* (BSE) in Canada, the United Kingdom, and the United States, and outbreaks of *Escherichia coli* 0157:H7 and *salmonella* across the world have directed public attention to the food industry (O'Neill, 2005; Schroeder & Mark, 2000). Food safety has become the center of political debates and has influenced television air time, newspapers, and magazines; the issue is also important to consumers because food is a basic necessity (Anderson, 2000; Charlebois, 2008). Additionally, the media has claimed its importance in disseminating food safety information (Anderson, 2000).

Although the United States has the safest food supply in the world, food safety incidents are a concern for consumers, and consumers are critical about the quality and safety of products (Crutchfield & Roberts, 2000; Verbeke, 2005).

This thesis follows the style of the *Journal of Applied Communications*.

Consumers also have turned their attention to food safety issues because they have become more interested in the processing of food and are demanding more fragmented food choices, which has led to quality differentiation of products becoming a deciding factor in food choice (Grunert, 2005; Piggott & Marsh, 2004; Schroeder & Mark, 2000). Additionally, food safety issues in the beef industry, including BSE, have dominated discussions on the state of the industry, consequently creating an uncertainty around the industry (Charlebois, 2008).

Negative media coverage of beef-related food safety incidents has impacted beef markets in recent years and has the potential to change consumers' perceptions of the safety of beef products (Buzby, 2001; Dierks, 2004; Schupp, Gillespie, O'Neil, & Prinyawiwatkul, 2006). The influence of mass media as a dominant force in society confirms the importance of examining the dependency individuals have on media during a food safety incident as a way to understand how consumers receive information that could change their perceptions of and attitudes toward the beef industry (Berger, 2003; Robertson, 2009).

Much of consumers' knowledge about agriculture comes from the mass media (Sitton, 2000). Individuals "develop a dependency relationship with the media, because individuals are goal directed and some of their goals require access to resources controlled by the mass media" (DeFleur & Ball-Rokeach, 1989, p. 305). The resources needed to make a decision about food safety could be provided by the media; therefore, it is important to understand on which media consumers depend for information. Ball-

Rokeach and DeFleur (1976) theorized that dependency is heightened in societies in which media serves as a main supplier of information and during periods of social change or conflict. Examples of social conflict and change include environmental problems, energy crises, wars, and political corruption (Ball-Rokeach & DeFleur, 1976), and could be extended to food safety incidents.

Individuals seek information to attain the goals of understanding, orientation, and play (DeFleur & Ball-Rokeach, 1989). People also have the potential to change their attitudes toward and beliefs about issues when they rely on media for information, and it is important to understand when and why information provided by the media affects public perceptions of an issue (Ball-Rokeach & DeFleur, 1976; Robertson, 2009). The media continually supplies a flow of information regarding events, issues, objects, and people, and individuals form attitudes as they are presented this information (Ball-Rokeach & DeFleur, 1976). In addition, individuals can satisfy their dependency needs, or goals and understanding of the world's events, with multiple mediums (DeFleur & Ball-Rokeach, 1989).

Statement of the Problem

When an incident occurs that heightens social conflict or creates ambiguity, dependency on media is increased (Ball-Rokeach & DeFleur, 1976). This gives media an important role in the dissemination of food safety information. Because much media coverage has been associated with the safety of beef and caused concerns about the food supply (Piggott & Marsh, 2004; Schupp et al., 2006; Verbeke & Viaene, 1999), agricultural entities should consider where consumers get their information to effectively

communicate with the public about food safety issues related to the beef industry. Additionally, it is important for the public to have knowledge about the agricultural industry and practices to respond appropriately as an issue arises (Frick, Birkenholz, & Machtmes, 1995).

A food safety outbreak can severely damage the agricultural industry and the economy (Economic Research Service, 2010; Johnson, 2008; O'Neill, 2005; Schroeder, Tonsor, Pennings, & Mintert, 2007); therefore, agricultural communicators and the industry need to be prepared to communicate with the general public using messages designed to reinforce the safety of food and how the industry and other entities take measures to ensure that safety.

Purpose

The purpose of this study was to describe consumers' self-reported dependency on media channels during normal times when a food safety incident has not occurred or is not expected to occur and during a food safety incident related to the U.S. beef industry.

Objectives

The following objectives were used to guide this study:

1. Describe consumers' dependency on media for general information.
2. Describe consumers' dependency on media for information during a food safety incident related to the U.S. beef industry.
3. Determine whether differences exist in consumers' use of media for general information and information during a food safety incident.

4. Determine whether differences exist between rural, urban, and suburban consumers' use of media for general information.
5. Determine whether differences exist between rural, urban, and suburban consumers' use of media during a food safety incident related to the U.S. beef industry.
6. Describe consumers' perceptions of the beef industry based on selected demographic and media use variables.

Scope of the Study

Subjects for this study were Texas A&M University former students who were included in a database maintained by The Association of Former Students and who were accessible via email.

Definition of Terms

The following terms were defined constitutively for use in this study:

1. Ambiguity: The inability of an individual to define a situation or determine an appropriate strategy for action (Ball-Rokeach, 1985).
2. Action orientation: Various ways in which an individual forms dependency relations with the media to make behavioral decisions (DeFleur & Ball-Rokeach, 1989).
3. Attitude formation: A cognitive effect of media dependency in which the media supplies a constant flow of information that can shape people's attitudes about a particular event or situation (Ball-Rokeach & DeFleur, 1976).

4. Food safety incident: An incident involving a foodborne pathogen that could contaminate beef products, make consumers sick, and force beef recalls (Centers for Disease Control and Prevention [CDC], 2005; Schupp et al., 2006; Tucker, Whaley, & Sharp, 2006; Verbeke, Pérez-Cueto, de Barcellos, Krystallis, & Grunert, 2009).
5. Individual media dependency: An individual's efforts to seek information about society through mass media (Ball-Rokeach, 1985).
6. Media dependency: A relationship between audiences and mass media that determines the effects media has on audiences and society (Ball-Rokeach & DeFleur, 1976).
7. Social conflict: Challenges to an established culture, belief, institution, or practice. When challenges are effective, the social arrangements become inadequate as a framework for members of a society to depend on, resulting in conflict (Ball-Rokeach & DeFleur, 1976).
8. Social understanding: When individuals use media information as a resource to comprehend and understand people, cultures, and events of the past, present, or future (DeFleur & Ball-Rokeach, 1989).
9. Values: An individual's basic beliefs about existence and modes of conduct (Ball-Rokeach & DeFleur, 1976).

Assumptions of the Study

The following assumptions were used to guide this study:

1. Participants have access to mass media and use it during their daily activities.
2. Participants actively seek information from the media.
3. Participants answered all survey questions honestly and accurately.

Limitations of the Study

The following limitations were identified for this study:

1. The study was limited to the population of Texas A&M University former students registered with the Texas A&M University Association of Former Students with a valid email address and cannot be generalized beyond the defined population.
2. The study does not reflect other variables and social factors that could affect consumer dependency on media.
3. The study was not conducted during or immediately after a national, widespread food safety incident.

Significance of the Study

The mass media is perceived to satisfy the needs of the public, as it offers “speed of transmission and structural connectedness to ‘expert’ sources of information” (Lowrey, 2004, p. 339). The job of media outlets is to inform the public through reporting activities (Schupp et al., 2006), especially with an issue of important international trade and health concerns (Buzby, 2001). A food safety incident reported by the media has the potential to change consumers’ perceptions about the safety of beef (Buzby, 2001; Schupp et al., 2006).

This study provides information to agricultural communicators concerning media use among individuals during a food safety incident that could negatively affect the beef industry. Based on this study, agricultural communicators and their organizations can create effective food safety messages to target consumers through the media outlets they depend on and structure those messages to appeal to consumer preferences. Consumers have become—and will continue to be—more critical of the food supply (Verbeke, 2005). This change in consumer preferences also changes the way agricultural communicators and journalists should construct food safety related messages for the public.

Summary

The media has the potential to change people's attitudes and beliefs about issues (Ball-Rokeach & DeFleur, 1976). A food safety incident within the beef industry could damage the public's perceptions about the industry, which could cause challenges for the agriculture industry in marketing agricultural products (Charlebois, 2008). Coverage of food safety issues also can affect demand on the meat industry in the United States (Burton & Young, 1996; Eales & Unnevehr, 1988; Schroeder et al., 2007; Verbeke & Viaene, 1999). The media is important for information dissemination, and agricultural communicators should know where consumers seek information related to food safety incidents. The purpose of this study was to describe and compare consumers' dependencies on media during normal times and during a food safety incident related to the beef industry.

CHAPTER II

LITERATURE REVIEW

The media has an important role in society and its relation to institutions (Berger, 2003; Luhman, 2000). It has the ability to entertain, socialize, inform, educate, and indoctrinate the public (Berger, 2003). Individuals use media with different needs, motives, and interests in mind (Sun, Chang, & Yu, 2001). These needs, motives, and interests are socially and psychologically constructed (Sun et al., 2001). Individuals often depend on media for unique information and knowledge to understand what is happening in the world around them (Sun et al., 2001), which explains the unique role the media plays in many societies. Media outlets including television, radio, and newspapers decide what issues to report and how, and those outlets can choose to report those issues in a positive or negative way (Swinnen, McCluskey, & Francken, 2005). The media's dominant role in society gives it the ability to alter audience beliefs, behaviors, or feelings through the information presented (Ball-Rokeach & DeFleur, 1976; Berger, 2003). According to Berger (2003), "the media are in society and society is, in many different and important ways, in the media" (p. 18).

McCullagh (2002) observed that media has saturated societies, making it an everyday routine to consume media. Additionally, the role of the media is important in disseminating information to people geographically distant from events being reported (McCullagh, 2002). McCullagh also noted that media is important in providing

information about society in places where “significant events occur and in which important issues arise” (p. 14).

The media system has evolved over time from a thing of curiosity to its present status as an information system vitally important to society (DeFleur & Ball-Rokeach, 1989). No longer can interpersonal and word-of-mouth communication exist alone in society. America has grown more complex over time, and mass media became necessary for achieving societal goals, such as helping citizens during a crisis and informing citizens about national and political events (DeFleur & Ball-Rokeach, 1989).

Food Safety in the Media

Little doubt exists that “food is news” (Anderson, 2000, p. 264). The food sector has been associated with various safety incidents, such as dioxins in chicken, *salmonella* in eggs and peanut butter, BSE and *E. coli* in beef, and *E. coli* in spinach (Meijboom, Visak, & Brom, 2006; O’Neill, 2005; Steelfisher, Weldon, Benson, & Blendon, 2010), and the frequency of food scares continues to rise (Anderson, 2000). The media has focused a significant amount of attention on these food safety incidents, and this focus is likely to continue in the future (Steelfisher et al., 2010). The relationship between the media and the food industry has become a relationship of suspicion and mistrust (Anderson, 2000).

The effects of media coverage associated with the food industry have been explained by various researchers (Anderson, 2000; Dierks, 2004; Steelfisher et al., 2010; Swinnen et al., 2005). A wealth of information is available through the media, but Swinnen et al. (2005) suggested consumers are misinformed by negative media

coverage. Swinnen et al. (2005) also noted that certain information is selected for the media by organizations or institutions based on internal incentives, and that information could be biased. In the 2005 study, Swinnen et al. also found that negative food safety stories dominate positive stories because media audiences demand those type of stories. News outlets distribute messages that appeal to their audiences in hopes of maintaining readership, rather than providing messages that are preferred by the media itself (Swinnen et al., 2005).

Most consumers are informed about food safety, public health, and environmental issues through the news media (Borra, Earl, & Hogan, 1998; Hampl, 2004; Swinnen et al., 2005; Verbeke, 2005). Borra et al. (1998) revealed that most media stories covered fat consumption, but extensive coverage occurred only half of the time. Content analysis revealed that out of the approximately 100 stories about foodborne bacteria, a majority were found to be extensively covered by the media (Borra et al., 1998). Borra et al. defined extensive coverage as the stories that reporters spent more time discussing on the news, which shows the type of food safety stories consumers are usually informed about.

Food Safety Coverage in the Media Related to the Beef Industry

Researchers have recognized that media reports of beef safety have been negative, causing concerns in the industry (Burton & Young, 1996; Schroeder et al., 2007; Schupp et al., 2006). Food safety events concerning the beef industry have contributed to frustrations of the industry by producing varied consumer reactions, creating policy debates and trade disputes (Schroeder et al., 2007). Media has the role of

informing the public through reporting activities; therefore, safety information reported in the media can cause consumers to question the quality of beef (Schupp et al., 2006).

Media coverage during food safety incidents with beef products was shown by Burton and Young (1996) to have short- and long-term impacts on demand. Burton and Young noted that many food scares are expected to drop meat sales, but “by how much and for how long these changes take place are empirical questions” (1996, p. 687). The short-term effect on the beef industry after an early 1990s BSE incident covered by the media was a substantial drop in meat sales (Burton & Young, 1996). The long-term impact of the BSE case reduced the beef market share by 4.5% (Burton & Young, 1996). The investigation of media reports of food safety related to demand has been an area of concern for many agricultural markets and researchers (Piggott & Marsh, 2004).

Consumers’ Perceptions of Food Safety Risks

Consumers should expect the food supply to be safe and trust the entities that produce and evaluate food for pathogens (Anderson, 2000). However, the Center for Food Integrity conducted a survey of consumers to evaluate their trust in the food supply and their perceptions of food safety and found that 56% of the participants showed a high concern for food safety issues (CFI, 2010). These concerns are on the rise because problems related to food safety can seriously harm the well-being and health of consumers (Fleming, Thorson, & Zhang, 2006). Concerns over food safety can result in elevated levels of perceived risk (Tucker et al., 2006). In fact, [m]ore than 200 known diseases are transmitted through food by a variety of agents” (Oliver, Patel, Callaway, & Torrence, 2009, p. 420).

Tucker et al. (2006) described a theoretical approach to food safety risk perceptions. Individuals who perceive they have some control over food safety are less likely to experience heightened levels of risk. When individuals do not have control over the safety of their food, increased levels of risk could be apparent. Lack of responsibility in preparing food, lower levels of food safety knowledge, and lack of experience with agricultural production could indicate higher levels of perceived risk associated with food safety (Tucker et al. 2006).

Additionally, consumer concerns and opinions are increasingly affecting the structure and management of the food system (Sapp et al., 2009). Highly publicized food safety incidents can lead to “lasting changes in consumer perceptions about food safety and their food purchasing patterns” (Buzby, 2001, p. 58). The knowledge that consumers can affect the food system requires researchers and scientists to understand consumer trust in the system to “better anticipate public responses . . . and facilitate effective partnership building between food-system representatives and the public” (Sapp et al., 2009, p. 525).

Consumers’ Perceptions of the Beef Industry Related to Food Safety Concerns

Misperceptions of the beef industry and agriculture stems from a lack of basic knowledge about the industry among many Americans (Frick et al., 1995). Perceptions of the beef industry have been formed based on a range of health concerns and a fear that beef could be contaminated during the production, slaughter, and storage and packaging process (Schupp et al., 2006). Consumers in a survey conducted by Verbeke et al. (2009) indicated that they defined safe beef as a food product that, if consumed, would not

make them ill. They also indicated that it is difficult to determine whether beef is safe, as a result of international food scares and media attention (Verbeke et al., 2009).

Consumers indicated confidence in independent institutions assigning labels and quality verifications in supplying information; however, producers and processors were not seen as reliable sources of information (Verbeke et al., 2009). Consumers in a study by Schupp et al. (2006) indicated that packer recalls due to *E. coli* and *salmonella* contamination negatively affected their perceptions of beef industry production practices and of packing facilities.

Schroeder et al. (2007) found that 50% of consumers surveyed believed *E. coli* in beef products posed the highest risk associated with food safety. When asked if consuming a piece of beef with *E. coli* or *salmonella* would result in major illness, 70% of the respondents believed it would. Other pathogens associated with beef, such as *Listeria*, *Campylobacter* and *Staphylococcus aureus*, were not perceived to be a threat to health, probably because those pathogens have not received media coverage (Schroeder et al., 2007). Risk perceptions were found to be the main driver for reduced beef consumption in survey respondents (Schroeder et al., 2007). Although these findings cannot be associated with negative media coverage, consumers do become aware of disease outbreaks through the media (Borra et al., 1998; Hampl, 2004; Verbeke, 2005).

Economic Impact of Food Safety Incidents

Much research has been done on the impact of various food safety incidents and to find solutions to reduce the occurrence of those incidents (Buzby, 2001; Charlebois, 2008; Eales & Unnevehr, 1988; Ishida, Ishikawa, & Fukushige, 2010; McClure, 2000;

Oliver et al., 2009; O'Neill, 2005; Piggot & Marsh, 2004; Schroeder & Mark, 2000).

While scientists continually are researching those solutions, the cost of foodborne illnesses is staggering; the USDA and the Economic Research Service (ERS) reported that the cost of the foodborne illnesses *salmonella* and *E. coli* was more than \$3 billion in 2009 (ERS, 2010).

Money is not the only economic concern related to food safety incidents.

Foodborne illnesses are a major contributor of morbidity and mortality worldwide (Oliver et al., 2009). The Centers for Disease Control and Prevention (CDC, 2011) estimated that approximately 48 million Americans became ill and 3,000 die each year as a result of foodborne pathogens (CDC, 2011). *E. coli*, the pathogen largely associated with contaminated beef, was one of the top five pathogens “contributing to domestically acquired foodborne illnesses,” hospitalization, and death (CDC, 2011, p. 1–2).

Economic Impact of Food Safety Incidents on the Beef Industry

The beef industry has seen a steady decline in meat sales for several decades due to health concerns, food safety concerns, cost, and consumer preference (Schroeder & Mark, 2000). On any topic in the media, negative coverage can provoke a positive or negative consumer reaction (Burton & Young, 1996). A decline in consumption of food due to a food safety incident and the negative media coverage associated with the incident can be expected (Burton & Young, 1996; Eales & Unnevehr, 1988; Verbeke & Viaene, 1999). Although research found that consumer loyalty to U.S. beef did not decline significantly after two BSE cases, the threat of the disease is still a concern, particularly with economic impacts (O'Neill, 2005). *E. coli* also has impacted the beef

industry and has become the source of many illnesses around the world (McClure, 2000). Various meats can contain *E. coli*, but ground beef is the main carrier, and outbreaks were mainly of bovine origin (McClure, 2000).

Foreign markets for beef were affected after the 2003 BSE case, with 53 countries closing their borders to the U.S. beef market (Johnson, 2008; O'Neill, 2005; Schroeder et al., 2007). The BSE outbreak in Europe in 1996 caused a 33% decrease in the sales of beef (Charlebois, 2008). Schroeder et al. (2007) found that 20% of U.S. and Canadian consumers reduced their consumption of beef in the four years following the 2003 BSE case, and Japanese and Mexican consumers reduced their consumption by 55% and 31%, respectively. Among the respondents who indicated a decrease in beef consumption, the typical reduction ranged from 20% to 60%. One-quarter of the U.S., Canadian, and Japanese consumers reduced their consumption by 80% after the 2003 BSE case (Schroeder et al., 2007). The USDA Agricultural Marketing Service (AMS) reported that today's markets reflect an increase compared to recent years (USDA & AMS, 2011). Additionally, the CDC also indicated that illnesses contracted by foodborne pathogens have decreased 20% since 1999 due to increased efforts to improve food safety by federal regulations and the industry (CDC, 2010). Although the decrease in meat consumption did not severely affect the beef market and foodborne illness contractions are decreasing, the potential impact of a beef-related food safety incident is important to research and understand.

Theoretical Framework

Because research has described mass media as saturating society and as an entity that is constantly consumed (McCullagh, 2002), a theoretical framework that encompasses the effects and use of media was used to support this study. The media dependency theory (MDT) describes the relationship between audiences and the mass media and how that relationship determines the effects media has on society (Ball-Rokeach & DeFleur, 1976). Dependency is a “relationship in which the satisfaction of needs or the attainment of goals by one party is contingent upon the resources of another party” (Ball-Rokeach & DeFleur, 1976, p. 6). The media itself experiences dependency on society, and that dependence between media and other societal systems impacts the media system dependency experienced by individuals.

MDT research is concerned with how information from the mass media becomes central to the goals of people or groups (Loges, 1994). Media dependency relationships rest upon goals and resources, and for individuals to attain their specific goals, they must rely on the entity that controls the resources needed (DeFleur & Ball-Rokeach, 1989). The three types of resources are gathering and creating, information processing, and dissemination (Ball-Rokeach, 1985; DeFleur and Ball-Rokeach, 1989). By using these resources, which are provided by the media, individuals can achieve personal and collective goals (DeFleur & Ball-Rokeach, 1989). Levels of dependency vary from the need to understand one’s social world to the need for fantasy escape from daily worries and tensions (Ball-Rokeach & DeFleur, 1976). The greater the need for media in these

situations, the greater likelihood the media will alter beliefs and attitudes of the individual (Ball-Rokeach & DeFleur, 1976).

During periods of social change or conflict in a society with a well-developed media system, the potential for media effects is increased because society is dependent on the media (Ball-Rokeach, 1985; Ball-Rokeach & DeFleur, 1976; DeFleur & Ball-Rokeach, 1989; Loges, 1994), as illustrated by others who described media dependency during terrorist attacks, disease outbreaks, and natural disasters (Gordon, 2009; Lowrey, 2004; Robertson, 2009; Tai & Sun, 2007). Social conflict and change usually are apparent when challenging social institutions, beliefs, or practices, and dependency on media increases as the level of social conflict and change rises within a media-oriented society (Ball-Rokeach & DeFleur, 1976). During periods of social disruption, the need for information is at its highest (Lowrey, 2004). Reliance on mediated sources is increased when ambiguity is high and people have to re-evaluate their decisions and choices (Gordon, 2009). The heightened state of social disruption involves an increase of dependency on media and increases media's effects on people (Gordon, 2009).

Mass media have the potential to produce a range of cognitive, affective, and behavioral effects when the media system serves central information functions (Ball-Rokeach & DeFleur, 1976). This influence is illustrated in Figure 1. The cognitive effects are most related to this study.

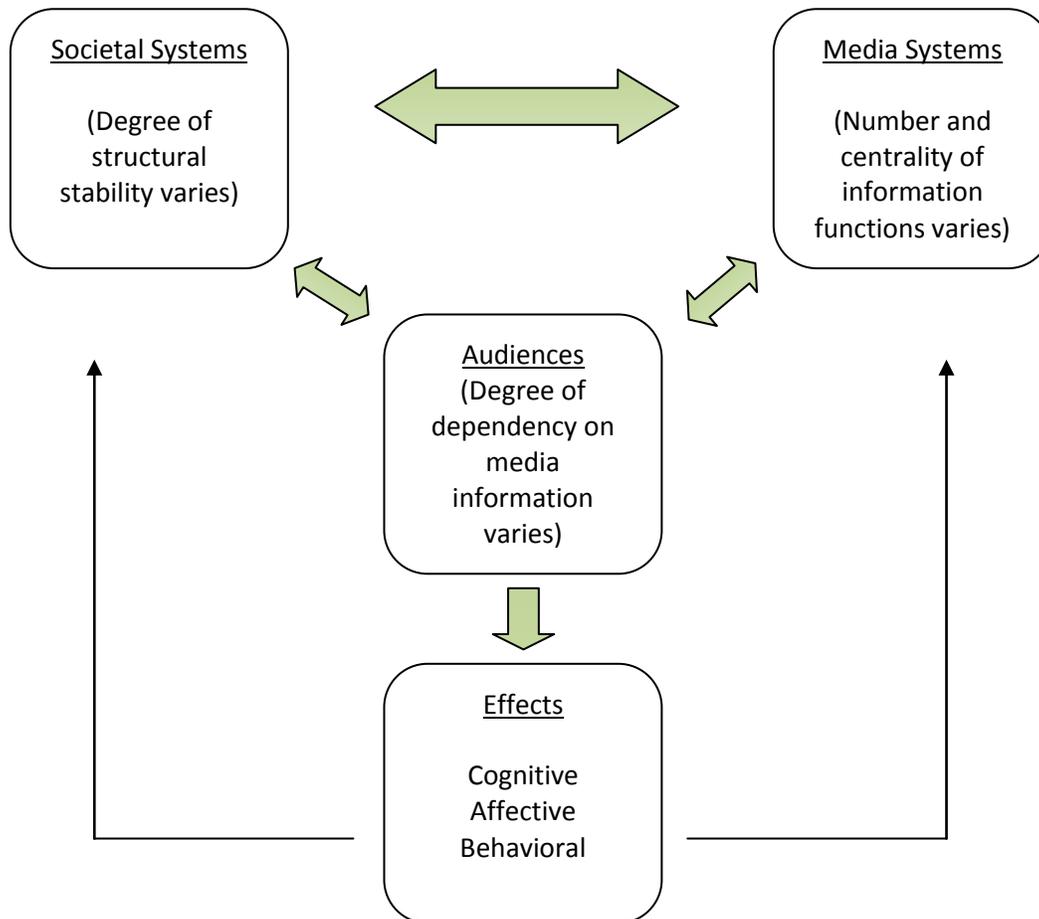


Figure 1. Society, media, and audiences: Reciprocal relationships (Ball-Rokeach & DeFleur, 1976, p. 8).

Cognitive Effects

Media dependency is likely to result in various cognitive effects on individuals and society (Ball-Rokeach & DeFleur, 1976). The first cognitive effect, creation and resolution of ambiguity, is achieved when the media supplies information that lessens ambiguous attitudes during periods of rapid social change (Ball-Rokeach & DeFleur, 1976). Ambiguity occurs because people lack adequate information that is necessary to understand the meaning of events or because they lack information needed to determine

different interpretations of an event (Ball-Rokeach, 1973; Ball-Rokeach & DeFleur, 1976). More information from the media is needed in an attempt to solve ambiguity among audiences, which is more visible in societies experiencing stressful social conflict (Ball-Rokeach & DeFleur, 1976). When such conflict occurs in a society and the individual and opinion leaders cannot understand the meaning, mass media becomes the main source of information with the resources to create meanings (DeFleur & Ball-Rokeach, 1989; Lowrey, 2004; Robertson, 2009).

Attitude formation is common in societies that depend heavily on media systems (Ball-Rokeach & DeFleur, 1976). This cognitive effect is initiated by the “never-ending flow of . . . events, issues, objects, and persons into the public attention” (Ball-Rokeach & DeFleur, 1976, p. 11). The media portrayed the terrorist attack of 9/11 as a threat to the the nation’s normal social, political, and financial functioning. It is believed that individuals altered their beliefs to align with the dominant message the media provided in the stories of the terrorist attacks (Lowrey, 2004).

Another cognitive effect is centered around the agenda-setting theory (Ball-Rokeach & DeFleur, 1976). The media identifies potential topics to cover, and individuals do not control the selection activities of the media (Ball-Rokeach & DeFleur, 1976). The media covers many topics, but people “have neither the time nor the energy to form attitudes and beliefs about everything” (Ball-Rokeach & DeFleur, 1976). Individuals decide what stories or issues to take interest in due to individual differences and their locations in society (Ball-Rokeach & DeFleur, 1976).

Expansion of beliefs is also a cognitive effect that occurs in a media-dependent society (Ball-Rokeach & DeFleur, 1976). Coverage on a specific topic for an extended amount of time can lead to incorporation of new beliefs with old beliefs and attitudes (Ball-Rokeach & DeFleur, 1976). Closely related to beliefs are values, which the media also can impact (Ball-Rokeach & DeFleur, 1976). The last cognitive effect, impact on values, happens when the media presents stories with conflicting beliefs and values, making audiences aware and informed of their own value systems (Ball-Rokeach & DeFleur, 1976).

Affective Effects

The second category of effects of media dependency is affective effects, or the impact the media has on the public's feelings (Ball-Rokeach & DeFleur, 1976). Fear, anxiety, and trigger-happiness are effects that occur when an individual is presented with prolonged messages of violence about cities or other aspects of society, resulting in a person's fear of the community (Ball-Rokeach & DeFleur, 1976).

Morale and alienations can also results from media messages (Ball-Rokeach & DeFleur, 1976). In a society in which the media is a dominant dissemination force and key to the communication of that society, the information presented can have effects on the morale and alienation of the public (Ball-Rokeach & DeFleur, 1976).

Behavioral Effects

A change in an individual's attitude or beliefs is interesting to research; however, Ball-Rokeach and DeFleur (1976) wrote that an individual's actions due to changes in beliefs is equally important. Behavioral effects consist of activation and de-activation

(Ball-Rokeach & DeFleur, 1976). “Activation refers to instances in which audience members do something that they would not otherwise have done as a consequence of receiving media messages” (Ball-Rokeach & DeFleur, 1976, p. 16). Activation could likely be the end product of strong cognitive and affective effects (Ball-Rokeach & DeFleur, 1976). De-activation, actions individuals would normally participate in but don’t “as a consequence of media messages” has not been researched like activation (Ball-Rokeach & DeFleur, 1976).

Individual Dependence on Media

Later research by Ball-Rokeach (1985) focused on the determinants of individual media system dependency, whereas earlier research focused on the consequences of media dependency. The shift from audience to individual is because “the mass audience does not act as a coordinated unit vis-à-vis the media, nor does the mass audience. . . control resources or have shared goals that are necessary to meaningful analyses of dependency relations” (Ball-Rokeach, 1985, p. 493–494). Individuals live in a society where the media has developed information and communication roles through its resources and relations to other social systems (Ball-Rokeach, 1985). The range of the media roles sets the media dependencies of individuals (Ball-Rokeach, 1985). Individuals develop dependency relationships with the media because they are goal-oriented, and those goals are achieved through the resources controlled by the media (DeFleur & Ball-Rokeach, 1989). Media dependency is based on the goals of understanding, orientation, and play (DeFleur & Rokeach, 1989), each of which is

further divided to describe different types of activities (see Figure 2). Understanding and orientation are the goals most related to this study.

Understanding	Orientation	Play
<p>Self-understanding</p> <p>e.g. learning about oneself and growing as a person</p>	<p>Action orientation</p> <p>e.g. deciding what to buy, how to dress, or how to stay slim</p>	<p>Solitary play</p> <p>e.g. relaxing when alone or having something to do by oneself</p>
<p>Social understanding</p> <p>e.g. knowing about or interpreting the world or community</p>	<p>Interaction orientation</p> <p>e.g. getting hints on how to handle new or difficult situations</p>	<p>Social play</p> <p>e.g. going to a movie or listening to music with family and friends</p>

Figure 2. Goals of media dependency (DeFleur & Ball-Rokeach, 1989, p. 306).

The goals of dependency are based on the assumption that understanding, orientation, and play are the major dimensions of human motivation that drive media behavior (Ball-Rokeach, 1985). Social understanding develops when individuals use the media as a resource to understand and interpret the world and their communities (DeFleur & Ball-Rokeach, 1989). Patwardhan and Yang (2003) found that individuals use the Internet to achieve social goals, such as understanding. This dependency goal is an important factor in determining their behaviors and attitudes online (Patwardhan & Yang, 2003). Lowrey (2004) found that after the terrorist attacks on 9/11, most individuals used media to meet their understanding goals. The chaos and uncertainty of the attack made individuals seek information from the media to understand what was happening (Lowrey, 2004).

The second goal, orientation, and more specifically, action orientation, refers to the ways in which individuals establish relationships with the media to have a guide to help them form behaviors of their own (DeFleur & Ball-Rokeach, 1989). These behaviors include everyday activities and important political, economic, religious, and medical activities (DeFleur & Ball-Rokeach, 1989).

The last goal, play, is more related with stimulating play between people; in social play, the content the media provides is secondary to the people getting together in media behavior. For example, couples on a date at the movie theater are more interested in the date rather than the content of the movie. Solitary play happens “when the aesthetics, enjoyment, stimulation, or relaxation properties of the media content itself are the attraction (DeFleur & Ball-Rokeach, 1989, p. 307).

The goals of understanding, orientation, and play cannot be attained easily without the resources provided by others, particularly the media, which is the reason modern society perceives the media as an information system (DeFleur & Ball-Rokeach, 1989).

Media Dependency on a Range of Media Outlets

Because of the many media outlets such as television, Internet, and radio, people are able to “construct their own media systems” (DeFleur & Ball-Rockeach, 1989, p. 309). Dependencies on certain mediums can vary between the goals of understanding, orientation, and play (DeFleur & Ball-Rokeach, 1989), and those dependencies are likely to vary according to demographics, social contexts, perceptions of threat, and media use patterns and goals (Gordon, 2009; Lowrey, 2004). During periods of stress and conflict,

the goals of understanding and orientation play a more important role in dependency (Loges, 1994; Lowrey, 2004), and television and newspaper use are increased to achieve those goals (Loges, 1994). The Internet was the main source of information during the severe acute respiratory syndrome (SARS) outbreak in 2003 in China. During that period of massive social disruption and ambiguity, the population had to depend on the Internet and foreign media because the government continually withheld information about the outbreak (Tai & Sun, 2007). The Internet became an empowering tool for individuals to share information about the disease and create communication channels of their own (Tai & Sun, 2007). Most of the felt needs of the citizens of China were not met by official media outlets, so they shifted to another medium to achieve their goals (Tai & Sun, 2007). Understanding and orientation were also important to individuals.

Becker and Whitney (1980) proposed that differences in news presentation explain the effects of media and source dependency on variables such as attitude formation. Differences in news presentation can lead to differing effects on audiences receiving fragmented and alternate presentations of issues (Becker & Whitney, 1980). While Becker and Whitney explained the differences in newspaper and television, which was appropriate for their time period, the Internet as a medium also should be considered in this context because 74% of American adults use the Internet (Rainie, 2010). MDT research has shown that individual goals met by the Internet may influence consumer activities online (Patwardhan & Yang, 2003). The goals attained by people depending on the Internet relate to the goals of individuals who seek information from traditional

forms of media that have the potential to change attitudes, such as television, print, and radio.

Summary

Much research has been done on the influences of mass media, food safety incidents covered in the media, and media dependency (Anderson, 2000; Berger, 2003; Borra et al., 1998; DeFleur & Ball-Rokeach, 1989; Luhman, 2000; McCullagh, 2002; Swinnen et al., 2005; Verbeke, 2005). Media plays a dominant role in society because of its responsibility to disseminate information to the public (Berger, 2003; McCullagh, 2002). However, media coverage concerning food safety incidents related to the beef industry often are negative, which could affect demand for beef products (Anderson, 2000; Burton & Young, 1996; Steelfisher et al., 2010). Most negative information reported by the media is misleading and consumers become misinformed (Swinnen et al., 2005). Media dependency theory, the theory that describes how media affects audiences, encompasses the relationship between the mass media and the public (Ball-Rokeach & DeFleur, 1976). Media dependency relationships are determined by goals of individuals and the resources used to attain those goals (DeFleur & Ball-Rokeach, 1989). During periods of social change or conflict, media dependencies are increased, and individuals' need for information is heightened (Ball-Rokeach & DeFleur, 1976; Lowrey, 2004). Little research was found related to the beef industry and whether negative media coverage is the cause of decreased demand for beef during a food safety incident. No research was found on media dependency studies related to the beef industry. Research concerning use of broadband in rural areas was found (Bell, Reddy,

& Rainie, 2004; Hindman, 2000; Whitacre & Mills, 2010), but no research was found concerning media use differences among urban, rural, and suburban consumers.

CHAPTER III

METHODOLOGY

Research has shown that the media plays a powerful role in society, affecting many institutions (Berger, 2003). Food safety issues in the media are a heated debate in society because of the necessity of the food supply (Anderson, 2000). Issues usually are covered in negative news stories that have the potential to damage the beef industry (Buzby, 2001; Dierks, 2004). Consumers express concerns about the safety of the food supply, and those concerns are expected to continue (Crutchfield & Roberts, 2000; Verbeke, 2005). Negative coverage on food safety incidents related to the beef industry has the potential to affect consumer perceptions of and attitudes toward the beef industry and to affect the demand for beef products (Economic Research Service, 2010; Johnson, 2008; O'Neill, 2005; Schroeder et al., 2007). Ball-Rokeach and DeFleur (1976) theorized that dependency is increased when a high degree of change occurs in a society. A food safety incident would be covered by mass media channels because it would be a conflict within society.

Institutional Review Board

This study was presented to the Institutional Review Board (IRB), as required by Texas A&M University regulations, to ensure the rights and protection of human subjects as part of social science research. Permission was granted to complete the study. A copy of the approval, IRB protocol number 2011-0053, is presented in Appendix A.

Purpose

The purpose of this study was to describe consumers' self-reported dependency on media channels during normal times when a food safety incident has not occurred or is not expected to occur and during a food safety incident related to the U.S. beef industry.

Objectives

The following objectives guided the study:

1. Describe consumers' dependency on media for general information.
2. Describe consumers' dependency on media for information during a food safety incident related to the U.S. beef industry.
3. Determine whether differences exist in consumers' use of media for general information and information during a food safety incident.
4. Determine whether differences exist between rural, urban, and suburban consumers' use of media for general information.
5. Determine whether differences exist between rural, urban, and suburban use of media during a food safety incident related to the U.S. beef industry.
6. Describe consumer perceptions of the beef industry based on selected demographic, and media use and dependency variables.

Research Design

A quantitative survey was used for this study. Data were collected through an online questionnaire that was constructed based on the principles of The Tailored Design Method outlined by Dillman, Smyth, and Christian (2009).

Survey Instrument Design

The survey instrument was designed based on literature that addressed media dependency and consumer perceptions of the beef industry (Ball-Rokeach, 1985; Ball-Rokeach & DeFleur, 1976; CFI, 2010; DeFleur & Ball-Rokeach, 1989; Jakob, 2010; Robertson, 2009). SurveyMonkey.com was used to create the questionnaire and collect responses online. The online questionnaire (see Appendix E) consisted of five sections: knowledge of agriculture, normal media use, media use during a beef-related food safety incident, perceptions of the beef industry, and demographics.

The first section of the survey comprised 10 multiple-choice questions about the agricultural industry that were used in a previous media dependency study (Robertson, 2009). The responses will be used in future multiple regression analysis.

The second section of the instrument contained questions about participants' perceptions of the beef industry as a whole. This section was used to achieve research objective six. Questions included whether participants believed the industry provides a safe food product and whether the industry supplies information for use in making informed decisions about food safety. One question addressed various issues within the industry, including food safety, animal welfare, production practices, access to accurate information about food safety, and antibiotic use in beef cattle. Respondents answered

perception questions on a 5-point rating scale of 1.00-1.44 as “strongly disagree,” 1.45-2.44 as “disagree,” 2.45-3.44 as “neutral,” 3.45-4.44 as “agree,” and 4.45-5.00 as “strongly agree.”

The third section of the instrument contained five questions that were used to gain an understanding of participants’ general media use. This section addressed objectives one and four. The participants were asked if they sought information from the media and how many hours a week they spent on certain media channels. Questions also asked participants’ perceptions of trustworthiness of the media channels they use. Participants were asked if they published their views and opinions on blogs or social networking sites. These questions were used to assess how often participants use media and how important they perceive the media to be in receiving information. This section contained fill-in-the-blank, scaled, and multiple-choice questions. Scaled items used the same response scale as the perception questions.

The fourth section contained eight questions about participants’ media use during a food safety incident related to the beef industry. This section was similar to the normal media use section but was used to accomplish objectives two and five. Participants were asked what media they use during food safety incidents, how trustworthy those media are, and if they believe the media is an important source of information. Participants were asked if coverage of a food safety incident altered their opinions and attitudes toward the beef industry in a negative way and if they seek additional information sources during a food safety incident. These questions contained multiple-choice, scaled,

and fill-in-the-blank answer choices. Scaled items used the same response scale as the perception and general media use questions.

The last section of the instrument contained 18 questions to gather demographic information about the participants. Questions concerning region of residence, age, gender, education level, and experience in agriculture were used to gain an understanding of the population. Items included fill-in-the-blank, multiple-choice, and scaled answers. Scaled items used the same scale as in previous sections. The demographic questions were used in meeting objectives four, five, and six.

Validity and Reliability

Content validity were established for the questionnaire through a panel of four experts (see Appendix B). Revisions to questions were made based on suggestions from the panel of experts prior to pilot testing.

Face validity and reliability of the instrument was established with a pilot survey (see Appendix C) of current Texas A&M University College of Agriculture and Life Sciences graduate students. The reliability was estimated using Cronbach's alpha, a measure used to determine internal consistency of scale. For this survey, reliability was calculated for one scale on 83 items and resulted in a Cronbach's alpha coefficient of .968.

Population and Sample

The accessible population of former Texas A&M University students who are members of the Texas A&M University Association of Former Students with a valid email address numbered 160,208. The contact information for the former students was

accessible through a database maintained by the association. The frame was stratified based on college affiliation. Sampling procedures included determining a percentage of each college that would represent the total population. The number of individuals selected from each college was determined by multiplying the percentage by 4,500, the desired sample size, and an association staff member randomly sampled the individuals. Krejcie and Morgan (1970) stated that for a population greater than 100,000 individuals, 384 responses were needed for a representative sample. Based on a previous study by Robertson (2009), a 10% response rate was expected. To compensate for a low response rate the number sampled was increased to 4,500.

Data Collection

Data were collected from April 6, 2011, to April 27, 2011. An initial email (see Appendix D) describing the study and the survey was sent April 6, 2011, followed by reminder emails (see Appendix F) sent April 13, 2011, and a second reminder email sent April 20, 2011.

Data Analysis

The *Statistical Package for Social Sciences (SPSS®)* was used to analyze data in this study. Descriptive statistics, including means, standard deviations, modes, medians, frequencies, ranges, cross-tabulations, and correlations, were calculated. Analysis of variance also was performed for selected items. The descriptive statistics and analysis of variance were used to interpret the data. Means of the early respondents ($n = 342$) were compared to the late respondents ($n = 237$) to examine for nonresponse error (Lindner & Wingenbach, 2002). Early respondents included individuals who filled out the

questionnaire before the first reminder email (before April 13, 2011), and late respondents were individuals who filled out the survey after the first reminder email (after April 13, 2011). No significant differences between early and late respondents were found.

Summary

This chapter described the quantitative methods used for this study. The researcher used a survey instrument based on relevant literature related to media dependency and consumer perceptions of the beef industry. A panel of experts and a pilot study were used to establish validity and reliability of the instrument. A list of email addresses from the Texas A&M University Association of Former Students database served as the sampling frame for this study. Participants were contacted through an initial notification email that described the study and its purpose. Two reminder emails followed a week apart, again describing the study and the value of participants' responses. Each email included the link to the online questionnaire. The survey was conducted over a three-week period from April 6, 2011, to April 27, 2011. Data were analyzed and interpreted using descriptive and inferential statistics.

CHAPTER IV

FINDINGS

This study sought to describe consumers' dependency on media during a time of social conflict like a food safety incident related to the beef industry. With the influence of mass media in presenting information to the public and the need for people to consume information (Ball-Rokeach & DeFleur, 1976; Lowrey, 2004; McCullagh, 2002; Sun et al., 2001), it is important to know where and how consumers receive information concerning a food safety incident related to the beef industry and if that information alters their beliefs and trust in the beef industry. Negative stories presented in the media related to food safety incidents within the beef industry could affect consumer perceptions of the industry and affect demand for beef products (Economic Research Service, 2010; Johnson, 2008; O'Neill, 2005; Schroeder et al., 2007).

Former students of Texas A&M University were surveyed using an online questionnaire created through a review of literature on media dependency, beef industry perceptions, and food safety information (Ball-Rokeach, 1985; Ball-Rokeach & DeFleur, 1976; CFI, 2010; DeFleur & Ball-Rokeach, 1989; Jakob, 2010; Robertson, 2009). A panel of experts and a pilot study was used to establish validity and reliability of the instrument. Data collection were conducted over a three-week period from April 6, 2011 to April 27, 2011. Descriptive and inferential statistics were used to analyze the data.

Response Rate

Data collection were conducted over three weeks, from April 6, 2011, to April 27, 2011. Responses were received from 579 of the 4,500 former students who were emailed. The number of respondents meets the requirement of 384 responses established by Krejcie and Morgan (1970) to obtain a representative sample of a population of 160,208. The response rate was 12.9%.

General Demographics

Of the respondents that indicated their gender, 52.5% were male and 28.2% were female. Thirty-nine percent of the respondents ($n = 475$) described the area they lived in as suburban, 21.2% ($n = 123$) as urban, and 20.9% ($n = 121$) as rural. The mean age of the respondents was 50.16 years ($SD = 12.66$), with a range of 23 to 84 years. More than half of the respondents (54.6%) lived in Texas; thirty-two other states and 19 countries were represented. The longest time lived in the respondent's present community was 84 years.

Respondents were educated with a bachelor's degree ($n = 168$, 29.0%), a master's degree ($n = 165$, 28.5%), and a doctoral or law degree ($n = 86$, 14.9%), and occupations included engineers, architects, attorneys, teachers, and real estate agents. Fifty-two respondents (9.0%) indicated they had some completed some graduate school. About two-thirds of the respondents ($n = 391$, 67.5%) have not served in the military and 13.8% ($n = 80$) indicated they have served. Based on political beliefs, 29.0% ($n = 168$) of respondents indicated their political beliefs are conservative, 19.9% ($n = 115$) as moderately conservative, 16.8% ($n = 97$) as moderate, 8.5% ($n = 49$) as moderately

liberal, and 4.8% ($n = 28$) as liberal. Some respondents wrote in their beliefs as independent, indifferent, of libertarian.

In regard to marital status, 60.1% of respondents are married, 3.3% divorced, and 12.8% single; 176 respondents have at least one child under 18 years of age living with them with a range of zero to six children. In regards to employment status, 348 respondents (60.1%) are employed full-time, 50 respondents (8.6%) are employed part-time, and 69 respondents (11.9%) are not employed. Based on respondents' 2010 household income before taxes, 234 respondents (40.4%) earned more than \$100,000; 75 respondents (13.0%) earned \$75,000 to \$100,000; 72 (12.4%) respondents earned \$50,000 to \$75,000; 50 respondents (8.6%) earned \$25,000 to \$50,000; and 9 respondents (1.6%) earned less than \$25,000. Almost three-quarters of the respondents ($n = 426$, 73.6%) said they are white, 5 respondents (0.9%) indicated they were African American, 21 respondents (3.6%) indicated they were Hispanic, Spanish, or Latino.

Agricultural Experience

Respondents were asked to indicate if they had experience related to selected agricultural experiences (see Table 1). The common agricultural experience was living or lived in a rural area, with $n = 247$. Working or worked on a farm or ranch ($n = 170$) and living or lived on a farm or ranch ($n = 163$) were the next activities experienced by the most respondents. The activities experienced least by respondents was ownership of a farm or ranch ($n = 90$) and participating in extension workshops ($n = 94$). Respondents ($n = 315$) indicated they own a dog or cat for companionship, own a horse ($n = 34$), livestock ($n = 63$), or working dogs ($n = 24$), or none of the animals listed ($n = 139$).

Table 1
Experience in Agriculture

Agricultural Experience	<i>n</i>	%	<i>Rank</i>
Live(d) in rural area	247	42.7	1
Worke(d) on farm or ranch	170	29.4	2
Live(d) on farm or ranch	163	28.2	3
Paid work experience	160	27.6	4
Work(ed) in rural area	155	26.8	5
College agriculture course(s)	149	25.7	6
Unpaid work experience	136	23.5	7
None	132	22.8	8
Exhibiting livestock at fairs/shows	107	18.5	9
High school agriculture course(s)	96	16.6	10
Extension workshops	94	16.2	11
Own(ed) a farm or ranch	90	15.5	12
Other	31	5.4	13

Findings Related to Consumers' Dependencies on Media During Normal Times

Respondents were asked to indicate how many hours per week they spent on media for personal, business, and/or entertainment use (see Table 2). Internet was the medium people used most for gathering information. Respondents used the Internet an average of 10.58 ($SD = 11.03$, $Mdn = 7.00$) hours per week. Television shows and movies and television news channels were the next highest in hours of use per week, with means of 7.98 ($SD = 7.38$, $Mdn = 6.00$) and 5.79 ($SD = 6.99$, $Mdn = 4.00$), respectively. Respondents indicated that Twitter was used least often for gathering information, averaging 0.14 ($SD = 0.6$, $Mdn = 0.00$) hours per week.

Respondents were asked to indicate the trustworthiness of certain mediums in providing accurate and helpful information about any issue (see Table 3). Respondents

indicated that radio was the a trustworthy medium ($M = 3.25$, $SD = 0.93$, $Mdn = 3.00$); however, respondents were neutral on trustworthiness of radio. Newspapers and Internet followed with means of 3.23 ($SD = 1.01$, $Mdn = 3.00$) and 3.19 ($SD = 0.91$, $Mdn = 3.00$), respectively. The medium not considered trustworthy for providing accurate information about any issue was television shows and movies ($M = 2.19$, $SD = 0.92$, $Mdn = 2.00$).

Table 2
Hours per Week Spent on Media for Personal, Business, and/or Entertainment Use

Medium	<i>n</i>	<i>M</i>	<i>SD</i>	Range	<i>Mdn</i>
Internet	502	10.58	11.03	80	7.00
Television (shows, movies)	489	7.98	7.38	50	6.00
Television (news channels)	502	5.79	6.99	90	4.00
Radio	489	5.07	6.42	50	3.00
Newspapers	475	2.20	3.72	50	1.00
Facebook	461	1.93	4.55	50	0.00
Magazines	456	1.50	2.05	20	1.00
Email list subscriptions	452	1.12	1.93	15	0.00
Other	328	0.79	3.22	40	0.00
Blogs	443	0.47	1.77	20	0.00
YouTube	445	0.37	0.88	10	0.00
RSS Feeds	439	0.23	1.23	20	0.00
Twitter	440	0.14	0.61	7	0.00

The 131 respondents who indicated they publish their views and/or opinions on social networking sites like Facebook and Twitter or on blogs, posted items an average of 4.97 times per week. Overall, 67% ($n = 388$) of respondents indicated information presented by the media changes their opinions and attitudes about any issue in a negative

way and 42.1% ($n = 244$) indicated that media coverage changes their opinions about issues in a positive way.

Table 3
Trustworthiness of Media in Providing Information About Any Issue

Medium	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Mdn</i>
Radio	510	3.25	0.93	3.00
Newspapers	498	3.23	1.01	3.00
Internet	514	3.19	0.91	3.00
Magazines	498	3.18	0.93	3.00
Television (news channels)	514	3.00	1.04	3.00
Other	302	2.86	0.76	3.00
E-mail list subscriptions	488	2.81	0.91	3.00
RSS Feeds	474	2.56	0.86	3.00
Blogs	481	2.33	0.91	3.00
YouTube	481	2.27	0.85	2.00
Facebook	489	2.22	0.86	2.00
Television (shows, movies)	512	2.19	0.92	2.00
Twitter	483	2.19	0.86	2.00

Note. Scale: 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree

Findings Related to Consumer's Dependencies on Media During a Food Safety Incident

Respondents were asked to provide how many hours per week they spent on certain media channels to get information concerning a food safety incident related to the beef industry (see Table 4). An average of 2.15 ($SD = 6.96$, $Mdn = 1.00$) hours per week was spent on television news channels, making it the most used medium for information concerning a food safety incident. The least used medium was Twitter, with respondents indicating they use it .01 ($SD = 0.14$, $Mdn = 0.00$) hours per week.

Table 4
Hours per Week Spent on Media for Food Safety Information Related to the Beef Industry

Medium	<i>n</i>	<i>M</i>	<i>SD</i>	Range	<i>Mdn</i>
Television (news channels)	456	2.15	6.96	90	1.00
Internet	446	1.94	4.24	32	1.00
Radio	438	1.20	3.19	40	0.00
E-mail list subscriptions	452	1.12	1.93	15	0.00
Television (shows, movies)	427	0.57	3.11	50	0.00
Magazines	418	0.45	1.38	20	0.00
RSS Feeds	413	0.11	1.49	30	0.00
Facebook	416	0.08	0.57	8	0.00
Blogs	412	0.05	0.31	4	0.00
YouTube	414	0.02	0.15	1	0.00
Twitter	415	0.01	0.14	2	0.00
Newspapers	436	0.91	2.87	50	0.00
Other	339	0.17	1.05	16	0.00

Respondents agreed that the Internet ($M = 3.50$, $SD = 0.95$, $Mdn = 4.00$) was a helpful medium in providing accurate information about a national food safety incident related to the beef industry (see Table 5). Televisions news channels ($M = 3.49$, $SD = 1.02$, $Mdn = 4.00$) and radio ($M = 3.49$, $SD = 0.95$, $Mdn = 4.00$) followed as helpful mediums, and respondents disagreed that television shows and movies ($M = 2.20$, $SD = 0.97$, $Mdn = 4.00$) were helpful.

In regards to the helpfulness of media in providing information about a food safety incident occurring in the respondent's community (see Table 6), it was indicated that radio was a helpful medium ($M = 3.50$, $SD = 0.97$, $Mdn = 4.00$), while television

shows and movies were not a helpful medium with a mean of 2.19 ($SD = 0.97$, $Mdn = 2.00$).

Table 5
Helpfulness of Media in Providing Information About National Food Safety Incidents Related to Beef

Medium	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Mdn</i>
Internet	470	3.50	0.95	4.00
Television (news channels)	476	3.49	1.02	4.00
Radio	472	3.49	0.95	4.00
Newspapers	460	3.38	1.04	4.00
Magazines	455	3.10	1.01	3.00
Other	287	2.77	0.82	3.00
E-mail list subscriptions	448	2.70	0.97	3.00
RSS Feeds	444	2.50	0.90	3.00
Blogs	447	2.34	0.93	3.00
Facebook	448	2.31	0.94	2.00
Twitter	447	2.29	0.92	3.00
YouTube	446	2.28	0.89	3.00
Television (shows, movies)	462	2.20	0.97	2.00

Note. Scale: 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree

Table 6
Helpfulness of Media in Providing Information About Local Food Safety Incidents Related to Beef

Medium	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Mdn</i>
Radio	466	3.50	0.96	4.00
Television (news channels)	468	3.49	1.07	4.00
Newspapers	455	3.37	1.11	4.00
Internet	457	3.29	1.04	3.00
Other	288	2.73	0.78	3.00
Magazines	445	2.64	1.00	3.00
Email list subscriptions	438	2.55	0.96	3.00
RSS Feeds	436	2.39	0.89	3.00
Facebook	442	2.33	0.98	3.00
Blogs	438	2.25	0.90	2.00
YouTube	434	2.24	0.88	2.00
Twitter	440	2.23	0.92	2.00
Television (shows, movies)	450	2.19	0.97	2.00

Note. Scale: 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree

Respondents also were asked which media were helpful in providing information about how to help victims of a food safety incident related to the beef industry (see Table 7). Respondents agreed that Internet was helpful with the highest mean of 3.50 ($SD = 0.97$, $Mdn = 4.00$). Following Internet, respondents agreed television news channels ($M = 3.45$, $SD = 1.04$, $Mdn = 4.00$) were helpful and were neutral on whether radio was helpful ($M = 3.39$, $SD = 1.01$, $Mdn = 4.00$). Respondents generally disagreed that television shows and movies was a helpful medium for providing information on helping victims of a food safety incident ($M = 2.21$, $SD = 0.99$, $Mdn = 2.00$).

Table 7
Helpfulness of Media in Providing Information About How to Help Victims of Food Safety Incidents Related to the Beef Industry

Medium	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Mdn</i>
Internet	446	3.50	0.97	4.00
Television (news channels)	455	3.45	1.04	4.00
Radio	446	3.39	1.01	4.00
Newspapers	438	3.30	1.09	4.00
Magazines	430	2.90	1.05	3.00
Other	266	2.64	0.79	3.00
Email list subscriptions	420	2.60	1.01	3.00
RSS Feeds	417	2.39	0.91	3.00
Facebook	421	2.35	1.01	3.00
Blogs	417	2.30	0.94	3.00
YouTube	415	2.27	0.91	3.00
Twitter	419	2.25	0.92	2.00
Television (shows, movies)	434	2.21	0.99	2.00

Note. Scale: 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree

It was agreed that helpful mediums in providing information about how to help prevent food safety incidents related to beef from impacting the respondent (see Table 8) were television news channels ($M = 3.57$, $SD = 0.97$, $Mdn = 4.00$) and Internet ($M = 3.57$, $SD = 0.92$, $Mdn = 4.00$). Respondents also agreed that radio and newspapers were helpful with means of 3.48 ($SD = 0.91$, $Mdn = 4.00$) and 3.38 ($SD = 1.06$, $Mdn = 4.00$), respectively. Respondents disagreed that Twitter was helpful in preventing food safety incidents from impacting the respondent ($M = 2.21$, $SD = 0.88$, $Mdn = 2.00$).

Table 8
Helpfulness of Media in Providing Information About How to Help Prevent Food Safety Incidents Related to the Beef Industry from Impacting Oneself

Medium	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Mdn</i>
Television (news channels)	453	3.57	0.97	4.00
Internet	443	3.57	0.92	4.00
Radio	444	3.48	0.91	4.00
Newspapers	438	3.38	1.06	4.00
Magazines	426	3.00	1.05	3.00
Other	265	2.68	0.78	3.00
Email list subscriptions	419	2.66	1.00	3.00
RSS Feeds	412	2.39	0.90	3.00
Television (shows, movies)	432	2.34	1.08	2.00
Facebook	416	2.32	0.96	3.00
Blogs	414	2.28	0.91	2.00
YouTube	413	2.26	0.88	3.00
Twitter	414	2.21	0.88	2.00

Note. Scale: 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree

Nearly half of respondents ($n = 262$, 45.3%) indicated media coverage of food safety incidents related to the beef industry has changed their opinions in a negative way, while 30.7% ($n = 178$) indicated media coverage of food safety incidents has changed their beliefs in a positive way.

Findings Related to Differences in Media Use During Normal Times and During a Food Safety Incident

Based on the respondents' indications of how many hours per week they used specific mediums, the mediums were ranked with the ranking of "1" being most used and "13" being least used. The rankings for the mediums are compared between normal times and times during a food safety incident related to the beef industry (see Table 9).

During normal times, respondents indicated they use Internet more hours during the week than other mediums. The least used medium in a week was Twitter. During a food safety incident, television news channels were used the most per week and the category of other was least used.

Table 9
Rank Comparisons for Media Use During Normal Times and During a Food Safety Incident Related to the Beef Industry

Medium	Rank Order	
	Normal Times	Food Safety
Internet	1	2
Television (shows, movies)	2	5
Television (news channels)	3	1
Radio	4	3
Newspapers	5	12
Facebook	6	8
Magazines	7	6
Email list subscriptions	8	4
Other	9	13
Blogs	10	9
YouTube	11	10
RSS Feeds	12	7
Twitter	13	11

Findings Related to Media Dependencies Among Community Type

During Normal Times

Analysis of variance and post-hoc Tukey HSD tests were used to analyze the data related to objective 4. The one-way ANOVA , $F(2, 398) = 4.10, p = .017$, demonstrated statistically significant differences between urban, suburban, and rural respondents and

the amount of hours spent using blogs per week . At the $p = .05$ level, a post-hoc Tukey HSD test showed rural respondents spent significantly more time ($p = .013$) on blogs than suburban respondents. No other significant differences were found based on type of community and hours per week spent using media channels during normal times.

Comparisons by trustworthiness of the media in providing information about any issue by the type of community of respondents were statistically significant only for radio. The one-way ANOVA, $F(2, 462) = 3.01, p = .050$, demonstrated significant differences between the groups. A post-hoc Tukey HSD test showed that suburban consumers had significantly higher ($p = .044$) levels of trustworthiness in radio than urban respondents. No differences were found among respondents in whether respondents published views and opinions on social networking sites, or how media coverage of issues affects respondents' attitudes and opinions about any issue based on type of community.

Findings Related to Media Dependencies Among Community

Type During a Food Safety Incident

ANOVAs and post-hoc Tukey HSD tests were used to analyze data for objective five. Rural, urban, and suburban respondents showed no significant differences at the $p = .05$ level between their type of community and the amount of hours per week spent on media channels during a food safety incident.

In regards to helpfulness of media in providing information about a national food safety incident, the one-way ANOVA, $F(2, 452) = 3.47, p = .032$, showed significant differences with television news channels based on community type. At the $p = .05$

level, differences existed between rural and suburban respondents, with the post-hoc Tukey HSD tests demonstrating that suburban respondents reported a higher level ($p = .028$) of helpfulness than rural respondents for television news channels. A one-way ANOVA, $F(2, 448) = 4.21, p = .016$ showed statistically significant differences among the groups for helpfulness of radio. A post-hoc Tukey HSD test demonstrated that suburban respondents indicated a significantly higher ($p = .023$) levels of helpfulness for radio than urban respondents indicated.

A one-way ANOVA, $F(2, 444) = 4.84, p = .008$, demonstrated statistically significant differences between type of community and helpfulness of radio in providing information about local food safety incidents. A post-hoc Tukey HSD test showed that suburban respondents indicated a significantly higher ($p = .014$) level of helpfulness than urban respondents for radio. The test also showed that suburban respondents considered radio significantly more ($p = .021$) helpful than rural respondents.

The one-way ANOVA, $F(2, 445) = 7.79, p = .000$, showed significant differences between type of community lived in with the helpfulness of television news channels in providing information about local food safety incidents. The post-hoc Tukey HSD test showed that suburban consumers indicated significantly higher levels ($p = .000$) of helpfulness than rural consumers for television news channels. Differences also occurred between suburban and rural respondents with the Internet at the $p = .05$ level. The one-way ANOVA, $F(2, 435) = 3.93, p = .020$, showed the statistically significant differences between type of community lived in and helpfulness of the Internet in providing information about local food safety incidents. Suburban respondents indicated

a significantly higher level ($p = .020$) of helpfulness than rural respondents for helpfulness of the Internet.

Helpfulness of television news channels in providing information about helping victims of a food safety incident analyzed by type of community showed significant differences with the one-way ANOVA, $F(2, 447) = 4.85, p = .008$. A post-hoc Tukey HSD test showed suburban consumers considered television news channels significantly ($p = .010$) more helpful than rural respondents indicated. A one-way ANOVA, $F(2, 438) = 5.08, p = .007$, showed statistically significant differences between the helpfulness of radio by community of respondents. A post-hoc Tukey HSD test indicated that suburban respondents considered radio significantly ($p = .026$) more helpful than urban respondents indicated, and it also showed that suburban consumers considered radio significantly ($p = .024$) more helpful than rural respondents indicated. Helpfulness of media to provide information to prevent a food safety incident did not show any significant differences on any given medium. Differences also were not found between type of community on their attitude changes because of media coverage of food safety stories.

Findings Related to Consumers' Perceptions of the Beef Industry

Respondents ($n = 536$) agreed ($M = 4.09, SD = 0.88, Mdn = 4.00$) the beef industry supplies safe beef products to consumers, agreed ($n = 531, M = 3.87, SD = 0.93, Mdn = 4.00$) the industry responds efficiently to food safety concerns related to beef, and were neutral ($n = 533, M = 3.33, SD = 1.07, Mdn = 3.00$) about whether the

industry provides them with information they need to make an informed decision about the safety of beef.

Respondents also indicated agreement with concerns about food safety issues ($M = 3.55$, $SD = 1.15$, $Mdn = 4.00$) and use of antibiotics given to beef cattle ($M = 3.67$, $SD = 1.18$, $Mdn = 4.00$) (see Table 10). Respondents agreed they are concerned with use of growth hormones given to beef cattle ($M = 3.81$, $SD = 1.19$, $Mdn = 4.00$).

Table 10
Concerns About Food Safety and Animal Health Issues

Concerns	<i>n</i>	<i>M</i>	<i>SD</i>	<i>Mdn</i>
Food safety	538	3.55	1.15	4.00
Access to accurate information about food supply	530	3.53	1.08	4.00
Beef cattle production practices	530	3.36	1.07	4.00
Humane treatment of cattle	532	3.37	1.14	4.00
Use of antibiotics given to cattle	534	3.67	1.18	4.00
Use of growth hormones given to cattle	534	3.81	1.19	4.00

Note. Scale: 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree

Respondents indicated a level of agreement ($M = 3.91$, $SD = 1.00$, $Mdn = 4.00$) of concern for their health being affected by a food safety incident, someone they know ($M = 3.93$, $SD = 1.00$, $Mdn = 4.00$), their community ($M = 3.76$, $SD = 1.00$, $Mdn = 4.00$), and the nation ($M = 3.69$, $SD = 1.06$, $Mdn = 4.00$). Respondents ($n = 475$) responded at a neutral level that beef is the primary meat they consume ($M = 3.10$, $SD = 1.22$, $Mdn = 3.00$).

There were some significant differences found between perceptions of the beef industry and community lived in. Analysis of variance and post-hoc Tukey HSD tests were used to analyze the data. The one-way ANOVA, $F(2, 467) = 10.03, p = .000$, showed the significant differences with the humane treatment of beef cattle based on community type. The Tukey HSD test found that urban respondents were more concerned ($p = .000$) than rural respondents, and suburban respondents were more concerned ($p = .005$) than rural respondents about the humane treatment of beef cattle.

The one-way ANOVA, $F(2, 468) = 10.34, p = .000$, showed the statistically significant differences with the use of antibiotics given to beef cattle based on community type. Urban respondents were more concerned ($p = .000$) about this issue than rural respondents, and suburban respondents were more concerned than rural respondents about use of antibiotics given to beef cattle. The one-way ANOVA, $F(2, 468) = 8.27, p = .000$, also showed the significant differences with the use of growth hormones based on community type. The Tukey HSD test showed that urban respondents were more concerned ($p = .003$) about growth hormones than rural respondents, and suburban respondents were more concerned ($p = .000$) than rural respondents about the use of growth hormones.

The one-way ANOVA, $F(2, 468) = 7.70, p = .001$, showed the statistically significant differences with concerns for the respondent's health based on community type. Urban respondents showed more concerns ($p = .001$) for their health being affected by a food safety incident than rural respondents. Additionally, suburban respondents showed more concerns ($p = .005$) for their health than rural respondents. The one-way

ANOVA, $F(2, 469) = 8.08, p = .000$, showed the differences between the health of someone they know based on community lived in with the Tukey HSD test demonstrating that urban respondents were more concerned ($p = .000$) about the health of someone they know being affected by a food safety incident than rural respondents. Suburban respondents also were more concerned ($p = .004$) about the health of someone they know than rural respondents. The one-way ANOVA, $F(2, 465) = 8.37, p = .000$ showed differences between the health of the respondent's community based on community type; urban respondents were significantly ($p = .000$) more concerned than rural respondents, and suburban respondents were significantly ($p = .002$) more concerned than rural respondents about the health of their community.

The one-way ANOVA, $F(4, 462) = 4.61, p = .010$, demonstrated differences between the health of the nation based on community type. A post-hoc Tukey HSD test showed that urban respondents were significantly ($p = .013$) more concerned with the health of the nation being affected by a food safety incident than rural respondents. Suburban respondents were significantly ($p = .033$) more concerned about the nation's health than rural respondents.

Analysis of variance was used to determine significant differences of perceptions of the beef industry based on gender (see Table 11).

Table 11
Analysis of Variance for Perceptions of Concerns with the Beef Industry by Gender

Concerns	SS	MS	F	p
Production practices				
Between	16.54	16.54	14.63(1, 461)	.000
Within	521.08	1.13		
Humane treatment of cattle				
Between	25.03	25.03	20.25(1, 464)	.000
Within	573.40	1.24		
Antibiotic use				
Between	16.77	16.77	12.41(1, 465)	.000
Within	628.51	1.35		
Growth hormone use				
Between	17.20	17.20	12.35(1, 465)	.000
Within	647.95	1.39		
My health				
Between	8.17	8.17	7.96(1, 465)	.005
Within	478.37	1.03		
Health of someone I know				
Between	8.11	8.11	8.06(1, 466)	.005
Within	468.80	1.01		
Community health				
Between	6.51	6.51	6.54(1, 466)	.011
Within	459.97	1.00		
Nation's health				
Between	10.96	10.96	9.92(1, 459)	.002
Within	507.17	1.11		

Note. $p < .05$

The analysis of variance showed that females were more concerned about beef cattle production practices ($p = .000$), humane treatment of beef cattle ($p = .000$), use of antibiotics given to beef cattle ($p = .000$), use of growth hormones given to beef cattle ($p = .000$), their own health being harmed by a food safety incident ($p = .005$), the health of someone they know ($p = .005$), community health concerns ($p = .011$), and national health ($p = .002$).

Correlations were used to analyze the relationships between age and perceptions of the beef industry. The findings indicated a low, positive relationship ($r = .11, p = .02$) between age and perceptions that the beef industry supplies information needed to make an informed decision about beef; a low, negative correlation ($r = -.10, n = .04$) between age and use of growth hormones given to beef cattle; and a low, negative correlation ($r = -.11, p = .02$) between age and concerns about the health of someone the respondent knows.

Beef Industry Perceptions Based on Media Use

Perceptions of the beef industry also were correlated with media dependency variables during a food safety incident. The top three most used mediums during a food safety incident were used because of the natural break in hours per week on the selected mediums. Perceptions were selected based on relation to the media dependency variable. Results showed there were low, positive statistically significant correlations between TV news, Internet, and radio and respondents' perceptions of their own health risks, health of someone they know, and health of their communities (see Table 12); helpfulness of media in providing information about helping victims of a food safety incident (see Table 13); and helpfulness of media in providing information about preventing food safety incidents from impacting oneself (see Table 14).

Table 12
Correlations of Perceptions of Health Risks with Helpfulness of Media in Providing Information About a Local Food Safety Incident

Perceptions of Health Risks	Medium		
	TV News <i>r</i>	Internet <i>r</i>	Radio <i>r</i>
My health	.26*	.29*	.25*
Health of someone I know	.29*	.30*	.29*
My community	.29*	.25*	.27*

* $p < .05$

Table 13
Correlations of Perceptions of Health Risks with Helpfulness of Media in Providing Information About Helping Victims of a Food Safety Incident

Perceptions of Health Risks	Medium		
	TV News <i>r</i>	Internet <i>r</i>	Radio <i>r</i>
My health	.22*	.19*	.16*
Health of someone I know	.23*	.20*	.18*
My community	.26*	.16*	.19*
The nation	.20*	.15*	.17*

* $p < .05$

Table 14
Correlations of Perceptions of Health Risks with Helpfulness of Media in Providing Information About Preventing a Food Safety Incident from Impacting Oneself

Perceptions of Health Risks	Medium		
	TV News <i>r</i>	Internet <i>r</i>	Radio <i>r</i>
My health	.23*	.21*	.15*
Health of someone I know	.25*	.23*	.18*
My community	.25*	.19*	.17*

* $p < .05$

Summary

The findings of this study showed that most respondents were mostly male (52.5%) and 39.9% lived in a suburban area. The average age of respondents was 50.16

years and more than half of respondents lived in Texas (54.6%), were married (60.1%), and were white (73.6%). The most experience respondents had with agriculture was living in a rural area ($n = 247$, 42.7%).

Respondents indicated that the Internet was the most often used medium during normal times and that radio was a trustworthy medium during normal times. Most time was spent on television news channels during a potential food safety incident.

Helpfulness of mediums in providing information about various aspects of a food safety outbreak varied between Internet, radio, and television news channels. Based on the hours per week spent on media, respondents' use of media varied between normal times and during a food safety incident.

Respondents agreed ($M = 4.09$, $SD = 0.88$) that the beef industry supplies safe products to consumers and agreed ($M = 3.87$, $SD = 0.93$) that the industry responds efficiently to food safety concerns but were neutral ($M = 3.33$, $SD = 1.07$) about whether the industry provides them with information needed to make a decision about beef safety. Respondents agreed ($M = 3.55$, $SD = 1.15$) they were concerned with food safety issues related to beef and agreed ($M = 3.81$, $SD = 1.19$) they were concerned about the use of growth hormones given to beef cattle. Differences were found among urban, suburban, and rural respondents, with urban and suburban respondents being more concerned about the beef industry, antibiotic and growth hormone use, and health issues. Results also indicated that suburban respondents thought media was more helpful than rural or urban respondents. Female respondents also were more concerned about the safety of beef, health issues, and production practices. Positive correlations were found

to indicate that as perceptions of health risks increased, the perceived helpfulness of mediums also increased.

CHAPTER V

CONCLUSIONS, RECOMMENDATIONS, AND IMPLICATIONS

Food safety is always a newsworthy topic in today's mainstream media (Anderson, 2000). Because of the necessities the food supply provides, food safety issues are a heated debate in society (Anderson, 2000). Even though the U.S. food supply is the safest in the world, consumers still express concerns over the safety of what they eat (Crutchfield, 2000). Along with food safety incidents comes negative news coverage, which sometimes receives widespread attention (Buzby 2001; Dierks, 2004). Negative coverage of food safety issues, the beef industry, and the processing companies can affect the demand for beef products and perceptions of the industry (Buzby, 2001; Dierks, 2004).

The media is a dominant force in society and has saturated institutions and individuals (Berger, 2003, McCullagh, 2002). The media has an important role in society because it is required to disseminate information to the public, especially information on public health concerns and international trade (Buzby, 2001; Schupp et al., 2006). DeFleur and Ball-Rokeach (1989) wrote that individuals turn toward the media in times of social change or conflict. MDT involves the "interrelationships between audiences, media, and society (Ball-Rokeach & DeFleur, 1976, p. 5). The media is the central hub for information during social conflict, invariably causing audiences to depend on the mass media for information (Ball-Rokeach & DeFleur, 1976).

Summary of Findings

Respondents reported they were male (52.5%), lived in a suburban area (39.9%), and educated with either a bachelor's degree (29.0%), a master's degree (28%), or a doctoral or law degree (14.9%). Respondents' average age was 50.16 years, with a range from 23 to 84 years old.

Respondents indicated that during normal times, the Internet was the most used medium to receive information. They averaged 10.58 ($SD = 11.03$) hours per week on the Internet. Respondents also spent an average of 7.98 ($SD = 7.38$) hours per week watching television shows and movies. Respondents believed that radio was the most trustworthy medium ($M = 3.25$, $SD = 0.93$) in receiving information about any issue during normal times. There was not a strong agreement among respondents for trustworthiness of media during normal times. Two-thirds of respondents (67%) indicated that the media coverage of any issue can change their opinions and attitudes about that issue in a negative way.

The use of mediums during a food safety incident were reported with low means compared to media use during normal times. Television news channels was the medium respondents indicated they would use most during a potential food safety incident ($M = 2.15$, $SD = 6.97$). The Internet was indicated as being used an average of 1.94 ($SD = 4.24$) hours per week during a potential food safety incident.

Respondents agreed ($M = 3.50$, $SD = 0.95$) that the Internet was helpful in providing information about national food safety incidents, agreed ($M = 3.50$, $SD = 0.96$) that radio was helpful in providing information about local food safety incidents,

agreed ($M = 3.50$, $SD = 0.97$) that the Internet was helpful in providing information about how to help victims of a food safety incident, and agreed ($M = 3.57$, $SD = 0.92$) that the Internet was helpful in preventing a food safety incident from impacting themselves.

Based on the hours per week spent on selected mediums, respondents used different mediums during normal times than during a food safety incident. During normal times, respondents spent more hours per week on the Internet than other mediums. During a food safety incident, respondents spent more time on television news channels than other mediums.

Some statistical differences were found between media dependencies during normal times based on community lived in. Rural respondents spent more time on blogs than urban or suburban respondents. Suburban respondents indicated a higher level of trustworthiness with radio than urban respondents. Suburban respondents indicated a higher level of helpfulness with various mediums during a food safety incident.

Perceptions of the beef industry varied in regards to certain issues. While respondents agreed the beef industry supplied a safe beef product and was efficient in responding to food safety concerns, they were neutral on whether the beef industry provided them with information needed to make an informed decision about the safety of beef. Respondents also agreed that they were concerned with food safety, animal health and rights issues, and production practices. They were most concerned with use of growth hormones given to beef cattle. They also indicated concerns for their health being affected by a food safety incident, the health of someone they know, their

community, and their nation. Differences were found between various perceptions of the beef industry based on community lived in. These findings show that suburban and urban respondents are more concerned with beef industry and food safety issues than rural respondents.

Positive correlations between health concerns and helpfulness of the top three most used mediums during a food safety incident showed that as perceived health concerns increased, perceived helpfulness of mediums increased.

Conclusions Related to Consumers' Dependency on Media During Normal Times

Respondents demonstrated some media dependency on Internet and television shows and movies for general information. News channels and radio were among the most used mediums, but the rest of the mediums had low means. Respondents indicated that they do not use Facebook, blogs, YouTube, etc. as much as the Internet and shows and movies. These findings vary from the Pew Internet and American Life Project report (2010) that the Internet is the third most-popular news medium after national television news. The Pew Internet report also reported that 92% of Americans use multiple platforms to get daily news, which supports the findings of this study that respondents spend most of their time seeking information from multiple mediums such as Internet, shows and movies, and news channels. However, respondents indicated that they did not spend much time on the majority of the mediums listed. Patwardhan and Yang (2003) found that Internet users displayed dependency relations and that Internet is an "integral part of individuals' media environments" (p. 65). Respondents did not agree that the

media was trustworthy in providing information about any issue. Respondents were neutral about the trustworthiness of radio ($M = 3.25$, $SD = 0.93$).

Based on the findings from this study and on literature, it was concluded that messages to consumers on a variety of media channels, particularly the Internet is beneficial to the dissemination of information during normal times.

Conclusions Related to Consumers' Dependency on Media

During a Food Safety Incident

Respondents did not indicate strong media dependencies during a potential food safety incident as they indicated during normal times. The highest used medium during a food safety incident related to the beef industry was news channels, but respondents reported low means for all mediums. These findings only support certain aspects of the research concerning media dependency. Lowrey (2004) found high levels of media dependency related to perceived threat and Gordon (2009) found that many people who lived through two major hurricanes used television news as their main source of information concerning the hurricanes. This study did not find high levels of media dependency during a food safety incident, but it did support the literature by the fact that television news and channels would be the most used. Lowrey found that individuals, who consumed radio, print, and web media, turned to the television news after the terrorist attacks of 9/11, making television the medium of choice during the large scale disaster. Television lends itself to threatening situations because of the immediacy of information (Lowrey, 2004). The differences between this study and the literature found on media dependency could be because this research was not conducted after or during a

large-scale food safety incident, and research on media dependency was concerning national crises. The USDA and the U.S. Food and Drug Administration (Food and Drug Administration, 2011) reported food recalls during the time the questionnaire was sent; however, these recalls were not as large scale as the BSE case in 2003. It is possible that respondents could not relate their media use and media dependency to this study because a major, recent food safety incident had not occurred.

In regard to helpfulness of media during national and local food safety incidents, helping victims during a food safety incident, and preventing a food safety incident from impacting the respondent, the trend was for radio, Internet, and news channels to be the most helpful mediums among all aspects of helpfulness. Internet was the medium used during the SARS outbreak in China (Tai & Sun, 2007), and news channels were used during hurricanes and a terrorist attack (Gordon, 2009; Lowrey, 2004). Fox (2011) found that 80% of Americans go online for health information, and 29% of those users go online for food safety information or recalls. No research was found on high levels of media dependency on radio. Lowrey speculated that there was some sort of impact on individual's attitudes and behaviors from the media after the 9/11 terrorist attacks. The findings that 45.3% of respondents have changed their opinions and attitudes about the beef industry in a negative way due to media coverage support Lowrey's study.

Based on the findings of this objective, it was concluded that messages pertaining to national food safety incidents should be distributed to a wide variety of mediums, particularly those mediums that supply consumers with immediate information.

Conclusions Related to Differences Among Consumers'

Dependencies on Media During Normal Times and During a Food Safety Incident

The results of this study showed that respondents use different mediums during normal times than during a food safety incident. Lowrey (2004) noted that after the 9/11 terrorist attacks respondents went back to their normal media routines three months after the incidents. Because this study was not following a major food safety incident that respondents could easily recall their media uses, the results showed less time spent on mediums during a food safety incident. This low media use also could be explained by the incorrect phrasing of the question on the questionnaire. The researcher intended to test significant differences; however, the flaws with the two questions did not allow effective and logical conclusions to be drawn.

The variance between media type during the two specified events is supported by the media dependency theory. DeFleur and Ball-Rokeach (1976) stated that individuals will construct their media dependencies based on the situation and what "will best serve their personal goals" (p. 309). If this situation is a crisis, individuals will return to their normal media use after the crisis is over (DeFleur & Ball-Rockeach, 1976). Therefore, it was concluded that individuals will look to different media during a food safety incident, but return to their normal mediums after the crisis is over.

Conclusions Related to Differences Among Community Type and Use of Media

During Normal Times

There were not many significant differences between urban, rural, and suburban

respondents' use of media during normal times. Suburban respondents indicated they thought radio was more trustworthy than urban respondents indicated. No other significant differences were found concerning media use and dependencies with community of respondents. Because no significant differences were found with media use among community lived in, it was concluded that messages should appeal to all types of consumers.

Conclusions Related to Differences Among Community Type and Use of Media During a Food Safety Incident

There were some differences between rural, urban, and suburban residents on their use of media during a food safety incident related to the beef industry. Overall, suburban respondents believed mediums were more helpful and more trustworthy than urban and rural respondents. Because suburban consumers are more likely to be uneducated and unfamiliar with agricultural and beef industry practices (Frick et al., 1995), it was concluded that messages about food safety and the industry should be targeted to those mediums suburbanites believe are helpful.

Conclusions Related to Consumer Perceptions of the Beef Industry

The results showed that there are some areas of the beef industry that concern the respondents. Most of the concerns involved health issues and the use of antibiotics and growth hormones in cattle. Because the mass media is the main source of information for consumers, particularly agricultural information (Sitton, 2000), and most of the stories covered about agriculture or food safety issues are portrayed negatively (Burton & Young, 1996; Schroeder et al., 2007; Schupp et al., 2006), consumers could be basing

their perceptions on the negative media coverage. This could be supported by the findings that 45.3% of the respondents change their attitudes and perceptions about the beef industry in a negative way when seeing food safety coverage in the media. It was concluded that communicators should be aware of the specific concerns consumers have about the beef industry, and messages should be created to alleviate those concerns.

Recommendations

Studies found concerning media dependencies and national disasters or conflict were conducted with events that could easily be recalled by individuals, such as 9/11 and the SARS outbreak in China (Gordon, 2009; Loges, 1994; Lowrey, 2004; Tai & Sun, 2007). The most recent food safety incident that possibly be recalled by individuals would be the BSE case in 2003; however, this study was conducted more than seven years after the outbreak. Because the individuals were not surveyed soon after a major food safety incident, and the BSE case in 2003 was more than seven years ago, it is recommended that research be conducted in close proximity to a national food safety outbreak to determine if individuals could recall their media dependencies more accurately. Studies have shown that perceived threat and an ambiguous environment during a conflict can increase and intensify media dependencies (DeFleur & Ball-Rokeach, 1989; Loges, 1994; Lowrey, 2004; Robertson, 2009). A food safety incident could be considered threatening to health and the economy. Respondents in this study did not demonstrate perceived threats because there was not a major food safety crisis taking place. Future research could be conducted to determine if a threatening food safety incident increased consumers' media dependencies.

More research should be conducted on the effects of mass media messages on perceptions of the beef industry. A study specifically looking at how certain messages were portrayed and how it affected consumers' attitudes toward the beef industry would be beneficial. By knowing what alters consumers' perceptions of the industry and why, communicators could establish a strategy for writing messages to the public.

The population for this study was mostly conservative and educated individuals with some sort of agricultural experience. Studies with a different population and background would produce valuable results that could be combined with the results from this study. The results of this study cannot be generalized outside of the population of Texas A&M University former students.

Recommendations for practice involve how communicators and media professionals send messages to the public. The respondents indicated a level of media dependency during normal times; communicators should take advantage of the mediums individuals use on a regular basis to inform and educate consumers on food safety and the beef industry. Robertson (2009) noted that communicators should be aware of the amount of time consumers spend on certain media channels and the variety they use in obtaining information. The mediums individuals use most often should be used to inform the audience of food safety incidents.

Respondents indicated a degree of concern about the beef industry and their health being affected by a food safety incident. It is recommended that communicators use this information to construct better messages to the public to help them understand the industry. Information about what the industry and other entities are doing to appeal

to consumers' health needs should be communicated to the public. Checking facts and using credible sources could improve the trustworthiness of the audience (Robertson, 2009). It is vital to report positive and informative messages about an industry that has faced scrutiny in order to reestablish trust in the beef food supply. These concerns were mostly shown among suburban respondents; therefore, it is not only important to provide message about the industry to the general public, but communicators should target these messages to the suburban consumers. These consumers are most likely unfamiliar with production practices and the agricultural industry. Messages to these consumers should be clear, educational, and informative, and communicators should make communicating to a nonagricultural audience a priority. Particular attention should be paid to the mediums suburban respondents use and consider helpful and trustworthy.

The results also showed low, positive correlations with perceived health risks and perceived helpfulness of the media. Because respondents showed that as their perceived health concerns increased so did their perceived helpfulness of the radio, Internet, and news channels, communicators can construct health messages for those mediums. By being proactive, positive messages about the safety of beef could be heard and read by consumers.

Implications

Media dependency studies have sought to determine the media's influence on audiences and how the media can alter perceptions, attitudes, and beliefs (Ball-Rokeach, 1985; Ball-Rokeach & DeFleur, 1976; DeFleur & Ball-Rokeach, 1989; Gordon, 2009; Loges, 1994; Lowrey, 2004; Robertson, 2009; Tai & Sun, 2007). Media dependency

states that in times of social conflict or social change consumers will turn to the media to receive information about the conflict and use the media to understand the changes and conflicts taking place (Ball-Rokeach, 1985; Ball-Rokeach & DeFleur, 1976; DeFleur & Ball-Rokeach, 1989). This study indicated that consumers use less of the media during a food safety incident and that respondents did not consider media to be extremely helpful during a food safety incident; however, the trend was for the same mediums to be the most used and the most helpful during both times. This implies that agricultural communicators should strive to appeal to consumer preferences on the media channels respondents indicated were most used during normal times and during a food safety incident.

The shift in media use throughout the years is important to consider in the communications field. The findings from this study and others it supports shows a shift in media use. With the advent of web 3.0 technologies (Hendler, 2009), the Internet is becoming a more interactive and immediate forum for information and discussion. The USDA stated that its use of new media is to “share news and information regarding the activities, policies and programs of the Department of Agriculture and its employees” (USDA, n.d.). Social media and new technologies that could be developed in the future have important implications for communicators. Communicators must stay abreast of the ever-changing technologies and communication forums.

Because consumers are far removed from the production and other aspects of the agricultural industry (Sitton, 2000), consumers are not aware of the impacts of a food safety incident on themselves and on the beef industry. The results from this study show

that communicators should be proactive with food safety messages rather than being reactive. By sending messages and reassuring the public about the safety of the beef supply while there is not an incident, the messages sent during a food safety incident would be more effective. Additionally, educating a public that has little knowledge about the food and agriculture sector could prevent negative messages presented by other entities to be considered true or factual.

REFERENCES

- Anderson, W. A. (2000). The future relationship between the media, the food industry and the consumer. *British Medical Bulletin*, 56(1), 254-268. Retrieved from <http://bmb.oxfordjournals.org/content/56/1/254.full.pdf+html>
- Ball-Rokeach, S. J. (1985). The origins of individual media-system dependency: A sociological framework. *Communication Research*, 12(4), 485-510.
- Ball-Rokeach, S. J., & DeFleur, M. L. (1976). A dependency model of mass-media effects. *Communication Research*, 3(1), 3-21. doi 10.1177/009365027600300101
- Becker, L. B., & Whitney, D. C. (1980). Effects of media dependencies: Audience assessment of government. *Communication Research*, 7(1), 95-120. doi: 10.1177/009365025000700105
- Bell, P., Reddy, P., & Rainie, L. (2004). *Rural Americans' Internet use has grown, but they continue to lag behind others*. Retrieved from Pew Internet & American Life Project website: <http://www.pewinternet.org/Reports/2004/Rural-Areas-and-the-Internet/1-Summary-of-Findings.aspx>
- Berger, A. A. (2003). *Media and society*. Lanham, MD: Rowman & Littlefield Publishers, Inc.
- Borra, S. T., Earl, R., & Hogan, E. H. (1998). Paucity of nutrition and food safety 'news you can use' reveals opportunity for dietetics and practitioners. *Journal of the American Dietetic Association*, 98(2), 190-193. doi: 10.1016/s0002-8223(98)00047-9

- Burton, M., & Young, T. (1996). The impact of BSE on the demand for beef and other meats in Great Britain. *Applied Economics*, 28, 687-693. doi: 10.1080/000368496328434
- Buzby, J. C. (2001). Effects of food-safety perceptions on food demand and global trade. *Changing Structure of Global Food Consumption and Trade*. Economic Research Service/USDA. Retrieved from <http://www.ers.usda.gov/publications/wrs011/wrs011i.pdf>
- Center for Food Integrity (CFI). (2010 October). *Consumer trust in the food system: Summary slides*. Presented at Food System Summit. Retrieved from <http://www.foodintegrity.org/>
- Centers for Disease Control and Prevention (CDC). (2005 October). *Foodborne illness: Technical information*. Retrieved from http://www.cdc.gov/ncidod/dbmd/diseaseinfo/foodborneinfections_t.htm
- Centers for Disease Control and Prevention. (2010 December). *Trends in foodborne illness in the United States, 1996-2009*. Retrieved from http://www.cdc.gov/foodborneburden/PDFs/FACTSHEET_B_TRENDS.PDF
- Centers for Disease Control and Prevention. (2011). *CDC estimates of foodborne illness in the United States*. Retrieved from <http://www.cdc.gov/foodborneburden/index.html>
- Charlebois, S. (2008). Marketing agricultural commodities on global markets: A conceptual model for political economies and food-safety standard asymmetries

related to mad cow. *Journal of International Food & Agribusiness Marketing*, 20(1), 75-100. doi 10.1300/J047v20n01_05

Crutchfield, S. R., & Roberts, T. (2000). Food safety efforts accelerate in the 1990's.

FoodReview, 23(3), 44-49. Retrieved from

<http://www.cabdirect.org/abstracts/20013039495.html;jsessionid=6D689344E70612FF5F9A0AF961BDC399>

DeFleur, M. L., & Ball-Rokeach, S. J. (1989). *Theories of mass communication*. White Plains, NY: Longman.

Dierks, L. H. (2004, February). *Effects of media coverage on demand*. Paper presented at the meeting of European Association of Agricultural Economists, Zeist, The Netherlands.

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2009). *Internet, mail, and mixed-mode surveys: The tailored design method*. Hoboken, NJ: John Wiley & Sons, Inc.

Eales, J. S., & Unnevehr, L. J. (1988). Demand for beef and chicken products: Separability and structural change. *American Journal of Agricultural Economics*, 70(3), 521-532. Retrieved from <http://www.jstor.org/stable/1241490>

Economic Research Service. (2010). *Foodborne illness cost calculator*. Retrieved from <http://www.ers.usda.gov/Data/FoodborneIllness/>

Fleming, K., Thorson, E., & Zhang, Y. (2006). Going beyond exposure to local news media: An information-processing examination of public perceptions of food safety. *Journal of Health Communication*, 11, 789-806. doi: 10.1080/10810730600959705

Food and Drug Administration. (2011). *Recalls, market withdrawals, and safety alerts*.

Retrieved from the Food and Drug Administration Website:

http://www.fda.gov/Safety/Recalls/default.htm#Link_to_Food

Fox, S. (2011 February). *Health topics*. Retrieved from

<http://www.pewinternet.org/Press-Releases/2011/Health-Topics.aspx>

Frick, M. J., Birkenholz, R. J., & Machtmes, K. (1995). Rural and urban adult

knowledge and perceptions of agriculture. *Journal of Agricultural Education*,

36(2), 44-52. Retrieved from <http://202.198.141.77/upload/soft/001/36-02-44.pdf>

Gordon, J. C. (2009, November). *Media dependency theory and a tale of two*

hurricanes: Crisis communication in Southeast Louisiana for Hurricanes

Katrina and Gustav. Paper presented at the meeting of the National

Communication Association, Chicago.

Grunert, K. G., (2005). Food quality and safety: Consumer perception and demand.

European Review of Agricultural Economics, 32(3), 369-391. doi:

10.1093/eurrag/jbi011

Hampl, J. S. (2004). Conflicts of interest and hyperbole: Nutrition in the media.

Journalism & Mass Communication Educator, 364-368. Retrieved from

[http://web.ebscohost.com/ehost/detail?vid=1&hid=110&sid=501a4f84-](http://web.ebscohost.com/ehost/detail?vid=1&hid=110&sid=501a4f84-1ffd-4cef-98de-3708c7f585d1%40sessionmgr115&bdata=JnNpdGU9ZWZWhvc3QtbGl2ZQ%3d%3d#db=ufh&AN=12876829)

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Hendler, J. (2009). Web 3.0 emerging. *Computer*, 42(1), 111–113. doi:

10.1109/MC.2009.30

- Hindman, D. B. (2000). The rural-urban digital divide. *Journalism and Mass Communication Quarterly*, 77(3), 549–560.
- Ishida, T., Ishikawa, N., & Fukushige, M. (2010). Impact of BSE and bird flu on consumers' meat demand in Japan. *Applied Economics*, 42, 49-56. doi: 10.1080/00036840701564392
- Jackob, N. G. E. (2010). No alternatives? The relationship between perceived media dependency, use of alternative information sources, and general trust in mass media. *International Journal of Communication*, 4, 589-606. Retrieved from <http://www.ijoc.org/ojs/index.php/ijoc/article/viewFile/615/435>
- Johnson, R. (2008). *Cattle: Trade*. Retrieved from <http://www.ers.usda.gov/Briefing/Cattle/Trade.htm>
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30, 607–610.
- Lindner, J. R., & Wingenbach, G. J. (2002). Communicating the handling of nonresponse error. *Journal of Extension*, 40(6). Retrieved from <http://www.joe.org/joe/2002december/rb1.php>
- Loges, W. E. (1994). Canaries in the coal mine: Perceptions of threat and media system dependency relations. *Communication Research*, 21(5), 5-23. doi: 10.1177/009365094021001002
- Lowrey, W. (2004). Media dependency during a large-scale social disruption: The case of September 11. *Mass Communication and Society*, 7(3), 339-357. Retrieved from

http://polychrest.tamu.edu:8331/V/D6GKAFGQH3EP3CC3SQ8GK2MJNT385265KLPQI6TRA5UXHH1MM-05463?func=quick-3&short-format=002&set_number=002448&set_entry=000001&format=999

- Luhman, N. (2000). *The reality of the mass media*. Stanford, CA: Stanford University Press.
- McClure, P. (2000). The impact of *E. coli* 0157 on the food industry. *World Journal of Microbiology and Biotechnology*, 16, 749-755. Retrieved from <http://www.springerlink.com/content/v577727094038864/>
- McCullagh, C. (2002). *Media power: A sociological introduction*. New York, NY: Palgrave.
- Meijboom, F. L. B., Visak, R., & Brom, F. W. A. (2006). From trust to trustworthiness: Why information is not enough in the food sector. *Journal of Agricultural and Environmental Ethics*, 19, 427-442. doi: 10.1007/s10806-006-9000-2
- Oliver, S. P., Patel, D. A., Callaway, T. R., & Torrence, M. E. (2009). ASAS Centennial paper: Developments and future outlook for preharvest food safety. *Journal of Animal Science*, 87, 419-437. doi: 10.2527/jas2008-2008-1151
- O'Neill, K. (2005). U.S. beef industry faces new policies and testing for mad cow disease. *California Agriculture*, 59(4), 203-211. Retrieved from <http://californiaagriculture.ucanr.org/>
- Patwardhan, P., & Yang, J. (2003). Internet dependency relations and online consumer behavior: A media system dependency theory perspective on why people shop,

chat, and read news online. *Journal of Interactive Advertising*, 3(2), 57-69.

Retrieved from <http://jiad.org>

Pew Internet & American Life Project. (2010). *Understanding the participatory news consumer*. Retrieved from the Pew Internet & American Life Project website:

<http://www.pewinternet.org>

Piggott, N. E., & Marsh, T. L. (2004). Does food safety information impact U.S. meat demand? *American Journal of Agricultural Economics*, 86(1), 154-174.

Retrieved from <http://content.ebscohost.com/pdf10/pdf/2004/AJA/01Feb04/11873893.pdf?T=P&P=AN&K=11873893&EbscoContent=dGJyMMvI7ESeprQ4wtvhOLCmr0iep7RSsau4TbOWxWXS&ContentCustomer=dGJyMPGus0m0q7JQuePfgex44Dt6fIA&D=bth>

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dGJyMMvI7ESeprQ4wtvhOLCmr0iep7RSsau4TbOWxWXS&ContentCustomer

= dGJyMPGus0m0q7JQuePfgex44Dt6fIA&D = bth

Rainie, L. (2010). *Internet, broadband, and cell phone statistics*. Report of the Pew

Internet and American Life Project. Retrieved from <http://www.pewinternet.org/Reports/2010/Internet-broadband-and-cell-phone-statistics.aspx>

Robertson, T. (2009). *Media dependency during a potential agricultural terrorist attack on the U.S. food and fiber system*. (Unpublished doctoral dissertation). Oklahoma State University, Stillwater, OK. (1877498671).

Sapp, S. G., Arnot, C., Fallon, J., Fleck, T., Soorholtz, D., Sutton-Vermeulen, M., &

Wilson, J. J. H. (2009). Consumer trust in the U.S. food system: An examination of the Recreancy theorem. *Rural Sociology*, 74(4), 525-545. Retrieved from

<http://usagnet.org/foodintegrity/pdf/Consumer%20Trust%20Research.pdf>

- Schroeder, T. C., & Mark, D. R. (2000). How can the beef industry recapture lost consumer demand? *Journal of Animal Science*, 77, 1-13. Retrieved from <http://jas.fass.org/content/77/E-Suppl/1.44.short>
- Schroeder, T. C., Tonsor, G. T., Pennings, J. M. E., Mintert, J. (2007). Consumer food safety risk perceptions and attitudes: Impacts on beef consumption across countries. *The B.E. Journal of Economic Analysis & Policy*, 7(1), 1-27. Retrieved from <http://www.bepress.com/bejeap/vol7/iss1/art65/>.
- Schupp, A., Gillespie, J., O'Neil, C. E., & Prinyawiwatkul, W. (2006). Media news reporting and perceptions of beef safety. *Journal of Food Products Marketing*, 12(2), 89-98. doi: 10.1300/J038v12n02_06
- Sitton, S. R. P. (2000). *1998 newspaper coverage of Oklahoma swine production issues: A content analysis*. (Unpublished doctoral dissertation). Oklahoma State University, Stillwater, Ok. (725890001).
- Steelfisher, G., Weldon, K., Benson, J. M., & Blendon, R. J. (2010). Public perceptions of food recalls and production safety: Two surveys of the American public. *Journal of Food Safety*, 30, 848-866. doi: 10.1111/j.1745-4565.2010.00246.x
- Sun, T., Chang, T. K., & Yu, G. (2001). Social structure, media system, and audiences in China: Testing the uses and dependency model. *Mass Communication & Society*, 4(2), 199-217. Retrieved from <http://web.ebscohost.com/ehost/detail?vid = 1&hid = 110&sid = 32002f84-a80c-4ff9-a3fa-95c6e1c0d238%40sessionmgr112&bdatt a = JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#db = ufh&AN = 4802547>

- Swinnen, J. F. M., McCluskey, J., & Francken, N. (2005). Food safety, the media, and the information market. *Agricultural Economics*, *32*, 175-188. doi: 10.1111/j.0169-5150.2004.00022.x
- Tai, Z., & Sun, T. (2007). Media dependencies in a changing media environment: The case of the 2003 SARS epidemic in China. *New Media and Society*, *9*(6), 987-1009. doi: 10.1177/146144807082691
- Tucker, M., Whaley, S. R., & Sharp, J. S. (2006). Consumer perceptions of food-related risks. *International Journal of Food Science and Technology*, *41*, 135-146. doi: 10.1111/j.1365-2621.2005.01010.x
- USDA (n.d.) *Social media tools and resources*. Retrieved on June 22, 2011 from http://www.usda.gov/wps/portal/usda/usdahome?contentid=comment_policy.xml&contentidonly=true
- USDA & AMS. (2011). *Livestock and grain market news*. International Meat Review, *15*(5), 1-6. Retrieved from <http://www.ams.usda.gov/mnreports/lbinternational.pdf>
- Verbeke, W. (2005). Agriculture and the food industry in the information age. *European Review of Agricultural economics*, *32*(3), 347-368. doi: 10.1093/eurrag/jbi017
- Verbeke, W., Pérez-Cueto, F. J. A., de Barcellos, M. D., Krystallis, A., & Grunert, K. G. (2009). European citizen and consumer attitudes and preferences regarding beef and pork. *Meat Science*, *84*, 284-292. doi: 10.1010/j.meatsci.2009.05.001
- Verbeke, W., & Viaene, J. (1999). Beliefs, attitude and behavior towards fresh meat consumption in Belgium: Empirical evidence from a consumer survey. *Food*

Quality and Preference, 10, 437-445. Retrieved from www.elsevier.com/locate/foodqual.

Whitacre, B. E. & Mills, B. F. (2010). A need for speed? Rural Internet connectivity and the no access/dial-up/high-speed decision. *Applied Economics*, 42, 1889–1905. Retrieved from http://pdfserve.informaworld.com/60288_915031305_923031917.pdf

APPENDIX A

Institutional Review Board

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TEXAS A&M UNIVERSITY
DIVISION OF RESEARCH AND GRADUATE STUDIES - OFFICE OF RESEARCH COMPLIANCE

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Human Subjects Protection Program

Institutional Review Board

DATE:	08-Mar-2011
MEMORANDUM	
TO:	CHARANZA, ASHLEY D 77843-2116
FROM:	Office of Research Compliance Institutional Review Board
SUBJECT:	Initial Review

Protocol Number:	2011-0053
Title:	Consumers' dependency on media for information about food safety incidents related to the beef industry
Review Category:	Exempt from IRB Review

It has been determined that the referenced protocol application meets the criteria for exemption and no further review is required. However, any amendment or modification to the protocol must be reported to the IRB and reviewed before being implemented to ensure the protocol still meets the criteria for exemption.

This determination was based on the following Code of Federal Regulations:
<http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.htm>

45 CFR 46.101(b)(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior, unless: (a) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (b) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Provisions:

This electronic document provides notification of the review results by the Institutional Review Board.

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TEXAS A&M UNIVERSITY
DIVISION OF RESEARCH AND GRADUATE STUDIES - OFFICE OF RESEARCH COMPLIANCE

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Human Subjects Protection Program

Institutional Review Board

DATE: 05-Apr-2011

MEMORANDUM

TO: CHARANZA, ASHLEY D
77843-2116

FROM: Office of Research Compliance
Institutional Review Board

SUBJECT: Amendment

Protocol Number: 2011-0053

Title: Consumers' dependency on media for information about food safety incidents related to the beef industry

Review Category: Exempt from IRB Review

It has been determined that the referenced protocol application meets the criteria for exemption and no further review is required. However, any amendment or modification to the protocol must be reported to the IRB and reviewed before being implemented to ensure the protocol still meets the criteria for exemption.

This determination was based on the following Code of Federal Regulations:
<http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.htm>

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Provisions: Minor changes to the wording of the introductory and reminder emails.

This electronic document provides notification of the review results by the Institutional Review Board.

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Human Subjects Protection Program

Institutional Review Board

MEMORANDUM	DATE:	05-Apr-2011
	TO:	CHARANZA, ASHLEY D 77843-2116
	FROM:	Office of Research Compliance Institutional Review Board
	SUBJECT:	Amendment

Protocol Number:	2011-0053
Title:	Consumers' dependency on media for information about food safety incidents related to the beef industry
Review Category:	Exempt from IRB Review

It has been determined that the referenced protocol application meets the criteria for exemption and no further review is required. However, any amendment or modification to the protocol must be reported to the IRB and reviewed before being implemented to ensure the protocol still meets the criteria for exemption.

This determination was based on the following Code of Federal Regulations:
<http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.htm>

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Provisions: Changes to the phrasing of questions, the answer choices, and the formatting of the survey.

This electronic document provides notification of the review results by the Institutional Review Board.

APPENDIX B

Panel of Experts

Jason Ellis
Assistant Professor, Agricultural Journalism
University of Nebraska-Lincoln

Mike Deering
NCBA Policy Communications
National Cattlemen's Beef Association

Gary Acuff
Director, Center for Food Safety
Professor, Food Microbiology
Texas A&M University

Tanner Robertson
Assistant Professor
West Texas A&M University

APPENDIX C

Pilot Test

Aggies' Perceptions of and Use of Media about the Beef Industry**General Knowledge of Agriculture**

The following questions will address your general knowledge of the U.S. food and fiber system. For each question, please select the answer choice you believe to be most correct.

Which of the following does not influence farmer/producer decisions about what type of product to grow and how it is processed?

- Consumer preferences
- Government regulations
- Historical events
- Specific commodity prices overseas

A genetically modified corn plant has been developed with natural resistance to pests. What type of agricultural business will be most directly affected by this new technological advancement?

- Agricultural chemical company
- Feed and milling company
- Tractor and equipment dealership
- Veterinary supply store

Which of the following occupations is least related to the industry of agriculture?

- Fashion designer
- Park ranger
- Landscape designer
- Meat inspector

What is an essential part of the food and fiber system?

- Consumer demand
- Consumer supply
- Natural resources
- Value-added products

Aggies' Perceptions of and Use of Media about the Beef Industry**Why is America able to sustain a high standard of living?**

- Agricultural industry
- International trade
- Micro-computer industry
- Stock market

What components does agriculture include?

- Farming, distribution and research of food, clothing and shelter
- Production and regulation of food, clothing and shelter
- Production, processing and selling of food, clothing and shelter
- Production, processing, marketing and distribution of food and fiber

What has the least influence on production practices of farmers in the United States?

- Machinery costs to producers
- New York Stock Exchange
- Price of the commodity to the processor
- Consumer preferences

How does the percentage of the population working directly in production agriculture in the United States compare to other countries in the world?

- Population is declining compared to less developed countries of the world
- Population is greater than in less developed countries of the world
- Population is greater than other developed countries of the world
- Population is increasing due to population growth and the increasing demand for food

Which agricultural sector has the least number of workers?

- Distribution
- Processing
- Production
- Transportation

Aggies' Perceptions of and Use of Media about the Beef Industry

How do plants and animals meet society's needs in ways other than food, clothing and shelter?

- Fuels and electronics
- Medicines and plastics
- Medicines and recreation
- Plastics and recreation

Perceptions of the Beef Industry

The following questions relate to your perceptions of the U.S. beef industry and beef products. Safe beef is defined as a beef product that is free of disease and harmful bacteria. The beef industry is defined as producers, organizations, food processors, and any entity involved in the production, processing, and handling of beef products. This does **not** include the government. For each question, please choose the answer choice that best represents your views.

The beef industry:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Supplies safe beef products to consumers	<input type="radio"/>				
Responds efficiently to food safety concerns related to beef	<input type="radio"/>				
Supplies me with information I need to make informed decisions about the safety of beef	<input type="radio"/>				

In relation to the beef industry, I am concerned about:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Food safety	<input type="radio"/>				
Access to accurate information about the food supply	<input type="radio"/>				
Beef cattle production practices	<input type="radio"/>				
Humane treatment of beef cattle	<input type="radio"/>				
Use of antibiotics given to beef cattle	<input type="radio"/>				
Use of growth hormones given to beef cattle	<input type="radio"/>				

I am concerned that the following could be harmed by a food safety incident:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
My health	<input type="radio"/>				
Health of someone I know	<input type="radio"/>				
My community	<input type="radio"/>				
The nation	<input type="radio"/>				

Normal Media Use

Aggies' Perceptions of and Use of Media about the Beef Industry

The following questions ask about your typical media use during normal times, or when a food safety incident is not expected or has not occurred. For each question, please provide or choose an answer that best represents your media use.

During normal times, about how many hours per week do you spend using the following media to gather information for personal, business, and/or entertainment use?

Television (show, movies)	<input type="text"/>
Television (news channels)	<input type="text"/>
Radio	<input type="text"/>
Internet	<input type="text"/>
Facebook	<input type="text"/>
Twitter	<input type="text"/>
Blogs	<input type="text"/>
YouTube	<input type="text"/>
RSS feeds	<input type="text"/>
E-mail list subscriptions	<input type="text"/>
Magazines	<input type="text"/>
Newspapers	<input type="text"/>
Other	<input type="text"/>

I consider the following media to be trustworthy in providing accurate and helpful information about any issue.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Television (show, movies)	<input type="radio"/>				
Television (news channels)	<input type="radio"/>				
Radio	<input type="radio"/>				
Internet	<input type="radio"/>				
Facebook	<input type="radio"/>				
Twitter	<input type="radio"/>				
Blogs	<input type="radio"/>				
YouTube	<input type="radio"/>				
RSS feeds	<input type="radio"/>				
E-mail list subscriptions	<input type="radio"/>				
Magazines	<input type="radio"/>				
Newspapers	<input type="radio"/>				
Other	<input type="radio"/>				

Other (please describe)

Aggies' Perceptions of and Use of Media about the Beef Industry

Do you publish your views or opinions on the Internet using social media such as blogs, Facebook, or Twitter?

- Yes
 No

Normal Media Use

About how many times per week do you publish your views or opinions on social media such as blogs, Facebook, or Twitter?

Number of times per week

In general, media coverage of issues has changed my opinion and attitudes about an issue in a (please check all that apply):

- Negative way
 Positive way

Media Use during Food Safety Incidents

The following questions ask about your media use and the helpfulness of media when a food safety incident related to beef has occurred or is expected to occur. For each question, please provide or choose an answer that best represents your media use.

About how many hours per week do you use the following media to get information concerning food safety incidents related to beef?

Television (show, movies)	<input type="text"/>
Television (news channels)	<input type="text"/>
Radio	<input type="text"/>
Internet	<input type="text"/>
Facebook	<input type="text"/>
Twitter	<input type="text"/>
Blogs	<input type="text"/>
YouTube	<input type="text"/>
RSS feeds	<input type="text"/>
E-mail list subscriptions	<input type="text"/>
Magazines	<input type="text"/>
Newspapers	<input type="text"/>
Other	<input type="text"/>

Aggies' Perceptions of and Use of Media about the Beef Industry

The following media are helpful in providing information about national food safety incidents related to beef.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Television (show, movies)	<input type="radio"/>				
Television (news channels)	<input type="radio"/>				
Radio	<input type="radio"/>				
Internet	<input type="radio"/>				
Facebook	<input type="radio"/>				
Twitter	<input type="radio"/>				
Blogs	<input type="radio"/>				
YouTube	<input type="radio"/>				
RSS feeds	<input type="radio"/>				
E-mail list subscriptions	<input type="radio"/>				
Magazines	<input type="radio"/>				
Newspapers	<input type="radio"/>				
Other	<input type="radio"/>				

Other (please specify)

Aggies' Perceptions of and Use of Media about the Beef Industry

The following media are helpful in providing information about food safety incidents related to beef that occur in my community.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Television (show, movies)	<input type="radio"/>				
Television (news channels)	<input type="radio"/>				
Radio	<input type="radio"/>				
Internet	<input type="radio"/>				
Facebook	<input type="radio"/>				
Twitter	<input type="radio"/>				
Blogs	<input type="radio"/>				
YouTube	<input type="radio"/>				
RSS feeds	<input type="radio"/>				
E-mail list subscriptions	<input type="radio"/>				
Magazines	<input type="radio"/>				
Newspapers	<input type="radio"/>				
Other	<input type="radio"/>				

Other (please specify)

Media Use during Food Safety Incidents

Aggies' Perceptions of and Use of Media about the Beef Industry

The following media are helpful in providing information about how to help victims of food safety incidents related to beef.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Television (show, movies)	<input type="radio"/>				
Television (news channels)	<input type="radio"/>				
Radio	<input type="radio"/>				
Internet	<input type="radio"/>				
Facebook	<input type="radio"/>				
Twitter	<input type="radio"/>				
Blogs	<input type="radio"/>				
YouTube	<input type="radio"/>				
RSS feeds	<input type="radio"/>				
E-mail list subscriptions	<input type="radio"/>				
Magazines	<input type="radio"/>				
Newspapers	<input type="radio"/>				
Other	<input type="radio"/>				

Other (please specify)

Aggies' Perceptions of and Use of Media about the Beef Industry

The following media are helpful in providing information about how to help prevent food safety incidents related to beef from impacting me.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Television (show, movies)	<input type="radio"/>				
Television (news channels)	<input type="radio"/>				
Radio	<input type="radio"/>				
Internet	<input type="radio"/>				
Facebook	<input type="radio"/>				
Twitter	<input type="radio"/>				
Blogs	<input type="radio"/>				
YouTube	<input type="radio"/>				
RSS feeds	<input type="radio"/>				
E-mail list subscriptions	<input type="radio"/>				
Magazines	<input type="radio"/>				
Newspapers	<input type="radio"/>				
Other	<input type="radio"/>				

Other (please specify)

Media coverage of food safety incidents related to beef (e.g., BSE, E. coli, etc.) has changed my opinions and/or attitudes about beef in a (please check all that apply):

- Negative way
- Positive way

Demographics

The following questions ask for basic information about you. This information will be used to classify the answers you have provided throughout this survey but cannot be used to identify you. For each question, please provide or choose an answer that best represents you.

Aggies' Perceptions of and Use of Media about the Beef Industry

Do you have experience in any of the following activities related to agriculture? (Please check all that apply.)

- None
- Paid work experience
- Unpaid work experience
- Live(d) in a rural area
- Live(d) on a farm or ranch
- Own(ed) a farm or ranch
- Work(ed) in a rural area
- Work(ed) on a farm/ranch
- High school agriculture course(s)
- College agriculture course(s)
- Extension workshop(s)
- Exhibiting livestock at fairs/shows
- Other

Other (please specify)

Do you presently own any of the following animals? (Please check all that apply.)

- Dog or cat for companionship
- Horse
- Livestock
- Working dog(s)
- None of the above

Beef is the primary meat I consume.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Aggies' Perceptions of and Use of Media about the Beef Industry

Demographics

In what state is your primary residence? If your primary residence is not in the U.S., please enter your country.

State:

Country:

How would you describe the area in which you live?

- Urban
- Suburban
- Rural

How many years have you lived in your present community?

Years

How many hours per week do you spend participating in community groups and organizations such as church, scouting, or bridge groups?

Hours

What is the highest level of education you have completed?

- Did not complete high school
- Completed high school (diploma or GED)
- Vocational or technical school
- Associate degree
- Bachelor's degree
- Some graduate school (no degree)
- Master's degree
- Doctoral, law, or medical degree

What is your occupation?

Demographics

What is your gender?

- Male
- Female

Aggies' Perceptions of and Use of Media about the Beef Industry**What is your age?**Years **Have you served in the military?** Yes No**What is your marital status?****How many children under the age of 18 currently live with you?**Number of children **Which of the following best describes your political beliefs?** Conservative Moderately conservative Moderate Moderately liberal Liberal Other (please specify)

Aggies' Perceptions of and Use of Media about the Beef Industry**What is your ethnicity? (Please check all that apply)**

- White
- Black, African American or Negro
- Hispanic, Spanish or Latino
- American Indian or Alaska Native
- Asian Indian
- Chinese
- Filipino
- Japanese
- Korean
- Vietnamese
- Native Hawaiian
- Guamanian or Chamorro
- Samoan
- Other

Other (please specify)

What is your current employment status?

- Full-time (40 or more hours per week)
- Part-time
- Not employed

Which best describes your 2010 household income from all sources of income before taxes?

- Less than \$25,000
- \$25,000 to \$50,000
- \$50,000 to \$75,000
- \$75,000 to \$100,000
- More than \$100,000

APPENDIX D

Introductory Email

To: Texas A&M University Former Student
Subject: Media Use Survey

Dear [FirstName] [LastName]:

I am a master's student at Texas A&M University, and I need your help with my thesis research. Your perceptions of the beef cattle industry and the safety of beef products are important. Your views on food safety incidents related to the beef industry and the use of media as an information source is important to agricultural professionals and communicators, so they can effectively communicate food safety issues to you, the valued consumer.

The purpose of this study is to determine your perceptions of the beef cattle industry based on your media use and various demographics. Your opinion is valued, and your responses will help provide the agricultural industry and the media with information that could improve the availability of food safety information during an incident.

The survey will take approximately 15 minutes to complete. Your responses will be confidential. Please respond to the questions based on your perceptions and opinions. The survey is available online and can be accessed from your home computer. You will be able to access the survey one time only. If you cannot access the online survey, please e-mail me at acharanza@aged.tamu.edu, and an alternative survey format will be provided.

By clicking on the link below, you are giving consent to participate in the study. To access the survey, please click on the link below:
[Survey Link]

Your immediate response is greatly appreciated. Your responses are voluntary, anonymous, and confidential. The responses will be stored in a password-protected account until the survey is closed and then will be stored in a password-protected spreadsheet until the research project is complete. Your e-mail address was accessed through the Texas A&M University Association of Former Students database.

You may withdraw from this survey at any time without penalty. There are minimal risks associated with this project that are not greater than those encountered in daily life.

Thank you for taking time to complete this survey. If you have any questions, please feel free to call Ashley Charanza at 979-458-3391 or Traci Naile at 979-458-3705. If you have any questions or concerns about being a research participant, please contact the Institutional Review Board at 979-458-4067 or irb@tamu.edu.

Sincerely,

Ashley Charanza

Please note: If you do not wish to receive further emails regarding this study, please click on the link below, and you will be removed from our mailing list.

[RemoveLink]

APPENDIX E

Questionnaire

Aggies' Perceptions of and Use of Media about the Beef Industry**General Knowledge of Agriculture**

The following questions will address your general knowledge of the U.S. food and fiber system. For each question, please select the answer choice you believe to be most correct.

Which of the following does not influence farmer/producer decisions about what type of product to grow and how it is processed?

- Consumer preferences
- Government regulations
- Historical events
- Specific commodity prices overseas

A genetically modified corn plant has been developed with natural resistance to pests. What type of agricultural business will be most directly affected by this new technological advancement?

- Agricultural chemical company
- Feed and milling company
- Tractor and equipment dealership
- Veterinary supply store

Which of the following occupations is least related to the industry of agriculture?

- Fashion designer
- Park ranger
- Landscape designer
- Meat inspector

What is an essential part of the food and fiber system?

- Consumer demand
- Consumer supply
- Natural resources
- Value-added products

Aggies' Perceptions of and Use of Media about the Beef Industry

Why is America able to sustain a high standard of living?

- Agricultural industry
- International trade
- Micro-computer industry
- Stock market

What components does agriculture include?

- Farming, distribution and research of food, clothing and shelter
- Production and regulation of food, clothing and shelter
- Production, processing and selling of food, clothing and shelter
- Production, processing, marketing and distribution of food and fiber

What has the least influence on production practices of farmers in the United States?

- Machinery costs to producers
- New York Stock Exchange
- Price of the commodity to the processor
- Consumer preferences

How does the percentage of the population working directly in production agriculture in the United States compare to other countries in the world?

- Population is declining compared to less developed countries of the world
- Population is greater than in less developed countries of the world
- Population is greater than other developed countries of the world
- Population is increasing due to population growth and the increasing demand for food

Which agricultural sector has the least number of workers?

- Distribution
- Processing
- Production
- Transportation

Aggies' Perceptions of and Use of Media about the Beef Industry

How do plants and animals meet society's needs in ways other than food, clothing and shelter?

- Fuels and electronics
- Medicines and plastics
- Medicines and recreation
- Plastics and recreation

Perceptions of the Beef Industry

The following questions relate to your perceptions of the U.S. beef industry and beef products. Safe beef is defined as a beef product that is free of disease and harmful bacteria. The beef industry is defined as producers, organizations, food processors, and any entity involved in the production, processing, and handling of beef products. This does **not** include the government. For each question, please choose the answer choice that best represents your views.

The beef industry:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Supplies safe beef products to consumers	<input type="radio"/>				
Responds efficiently to food safety concerns related to beef	<input type="radio"/>				
Supplies me with information I need to make informed decisions about the safety of beef	<input type="radio"/>				

In relation to the beef industry, I am concerned about:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Food safety	<input type="radio"/>				
Access to accurate information about the food supply	<input type="radio"/>				
Beef cattle production practices	<input type="radio"/>				
Humane treatment of beef cattle	<input type="radio"/>				
Use of antibiotics given to beef cattle	<input type="radio"/>				
Use of growth hormones given to beef cattle	<input type="radio"/>				

I am concerned that the following could be harmed by a food safety incident:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
My health	<input type="radio"/>				
Health of someone I know	<input type="radio"/>				
My community	<input type="radio"/>				
The nation	<input type="radio"/>				

Normal Media Use

Aggies' Perceptions of and Use of Media about the Beef Industry

The following questions ask about your typical media use during normal times, or when a food safety incident is not expected or has not occurred. For each question, please provide or choose an answer that best represents your media use.

During normal times, about how many hours per week do you spend using the following media to gather information for personal, business, and/or entertainment use?

Television (show, movies)	<input type="text"/>
Television (news channels)	<input type="text"/>
Radio	<input type="text"/>
Internet	<input type="text"/>
Facebook	<input type="text"/>
Twitter	<input type="text"/>
Blogs	<input type="text"/>
YouTube	<input type="text"/>
RSS feeds	<input type="text"/>
E-mail list subscriptions	<input type="text"/>
Magazines	<input type="text"/>
Newspapers	<input type="text"/>
Other	<input type="text"/>

I consider the following media to be trustworthy in providing accurate and helpful information about any issue.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Television (show, movies)	<input type="radio"/>				
Television (news channels)	<input type="radio"/>				
Radio	<input type="radio"/>				
Internet	<input type="radio"/>				
Facebook	<input type="radio"/>				
Twitter	<input type="radio"/>				
Blogs	<input type="radio"/>				
YouTube	<input type="radio"/>				
RSS feeds	<input type="radio"/>				
E-mail list subscriptions	<input type="radio"/>				
Magazines	<input type="radio"/>				
Newspapers	<input type="radio"/>				
Other	<input type="radio"/>				

Other (please describe)

Aggies' Perceptions of and Use of Media about the Beef Industry

Do you publish your views or opinions on the Internet using social media such as blogs, Facebook, or Twitter?

- Yes
 No

Normal Media Use

About how many times per week do you publish your views or opinions on social media such as blogs, Facebook, or Twitter?

Number of times per week

In general, media coverage of issues has changed my opinion and attitudes about an issue in a (please check all that apply):

- Negative way
 Positive way

Media Use during Food Safety Incidents

The following questions ask about your media use and the helpfulness of media when a food safety incident related to beef has occurred or is expected to occur. For each question, please provide or choose an answer that best represents your media use.

About how many hours per week do you use the following media to get information concerning food safety incidents related to beef?

Television (show, movies)	<input type="text"/>
Television (news channels)	<input type="text"/>
Radio	<input type="text"/>
Internet	<input type="text"/>
Facebook	<input type="text"/>
Twitter	<input type="text"/>
Blogs	<input type="text"/>
YouTube	<input type="text"/>
RSS feeds	<input type="text"/>
E-mail list subscriptions	<input type="text"/>
Magazines	<input type="text"/>
Newspapers	<input type="text"/>
Other	<input type="text"/>

Aggies' Perceptions of and Use of Media about the Beef Industry

The following media are helpful in providing information about national food safety incidents related to beef.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Television (show, movies)	<input type="radio"/>				
Television (news channels)	<input type="radio"/>				
Radio	<input type="radio"/>				
Internet	<input type="radio"/>				
Facebook	<input type="radio"/>				
Twitter	<input type="radio"/>				
Blogs	<input type="radio"/>				
YouTube	<input type="radio"/>				
RSS feeds	<input type="radio"/>				
E-mail list subscriptions	<input type="radio"/>				
Magazines	<input type="radio"/>				
Newspapers	<input type="radio"/>				
Other	<input type="radio"/>				

Other (please specify)

Aggies' Perceptions of and Use of Media about the Beef Industry

The following media are helpful in providing information about food safety incidents related to beef that occur in my community.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Television (show, movies)	<input type="radio"/>				
Television (news channels)	<input type="radio"/>				
Radio	<input type="radio"/>				
Internet	<input type="radio"/>				
Facebook	<input type="radio"/>				
Twitter	<input type="radio"/>				
Blogs	<input type="radio"/>				
YouTube	<input type="radio"/>				
RSS feeds	<input type="radio"/>				
E-mail list subscriptions	<input type="radio"/>				
Magazines	<input type="radio"/>				
Newspapers	<input type="radio"/>				
Other	<input type="radio"/>				

Other (please specify)

Media Use during Food Safety Incidents

Aggies' Perceptions of and Use of Media about the Beef Industry

The following media are helpful in providing information about how to help victims of food safety incidents related to beef.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Television (show, movies)	<input type="radio"/>				
Television (news channels)	<input type="radio"/>				
Radio	<input type="radio"/>				
Internet	<input type="radio"/>				
Facebook	<input type="radio"/>				
Twitter	<input type="radio"/>				
Blogs	<input type="radio"/>				
YouTube	<input type="radio"/>				
RSS feeds	<input type="radio"/>				
E-mail list subscriptions	<input type="radio"/>				
Magazines	<input type="radio"/>				
Newspapers	<input type="radio"/>				
Other	<input type="radio"/>				
Other (please specify)	<input type="text"/>				

Aggies' Perceptions of and Use of Media about the Beef Industry

The following media are helpful in providing information about how to help prevent food safety incidents related to beef from impacting me.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Television (show, movies)	<input type="radio"/>				
Television (news channels)	<input type="radio"/>				
Radio	<input type="radio"/>				
Internet	<input type="radio"/>				
Facebook	<input type="radio"/>				
Twitter	<input type="radio"/>				
Blogs	<input type="radio"/>				
YouTube	<input type="radio"/>				
RSS feeds	<input type="radio"/>				
E-mail list subscriptions	<input type="radio"/>				
Magazines	<input type="radio"/>				
Newspapers	<input type="radio"/>				
Other	<input type="radio"/>				

Other (please specify)

Media coverage of food safety incidents related to beef (e.g., BSE, E. coli, etc.) has changed my opinions and/or attitudes about beef in a (please check all that apply):

- Negative way
- Positive way

Demographics

The following questions ask for basic information about you. This information will be used to classify the answers you have provided throughout this survey but cannot be used to identify you. For each question, please provide or choose an answer that best represents you.

Aggies' Perceptions of and Use of Media about the Beef Industry

Do you have experience in any of the following activities related to agriculture? (Please check all that apply.)

- None
- Paid work experience
- Unpaid work experience
- Live(d) in a rural area
- Live(d) on a farm or ranch
- Own(ed) a farm or ranch
- Work(ed) in a rural area
- Work(ed) on a farm/ranch
- High school agriculture course(s)
- College agriculture course(s)
- Extension workshop(s)
- Exhibiting livestock at fairs/shows
- Other

Other (please specify)

Do you presently own any of the following animals? (Please check all that apply.)

- Dog or cat for companionship
- Horse
- Livestock
- Working dog(s)
- None of the above

Beef is the primary meat I consume.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Aggies' Perceptions of and Use of Media about the Beef Industry

Demographics

In what state is your primary residence? If your primary residence is not in the U.S., please enter your country.

State:

Country:

How would you describe the area in which you live?

- Urban
- Suburban
- Rural

How many years have you lived in your present community?

Years

How many hours per week do you spend participating in community groups and organizations such as church, scouting, or bridge groups?

Hours

What is the highest level of education you have completed?

- Did not complete high school
- Completed high school (diploma or GED)
- Vocational or technical school
- Associate degree
- Bachelor's degree
- Some graduate school (no degree)
- Master's degree
- Doctoral, law, or medical degree

What is your occupation?

Demographics

What is your gender?

- Male
- Female

Aggies' Perceptions of and Use of Media about the Beef Industry**What is your age?**Years **Have you served in the military?** Yes No**What is your marital status?****How many children under the age of 18 currently live with you?**Number of children **Which of the following best describes your political beliefs?** Conservative Moderately conservative Moderate Moderately liberal Liberal Other (please specify)

Aggies' Perceptions of and Use of Media about the Beef Industry**What is your ethnicity? (Please check all that apply)**

- White
- Black, African American or Negro
- Hispanic, Spanish or Latino
- American Indian or Alaska Native
- Asian Indian
- Chinese
- Filipino
- Japanese
- Korean
- Vietnamese
- Native Hawaiian
- Guamanian or Chamorro
- Samoan
- Other

Other (please specify)

What is your current employment status?

- Full-time (40 or more hours per week)
- Part-time
- Not employed

Which best describes your 2010 household income from all sources of income before taxes?

- Less than \$25,000
- \$25,000 to \$50,000
- \$50,000 to \$75,000
- \$75,000 to \$100,000
- More than \$100,000

APPENDIX F

Reminder email

To: Texas A&M University Former Students
Subject: Media Use Survey

Dear [FirstName][LastName]:

This is a reminder that I need your help! I am a master's student at Texas A&M University that is need of your valuable responses to a survey. About a week ago, I sent you an e-mail asking you to participate in a survey about your perceptions of the beef cattle industry and food safety incidents and your use of media.

The survey will take approximately 10 minutes to complete and is only available for a short time. Please respond to the survey based on your perceptions and opinions. The survey can only be accessed one time from your computer. If you are experiencing difficulties accessing the survey, please e-mail me at acharanza@aged.tamu.edu, and I can provide you with an alternate survey form.

By clicking on the link below, you are giving consent to participate in this study. To access the online survey, please use click on the link below:
[SurveyLink]

You have the choice to withdraw at any time during this survey without penalty. There are minimal risks associated with this project that are not greater that those encountered in daily life.

Sincerely,

Ashley Charanza

Please note: If you do not wish to receive further emails regarding this study, please click on the link below, and you will be removed from our mailing list.
[RemovalLink]

VITA

Name: Ashley Dawn Charanza

Address: 2116 TAMU
College Station, TX 77843-2116

Email address: acharanza@gmail.com

Education: B.S., Agricultural Leadership and Development, Texas A&M
University, 2009

M.S., Agricultural Leadership, Education, and Communications,
Texas A&M University, 2011