

Investigating the Cultivation Effects of Television Advertisements and Agricultural
Knowledge Gaps on College Students' Perceptions of Modern Dairy Husbandry Practices

Thesis

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By

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Abstract

The unrealistic images of American agricultural practices generated by commodity television advertising, coupled with a dearth of agricultural knowledge in modern society, may promote misunderstandings of modern agriculture based on cultivation and knowledge-gap theory. This study investigated the possible effects of the “Happy Cows Come from California” television campaign on college students’ perceptions of dairy husbandry practices, compared affective responses to those advertisements to fact-based video content, and correlated these responses with agricultural awareness and television consumption habits. No significant relationship between perceptions of dairy farm practices, awareness, and TV consumption was found, but participants reported a more positive response to the informational videos. The researchers recommend a movement away from purely entertaining advertising content for agricultural products in favor of more realistic, fact-based promotions.

Dedication

This work is dedicated to a proud farm family.

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Chapter 1: Introduction

In November 2008, California voters overwhelmingly passed the “Standards for Confining Farm Animals” initiative, or Proposition (“Prop”) 2, a piece of legislation that restricts the use of animal husbandry tools such as veal and sow gestation crates and battery cages for hens (Goll, 2008). Prop 2 was backed with financial and grassroots-membership support from the Humane Society of the United States (HSUS), an animal-welfare lobbying organization that had successfully instituted ballot initiatives in several other states (Birnbaum, 2007).

Encouraged by HSUS’s media campaign, a majority of voters in California, which is the sixth-largest egg-producing state in the nation, passed the initiative despite warnings that “a potential ban on battery cages could be...disruptive to California's egg industry” (“HSUS lands,” 2008, p. 35). Such a ban could cause egg prices to rise and thus increase outsourcing of poultry production to other states and countries such as Mexico, where food-quality standards are notoriously low (Schmit, 2008). The tactics utilized by agricultural organizations and commodity groups to raise concerns about food security and rising prices were no match for the images of injured chickens packed four-deep into small cages and veal calves struggling against short tethers collected by the Humane Society of the United States and disseminated across television screens and on the World Wide Web.

These photographs and videos were all the more damaging to agriculture's image because they violated long-held societal perceptions of the industry and how it functions (Fraser, 2001; Wachenheim & Rathge, 2000). The modern operation—with its reliance on science and technology—hardly resembles the pastoral ideal proliferated by a growing disconnect between agricultural producers and consumers (Holloway, 2004). This gulf between agriculture's reality and America's farm fantasy bears investigation: Who (or what) is responsible for the public's expectations of agriculture and for propagating the "American agrarian ideal" (Fraser, 2001)?

Cultivation Theory

One possibility lies in an oft-cited theory (Gerbner, Gross, Morgan, & Signorielli, 1994): cultivation. Cultivation theory was introduced as opposition to the one-shot "hypodermic needle" or "magic bullet" theories of media effects that resulted from propaganda studies in the 1930s (Shanahan & Morgan, 1999). Its principle authors used the term "cultivation" to build on "the assumption that the major impacts of television materialize by means of the way it exposes people to the same images and metaphors over and over again" (Shanahan & Morgan, 1999, p. 12).

Heavy television viewers, cultivation theorists argue, will find that television replaces other sources of information, reinforcing the idea that the real world is similar to the world portrayed on television and thus influencing both attitudes and behavior (Shrum, Wyer, & O'Guinn, 1998; Gerbner, et al., 1994). Several characteristics of television contribute to its ability to cultivate certain world-views. It is ubiquitous—most households boast at least one television set, and viewers watch 151 hours of television content every month, or more than five hours each day (Gandossy, 2009)—and its

effects are invisible. Television is capable of revealing to audiences unfamiliar images, accounts, and stories of life, and it is largely homogenous, with highly stylized and formulaic content. Perhaps most significant to this argument, television presents a reality that is discrepant from “objective reality” but not disparate enough to be dissonant. This blurring effect “is very significant because consumers may passively accept as real those television representations that are somewhat, or even significantly, skewed” (O’Guinn & Shrum, 1997, p. 279).

The acceptance of this reality as truth could have major societal consequences. Gerbner and his colleagues suggest that heavy viewers of violent television “may begin to believe that the world is as mean and dangerous in real life as it appears on television,” a phenomenon called “mean world syndrome” (Murray, 1995, p. 9; Gerbner, Morgan, & Signorielli, 1993). Studies have shown that regular viewers of crime dramas tend to overstate the number of Americans employed in law enforcement, and television viewership may contribute heavily to identity formation and expectations of social norms, such as gender roles (Harris, 2004). Research exploring cultivation’s influence on perceptions of *agrarian* reality, however, has been largely neglected.

Television Advertising and Visual Imagery

Only a small percentage of television programming is devoted to agriculture or related professions (Harris, 2004), which begs the question: With little opportunity for exposure to agricultural content, how can audiences form perceptions of the industry? The researchers posit that the answer may lie not in television programming, but in its *advertisements*. The effects of television advertising on issues like perceived violence, female body image, and product sales have been studied extensively since the early 1980s

(Moschis & Moore, 1982; Lodish, Abraham, Livelsberger, Lubetkin, Richardson, & Stevens, 1995; Botta, 1999). One may reasonably assume that, lacking other sources of agricultural knowledge, audiences will turn to the limited resources available, including televised commercial advertisements.

One aspect of television advertising that contributes to attitude formation is visual imagery. Many scholars theorize that visual communication in advertising impacts the way people perceive reality. While many agree that advertising images are often unrealistic, it must be noted that advertising “does not claim to picture reality as it is but reality as it should be” (Richins, 1991, p. 71; Schudson, 1984). While television represents homogeneity of thoughts, ideas, and information, advertising “is a force toward the homogenization of imagery” (Gamson, Croteau, Hoynes, & Sasson, 1992).

Advertising imagery influences attitudinal and behavioral judgments because information processed with a combination of images and semantics comes to mind most readily when making judgments (Bone & Ellen, 1992). Bone and Ellen identified two aspects of media imagery that stimulate processing: focal character and plausibility. The impact of an advertisement’s focal character is theoretically greatest when the audience perceives some level of self-relation to that character, making the image more vivid and more likely to be processed and stored (Bone & Ellen, 1992). Plausibility refers to the extent to which the audience perceives the image’s context as realistic; the less dissonant the situation, the more evocative.

The anthropomorphism or humanization of animals, too, plays a part in advertising; as Lerner and Kalof (1999) note, “animals are of substantial symbolic importance in human society” (p. 565). Anthropomorphized creatures exhibit human

behavior, such as wearing clothes; and humanized characters act like animals but possess human attributes like speech and cognitive thought (Lerner & Kalof, 1999). Aggarwal and McGill (2007) posit that anthropomorphism works most effectively through a system of schema congruity: Humanizing non-human figures is most effective when their characteristics fit neatly into the audience's contextual schema, or frameworks of cognitive knowledge that represent information about topics, concepts, or particular stimuli, such as their attributes and the relations among those attributes (Aggarwal & McGill, 2007; Fiske & Linville, 1980). Schema come equipped with networks of associations that allow inferences to be made based on little substantive information, and many people have difficulty distinguishing between inferred and observed information in cases where schema are well-developed (Crockett, 1988). Schema can be both facilitated and constrained by belief systems, which aid in processing, storing, and organizing information acquired from the social environment (Allen, Dawson, & Brown, 1989).

Knowledge Gap Theory

Another contributing factor is the growing information divide between farmers and consumers. According to Tichenor and his colleagues, so-called "knowledge gaps" are created when mass media information into a social system increases and segments of the population with higher socioeconomic status acquire information faster than those of lower socioeconomic status (Ettema, Brown, & Luepker, 1983; Tichenor, Donohue, & Olien, 1970). While socioeconomic status is considered the primary variable in knowledge-gap-development studies, other factors, such as audience motivation, may contribute to the formation of informational divides among social groups (Ettema & Kline, 1977).

Knowledge gap theory is pertinent to the study of social perceptions of agriculture due to the dwindling farming population and increasing generational movement away from subsistence agriculture. In 2007, 993,881 American farm operators reported that farming was their primary source of employment, the second-lowest total in a thirty-year span (USDA, 2009a). The average age of farmers has been on a steady climb over that same time period, according to United States Department of Agriculture census data: In 1978, principal farm operators averaged 50.3 years of age; in 2007, that number had risen to 57.1 (USDA, 2009a). The statistics indicate that fewer young people are becoming actively involved in production agriculture, contributing to a lack of knowledge in the general population as well as a potential dearth of motivation to attend to agricultural information.

Public Perceptions of Rural Life and Agriculture

Rural life in the United States is often described in conservative, almost religious terms. According to a survey conducted by the W.K. Kellogg Foundation and Greenburg Quinlan Rosner Research, the nation's public views rural America as "a series of dichotomies": "Rural life represents traditional American values, but is behind the times; rural life is more relaxed and slower than city life, but harder and more grueling; rural life is friendly, but intolerant of outsiders and difference; and rural life is richer in *community* life, but epitomized by *individuals* struggling independently to make ends meet" (Kellogg, 2002, p. 1). The Kellogg researchers also indicate that Americans perceive that rural America is "serene and beautiful, populated by animals and livestock and landscape covered by trees and family farms" (Kellogg, 2002, p. 1).

Agriculture is often identified as the number-one industry in rural communities, though only 11.5 percent of rural Americans are employed in the agricultural industry, and many identify the economic hardships of farming as the primary economic concern of rural workers (Kellogg, 2002). Eight percent of respondents in the Kellogg study identified the “decline of the family farm” as a problem faced by rural communities, citing the loss of the “traditional American values the family farmer exemplifies” (Kellogg, 2002, p. 11). In a similar vein, study participants also responded negatively to prompts about large-scale corporate farming: “Respondents see corporate farms as putting family farmers out of business, mainly by taking over their businesses and purchasing their land” (Kellogg, 2002, p. 13).

Those perceptions of rural life and agriculture may have been influenced by coverage of rural America by the mass media. In a 2004 content analysis of television programming and prominent metropolitan and national-market newspapers, the Kellogg Foundation identified three distinct news frames, or conceptual frameworks utilized to organize a story’s information, found in coverage of rural issues. The first frame “linked ‘rural’ with an agricultural or farmstead lifestyle” (Kellogg, 2004, p. 25). The second frame identifies rural inhabitants as “losers” or “hillbillies” living in impoverished or backwards conditions. The final theme identified by the Kellogg study was the abstract, symbol-laden ideology of rural America as “an idealized past as expressed in Norman Rockwell paintings, Currier & Ives prints and Garrison Keiller’s stories of Lake Wobegon” (Kellogg, 2004, p. 25). These frames, though existing in varying degrees, are inherent in most media coverage of rural communities and their concerns.

Farming Through the Reality Television Lens

Reality television has proved to be “an entertainment genre of contemporary cultural debate” (Ruth, Lundy, & Park, 2005, p. 22) as the images that it “purports to depict accurately...affect how our society experiences and reacts to the subject of a text” (Joniak, 2001, p. 5; Ruth et al., 2005). This characteristic of reality television is especially troubling given that this variety of programming has been accused of “breaking cultural rules...by shifting our conceptions of what is acceptable, by transforming the bases for cultural judgment” (Abt & Seesholtz, 1994, p. 171; Ruth et al., 2005). The subsequent inclusion of agriculture-themed reality shows on primetime networks has raised questions about the possible effects of such media exposure on the industry (Ruth, Lundy, & Park, 2005).

One reality show that garnered widespread attention was for its depiction of agriculture and rural living is *The Simple Life*, a 20th Century Fox program that first aired in December 2003. Touted as a “reality sitcom” based on *Green Acres*, the program in its first season followed hotel-heiress and socialite Paris Hilton and childhood friend Nicole Richie as they experienced life on a small family farm in rural Altus, Arkansas—a concept developed by Fox’s comedy department, who “wanted to see stilettos in cow shit” (Ryan, 2003, para. 12; Rogers, 2003). The show received record-high ratings for a Fox program with 13 million viewers tuning in to its premiere episode and even more viewing the season’s second episode (Rogers, 2003; Ruth et al., 2005).

The instant popularity of *The Simple Life* raised concerns about how the show’s portrayal of rural life and agriculture would influence public perceptions of the industry

and its professionals. One segment in the second episode, in particular, caused some alarm among food industry officials:

Paris and Nicole, while working at a dairy, fill glass milk bottles with a hose, while Danny Council, the dairy farmer who owns “Danny's Dairy Farm,” pushes them to get more bottles completed for a rapidly-approaching shipment on a delivery truck. Ultimately, according to the sequence as aired, Paris and Nicole were pouring water from a bucket into the bottles to deceive Danny and fill their quota...Paris and Nicole were told by Danny that the milk was unpasteurized and asks [sic] whether it's legal to sell unpasteurized milk in Arkansas. The answer? No. (Paulsen, 2003, para. 5-6)

The unpasteurized milk was not sold, and, according to an interview with dairyman Danny Council, the entire scene was staged specifically for the show, down to the glass bottles that were chosen by producers to be “more in keeping with the ‘look’ that the producers wanted for rural Arkansas” (Paulsen, 2003, para. 8).

Ruth and her colleagues (2005) indicate that *The Simple Life* presented a relatively negative portrayal of agriculture, representing the agricultural community as “back woods and bad” and “reinforce[ing] stereotypes about agriculture and people who work in the food and fiber industry” (Ruth et al., 2005, p. 28). While most focus-group respondents felt that the show was largely unrealistic, they also suggested that it might have the ability to “support inaccurate perceptions and opinions viewers might currently hold toward agriculture” by portraying agriculture as simple and effortless (Ruth et al., 2005, p. 28).

A 2008 dating show titled *Farmer Wants a Wife* was a second reality program that garnered much attention—and criticism—for its representation of agriculture. The show’s premise— “to make a match between lonely young farmers with no time to date and women who dream of living a traditional, small-town lifestyle” (“Farmers fret,” 2005, para. 5) —was met with skepticism by farmer-advocacy organizations. While *Farmer Wants a Wife* was still in its development stages, the show and its producers at Fremantle Media were censured by the Nebraska Farmers Union, whose then-president John Hansen worried that the program would “trivialize” farmers and farm life: “[Its portrayal]’s somewhere between rednecks and *Hee Haw*: culturally backward and unwashed... It’s kind of the new and more modern version of the hayseed. It’s such a shallow, inaccurate and stereotypical view of rural families” (“Farmers fret,” 2005, para. 14). Opposing Hansen’s fears, eventual star Matt Neustadt, a Missouri farmer “with the subsidies to prove it” (Wyatt, 2008, para. 5), claimed that the show was “trying to break down some ugly stereotypes” about modern farmers (Wyatt, 2008, para. 2)—an assertion that was firmly countered by Rob Owen of the *Pittsburgh Post-Gazette*, who labeled the show a “a sun-kissed, totally unreal, reality TV rendition of American Gothic” (Owen, 2008, para. 17).

Industrial Agriculture and Television Media

Modern industrial agriculture has become a target of entertainment media outlets. In 2005, the Public Broadcasting Service (PBS) and its Sacramento, California, affiliate KVIE launched a half-hour, magazine-style weekly television series called *America’s Heartland*. Underwritten by Monsanto Company, a leading agricultural research and development corporation, the American Farm Bureau Federation, and five major

commodity groups, the show features short “stories” about individuals and businesses involved in agriculture and industry-related entrepreneurship (Krebs, 2005). According to Jim O’Donnell, director of program marketing at KVIE, “It’s our belief...that people just don't understand the entrepreneurial spirit, the hard work and the scale of farm production. It is not a bucolic pastoral setting. Farmers apply all kinds of innovation to what they do. People are interested in that” (Krebs, 2005, para. 6). The show has aired for five seasons, boasts more than 100 episodes, and is among the most-watched programs in PBS history (Krebs, 2005).

Despite producers’ efforts to ensure accuracy and neutrality in depicting modern agriculture, including roundtable discussions with the leaders of major industry organizations, *America’s Heartland* has its share of critics. Before the program debuted in 2005, more than 40 environmental, food safety, farming, and responsible investment groups sent a letter to American Public Television (APT) and KVIE, requesting that PBS stations pull the series, which the groups described as “a platform for Monsanto to promote its genetically engineered crops” (“Food, farm,” 2005, para. 2). According to Center for Food Safety president Andrew Kimbrell, “KVIE’s program on biotech seems intended to give viewers the impression that their concerns about biotechnology are naïve and unfounded...When, in fact, the National Academy of Sciences has stated clearly over the past five years that there can be substantial risks to human health and the environment from genetically engineered organisms” (“Food, farm,” 2005, para. 8).

Because financial support for the show came from major agricultural actors, which Center for Food Safety president Andrew Kimbrall described as “a rogues gallery of the biggest proponents of industrial agriculture and biotech crops that exist in this

country today,” the groups contended that *America’s Heartland* represented a conflict of interest for APT and demanded its permanent removal (“Food, farm,” 2005, para. 5). Two stations obliged, initially putting the series on hold, but the show’s producers maintained that they were not “shilling for corporate interests” (Krebs, 2005, para. 27).

Television dramas, too, may take a stand on commercial agriculture’s practices and possible consequences. *Bones*, a popular crime procedural aired by the Fox Network, focused on modern industrial poultry production in its November 5, 2009, episode “The Tough Man in the Tender Chicken” (“Bones,” 2009). The episode follows the principle characters as they attempt to solve the murder of a supervisor of a large chicken farm. The plot involves animal-rights protestors, who offer criticism of the poultry company’s activities, such as confinement housing, de-beaking, harvesting methods, and environmental pollution. The murderer is eventually revealed to be a farm worker whose wife had become seriously ill due to working at the factory farm. A secondary storyline follows a character as she attempts to stop the slaughter of a piglet. More than 8 million viewers watched the episode, making it the third most-watched program in its 8 p.m. timeslot in the evening’s Nielsen ratings (Gorman, 2009).

In a similar vein, an episode of CBS crime drama *CSI: Miami* prominently highlighted modern agriculture as the backdrop for criminal investigation (“CSI: Miami,” 2009). In the episode “Bad Seed,” which premiered on October 19, 2009, an apparent *E. coli* outbreak that kills two people is traced by the detectives to a major food corporation. The company’s produce is infected with the strain because the water used to irrigate the crops was contaminated by runoff from a nearby cattle farm. The second victim dies, not from *E. coli*, but from botulism contracted by consuming genetically engineered corn, and

the situation is shrugged off by the head of the corporation. According to Nielsen ratings for October 19, the episode of *CSI: Miami* was viewed by more than 12 million people, leading the 10 p.m. slot (Seidman, 2009).

Agriculture advocates responded emphatically to these television portrayals of large-scale agriculture, believing that such representations are “based on unsubstantiated information and emotional pleas,” villainize farmers, and cause unnecessary worry about modern agricultural practices (“TV shows,” 2009, para. 2). Lindsay Reames, assistant director of government relations for the Virginia Farm Bureau Federation, stated, “It’s unfortunate that many TV viewers have not been on farms to see how animals are raised and cared for by farm families” (“TV shows,” 2009, para. 9). The same week that the farming-centered episode of *Bones* aired, prominent animal activist and author Safran Foer was interviewed on the *Ellen Degeneres Show* and claimed that “99 percent of U.S. food animals are raised in indoor factory farms, fed unnatural diets and given antibiotics from birth to death...that production agriculture is the No. 1 cause of air and water pollution, and that H1N1 flu originated in North Carolina swine herds,” assumptions Reames called “outrageous falsehoods” (“TV shows,” 2009, para. 10-11).

Monitoring the portrayal of agriculture on television is of great concern to the industry. As more Americans move further from the farm, both geographically and generationally, the potential for an agricultural knowledge gap grows, increasing the risk of negative or unrealistic perceptions of the industry taking hold in society. As Fujioka (1999) notes, television plays a greater role in developing stereotypes when people lack direct contact or experience with the group in question, and individuals’ dependence on

the media for information about the world contributes to the likelihood of the social construction of a televised reality (Lee, Bichard, Irely, Walt, & Carlson, 2009).

Purpose of the Study

The purpose of this study was to examine the possible effects of illusory television advertising on public perceptions of agriculture. For this study, the focus was narrowed to perceptions of the dairy industry, specifically investigating audience's opinions of modern husbandry practices utilized by dairy producers, based on viewers' knowledge of the industry.

The television advertisements selected for this study constitute part of the long-running "Happy Cows" campaign, which was launched in late 2000 by the California Milk Advisory Board (CMAB). Aimed at bringing awareness of the state's dairy industry to consumers, the campaign—with the pitch "Great cheese comes from happy cows. Happy cows come from California" (Sherman, 2002) and anthropomorphized Holsteins frolicking in lush green pastures—was an immediate success, garnering awards for CMAB and its advertising partner Deutsch LA and edging California closer to Wisconsin in cheese production with 1.6 billion pounds produced in 2002. In 2008, CMAB announced that the "Happy Cows" campaign would be expanding into the online universe. The board added a multimedia component to the promotional website that allows consumers to interact with the campaign by watching "audition tapes" of prospective "spokes-cows" and voting for their favorite. The move was lauded by CMAB President and Chief Creative Officer Eric Hirshberg ("Consumers," 2008):

It just seemed like the next logical step in a totally illogical world. If the cows are happier in California, then it just seemed to make sense that cows from everywhere else be clamoring to come here. The reality show audition tape format is something everyone can relate to. From *American Idol* to online dating services, people are used to seeing other people pitch themselves like this. Why would our fictitious bovine friends be any different? (pp. 1-2)

The “Happy Cows” campaign is an ideal case study for the longitudinal effects of television advertising on perceptions of the American dairy industry. The hugely popular campaign has run for almost nine years (2000-2009), and during that time it has expanded from television commercials to an interactive online community, radio advertisements, and a related line of consumer products for adults and children (Glenn, 2004). With little programming devoted to the realities of modern dairy production, such constant and consistent exposure to the “Happy Cow” mantra and its associated images could, according to cultivation theory’s main tenets, support an idealized “virtual reality” of the dairy industry.

Imagery – specifically the notion of humanized dairy cattle – is another powerful tool in the “Happy Cows” campaign. The variety of “personality types” displayed by the campaign’s “spokes-cows” appeal to viewers and are capable of evoking a sense of schema congruity by bringing to mind particular people with whom they share those attributes or whom they recognize as possessing those characteristics (Aggarwal & McGill, 2007). The commercials that encouraged viewers to vote online for their favorite characters were designed—according to CMAB president Hirshberg—to increase

feelings of self-relatedness by actively involving audience members in the campaign and addressing them personally, similar to the methods utilized by political candidates and reality television programs (“Consumers,” 2008). While most advertisements clearly delineate between animals as beloved companions and animals as means of production and profit (Lerner & Kalof, 1999), the “Happy Cows” campaign may straddle that line.

Objectives of the Study

The purpose of this study was to describe the extent to which television advertisements cultivated and reinforced specific perceptions of animal agriculture in the United States, using the California Milk Advisory Board’s “Happy Cows” campaign as a case study of dairy-industry-related television promotion. The study’s objectives were:

1. To describe participants’ television and advertising viewing habits and uses;
2. To describe participants’ awareness of agriculture: specifically, their knowledge of modern production practices among dairy producers and their personal experiences with the industry;
3. To describe the affective response elicited by exposure to the “Happy Cows” advertising campaign among participants regarding quality of dairy husbandry, likability, and realism;
4. To compare participants’ affective responses to the television campaign to those generated by images associated with modern dairy husbandry practices; and

5. To describe the potential relationships between media use and perceptions of the dairy industry.

Significance of the Study

While entertaining, highly appealing television commercials are crucial to the success of commodity sales, agriculture advocates worry that advertisements that feed audiences unrealistic portrayals of livestock production could hinder, rather than help, American agriculture (Meyer, 2009). By reproducing glossy images of antiquated livestock production for the consumption of a television audience, commodity groups and their advertising partners may be propagating representations of an agrarian reality that no longer exists—one that is highly discordant with modern agriculture (“Happy Cow commercials,” 2009).

CMAB’s “Happy Cows” campaign exemplifies this conundrum. The advertisements’ hyper-realized settings, including the ubiquitous green pastures and rustic barnyards, draw upon traditional images of farming and encourage viewers to link animal “happiness” and restraint-free “lifestyles” —a serious issue for an industry in which the majority of animals are raised in some type of confinement system (Rollin, 2009). A recent animal-welfare survey conducted by researchers at Ohio State University found that a number of respondents identified livestock, including cattle, hogs, and poultry, in free-range settings as “happy” or “happier” than those shown in conventional housing systems (Goodwin & Rhoades, 2010). Such application of human attributes to animals shows a disconnect between traditional views of farm animals as food and the

growing trend of treating livestock as autonomous entities capable of human thought and emotion.

In an attempt to present a softer side of agriculture to consumers, some commodity groups and organizations have played upon the public's preconceived notions of farming and its practices to conceal some of the industry's less savory aspects (Rollin, 2009). By propagating the "agrarian myth," the industry has opened itself to criticism from animal-rights and consumer advocates, who argue that such advertising qualifies as deceptive and untrue, thus undermining agriculture's integrity in the eyes of the buying public. In order to protect its reputation and role in society, the industry must take great care in developing messages and images for public consumption that tell a positive, honest tale of food from pasture to plate.

Limitations of the Study

Prior to conducting the study, several limitations were identified. First, the study examines the representation of dairy cattle and dairy husbandry methods in television commercials, specifically the "Happy Cows" advertising campaign. Due to the high degree of medium specificity, the results of this research may not be applicable to other forms of television programming, such as entertainment programs, news shows, or educational materials. Because the products promoted in this campaign—California cheese and fluid milk—are clearly tied to agricultural practices, further research into the portrayal of animal husbandry in advertisements for non-agricultural products may be necessary to avoid the fallacious application of these results to dissimilar messages.

The choice of medium for this study also bears scrutiny. Investigation of the media share that television currently controls reveals a downward trend in advertising sales from the 1980s. In 2007, *Advertising Age* reported that television's advertising share had declined 8 percent from its reported 67 percent holding in 1980, indicating that its relative importance in the media mix has waned since the advent of the Internet (Johnson, 2007). Digital video recorder (DVR) technology has also changed television commercial advertising. DVRs allow viewers to "zap" through commercials as they watch programs, leading to what scholars refer to as "advertising avoidance" (Wilbur, 2008, p. 143). As of 2007, 17 percent of television-owning households were utilizing this equipment, leading to a drop in commercial revenue and an increase in marketing methods such as product placement (Wilbur, 2008).

Another restriction of the study can be found in the sampling of research participants. The sample was gathered from a population of undergraduate students at a large public university, bounding the age-range of the majority of participants between 18-24 years. Participants self-selected to complete the study in exchange for entry into a drawing for \$10 iTunes gift cards. The nature of the sample limited the application of the research results to college students of similar age groups and educational levels as those who responded to the survey.

As with all survey research, the instrument utilized to gather data must be scrutinized for its contributions and constraints. The questionnaire was developed to gauge the affective response of participants to the advertisements under investigation, and the instrument was reviewed by several persons to reduce question bias and clarify language and field-tested for validity.

Definition of Key Terms

Agrarian Myth: Belief that the most desirable form of community is found in rural, specifically agrarian, village life, where fundamental Western values (such as strong work ethic, independence, and integrity) are supposedly fostered (Appleby, 1982)

Agricultural Awareness: The ability to identify the connections of agriculture to areas of study or life (Knobloch, 1997; Knobloch & Martin, 2000)

Connotative Meaning: The “second layer” of visual semiotic meaning; broader concepts, ideas and values represented by an image (Van Leeuwen, 2001)

Cultivation: Theory that television viewership is associated with a tendency to hold conceptions of reality consistent with those propagated by the medium (Gerbner, 1998)

Denotative Meaning: The first layer of meaning in visual semiotics; the literal or dictionary definition of an image (Van Leeuwen, 2001)

Dissonance: A negative state that occurs when an individual holds two psychologically inconsistent cognitions, or ideas, beliefs, or opinions (Berkowitz, 1969)

Humanization: Representation of animals or non-sentient objects as possessing human abilities, such as speech, thought, and emotion (Lerner & Kalof, 1989)

Knowledge Gap: Theoretical divide in information-gathering ability between audiences of high and low socioeconomic status and/or motivation (Tichenor et al., 1970)

Mainstreaming: Consistency of audience beliefs and values influenced by the accumulation of television messages (Shanahan & Morgan, 1999; Bryant & Miron, 2004)

Schema: Cognitive memory structures that process and store information and generate expectations about future events and actions (Allen, Dawson, & Brown, 1989)

Schema Congruity: Degree of correspondence between a portrayal in an advertisement and the configuration specified by a consumer's schema or beliefs (Feiereisen, Broderick, & Douglas, 2009)

Uses and Gratifications: Subtradition of media effects that posits that audiences actively seek media content to fulfill certain psychological and social needs, such as surveillance and diversion (Papacharissi & Mendelson, 2007; Ruggiero, 2000)

Visual Imagery: Holistic, sensory method of encoding, processing, and evoking information (Gamson, Croteau, Hoynes, & Sasson, 1992)

Chapter 2: Review of the Literature

Prior to the start of the study, a review of literature was conducted to provide background information about historical and contemporary issues and concerns related to the following subject areas: History and Application of Cultivation Theory; Knowledge Gap Theory and Its Agrarian Function; Visual Imagery in Television Advertising; and Uses and Gratifications of Television and Commercial Advertisements. These areas of inquiry served as a framework for the development of the study and the literature review.

History and Application of Cultivation Theory

Cultivation History and Criticism

Cultivation theory is defined by Shanahan and Morgan (1999) as the idea that “watching a great deal of television will be associated with a tendency to hold specific and distinct conceptions of reality, conceptions that are congruent with the most consistent and pervasive images and values of the medium” (p. 3). The Cultural Indicators project, which yielded the first signs of cultivation effects, was developed in the 1960s by telecommunications researcher George Gerbner. Gerbner’s study came in response to the growing pervasiveness of television in American homes and public concern with the possible effects of widespread media violence, including coverage of the John F. Kennedy, Martin Luther King, and Robert F. Kennedy assassinations

(Weimann, 2000; Shanahan & Morgan, 1999). The project, which was intended to identify, measure, and monitor characteristics of American society, was funded by the National Institute of Mental Health and focused on the content of primetime and weekend-daytime network dramas (Weimann, 2000; Gerbner, 1972; Gerbner & Gross, 1976).

Gerbner and his team discerned high levels of violence that were incongruent from reality (Bryant & Miron, 2004). Subjects who watched more television reported more consistent views and attitudes—a singularity the researchers dubbed “mainstreaming” —and tended to have more pessimistic perceptions of reality, an effect Gerbner named “mean world syndrome” (Bryant & Miron, 2004, p. 689). This long-term, cumulative-effects research conflicted with the more immediate “hypodermic needle” model championed by early communication researchers like Harold Lasswell (Weimann, 2000; Bineham, 1988), and it gave more credence to direct media influence on viewer beliefs and attitudes than Katz and Lazarsfeld’s famous “two-step flow” model of communication effects (Berger, Roloff, & Roskos-Ewoldson, in-press).

Though cultivation continues to be a prominent and highly publishable field of study, the theory is not without its critics (Bryant & Miron, 2004). According to Shrum, Wyer, and O’Guinn (1998), cultivation criticism hinges upon two elements: First, cultivation studies are correlational in nature, opening study results to alternative explanations. Such explanations include possible third-variable influence and causal directions opposite those predicted by the theory. However, as Shanahan and Morgan (1999) note, cultivation studies do not attempt to establish *causality*. Instead, cultivation researchers focus on the complex relationships among social influences, personal

contexts, and media consumption, which cannot be simplified into “chicken-and-egg” scenarios (Shanahan & Morgan, 1999, pp. 32-35). Second, cultivation is viewed as a “black box” theory, one that examines the effects of a communication phenomenon without identifying its causes. The lack of underlying psychological processes undermines cultivation theory as an exact communication science (Shrum, Wyer, & O’Guinn, 1998). Also, as Quick (2009) observes, cultivation “treats television messages as a coherent system of stimuli spanning all genres and programs” (p. 41), a much more difficult premise to substantiate today – with the advent of online broadcasting, cable and satellite television, digital video recorders (DVRs), and highly segmented and specialized programming – than in the 1960s (Quick, 2009).

Cultivation’s Tenets and Mechanisms

Cultivation theory is based on the idea that television “presents a systematic distortion of reality” that influences its audience’s perceptions of their social environment (Shrum, Wyer, & O’Guinn, 1998, p. 448; Weimann, 2000). Gerbner (1998) describes communicative transactions as “story-telling” —versus the more common “information exchange—and believes that the “stories of a culture reflect and cultivate its most basic and fundamental assumptions, ideologies, and values” (Shanahan & Morgan, 1999, p. 13). Cultivation researchers believe that society’s “stories” are increasingly “mass produced” in today’s world of advanced communication technology by a small group of “distant conglomerates with something to sell” (Gerbner, 1998, p. 176).

Television represents an ideal vehicle for cultivation because, as Gerbner, Gross, Morgan, and Signorielli (1986) note,

Television is a centralized system of storytelling. It is part and parcel of our daily lives. Its drama, commercials, news, and other programs bring a relatively coherent world of common images and messages into every home. Television cultivates from infancy the very predispositions and preferences that used to be acquired from other primary sources.

Transcending historic barriers of literacy and mobility, television has become the primary common source of socialization and everyday information. (p. 18)

Essentially, television has replaced traditional sources of social storytelling, such as families, educational systems, churches, and neighborhoods, as means of socialization due to its ubiquity, its homogeneity, and its inaccurate if seemingly accordant portrayal of reality (Gerbner, 1998; O'Guinn & Shrum, 1997).

Gerbner and Gross (1976) note that mankind does not often differentiate between what is "real" and what is "realistic." Cultivation effects may be most profound when content is viewed as "realistic" by the audience, as fictional information may be compartmentalized and less accessible, and numerous factors influence that perceived reality (Quick, 2009; Busselle & Greenberg, 2000). Busselle and Greenberg (2000) identify six conceptual dimensions that viewers utilize to make judgments about program realism: television as a "magic window"; social realism; plausibility; probability; identity; and utility. Of these six dimensions, three pertain to this study: social realism, or the extent to which content, whether real or fictional, is similar to life in the real world; plausibility, or the extent to which something observed on television could exist in the

real world; and probability, or the likelihood that something observed on television existing in the real world and the frequency with which it occurs (p. 257).

Shrum, Wyer, and O'Guinn (1998) cite a possible mechanism for the cultivation effect: availability heuristics. This cultivation model suggests that television viewership essentially acts as a "natural prime" for audiences by "increase[ing] the accessibility of instances of those things that are often encountered in television programs (e.g., crime and violence)" (Shrum, Wyer, & O'Guinn, 1998, p. 448; Buselle, 2001). Such memory traces are automatically stored and can be recalled (Harris, 2004). The recency and frequency of television tropes involving social issues impact heavy viewers more than light viewers—those who watch television often are more easily able to remember pertinent exemplars concerning those problems than those who do not (Shrum, Wyer, & O'Guinn, 1998).

Television also functions by "mainstreaming," or "cultivating common perspectives" (Shanahan & Morgan, 1999, p. 85). As a medium, television transcends traditional literacy and mobility barriers and provides a link between the elite and the general populace unseen in human society since religion predominated the preindustrial era (Gerbner & Gross, 1976; Shanahan & Morgan, 1999). Television content tends toward traditional and even stereotypical portrayals of social reality, despite the popular belief that broadcast media present atypical or nonconformist life situations as "role models" (Robinson & Skill, 2001, p. 141). Indeed, the mainstreaming effect "pulls deviants from both directions back to the middle" (Harris, 2004, p. 29).

Cultivation theorists "assum[e] that [mainstreaming] is the 'effect' of the accumulated messages, creating a more homogenized group experience of the world that

brings individuals' perspectives closer together" (Shanahan & Morgan, 1999, p. 89). Heavy television viewing overrides "differences associated with the varied cultural, social, and political characteristics of various groups and individuals," causing "people from successive generations and groups [to] become enculturated by television's reconstructed world" (Weimann, 2000, p. 45). These viewers are more likely to provide "television answers" to questions about society, including overstating the amount of violent crime in American society and overestimating the number of males working in law enforcement (Weimann, 2000).

Contemporary Applications of Cultivation Theory

Gerbner and his colleagues developed cultivation theory with the mindset that storytelling via television is an inherently market-driven enterprise, and that bottom-line approach affects the medium's dramas, news, and even commercials (Gerbner, 1998). Cultivation has been used to study media portrayals of and societal effects on family values, sex roles and sexuality, and ethnic, religious, and occupational groups (Shanahan, Signorielli, & Morgan, 2008; Morgan & Leggett, 1999). The theory has also been applied to specific genres and programs and their effects on perceptions of the real world and societal values.

Research has been conducted about television commercial advertisements and their possible influence on the beliefs and attitudes of young people. Signorielli and Staples (1997) hypothesized that television commercials featuring unhealthy foods, such as fast food, candy, and soft drinks, would, over time, lead to a tendency toward poor food choices and cultivate misconceptions about the health benefits of those food choices. A survey conducted among fourth- and fifth-grade students revealed that

television viewership among the sampled children correlated positively with a preference for unhealthy foods ($\beta = .267, p < .001$). The amount of television watched also correlated significantly with students' tendency to perceive less nutritious food options as healthier ($\beta = .177, p < .001$). The study provides some insight into the cultivation power of television commercials in defining adolescents' perceptions of social reality and issues like nutrition.

Television viewing may lead to unrealistic expectations of real-world situations. Larson (1996) studied the impact of soap-opera viewership on teenagers' beliefs about single parenthood. Larson notes that single parenthood, especially among teenagers, has serious financial and psychological consequences, including reduced income and increased risk of emotional disturbance (1996, p. 101). Based on Larson's results, adolescent soap-opera viewers were more likely to provide "television answers" to questions about the lifestyle of single mothers, including leisure time, living situation, and perceived financial status. If, as Larson (1996) suggests, "heavy viewers believe that these portrayals do reflect reality" (p. 99), then inaccurate media portrayals of social issues could have serious consequences for future beliefs and behaviors among young television viewers.

According to Segrin and Nabi (2002), television viewership may also contribute to unrealistic expectations of marriage among younger audiences. Romanticized or idealistic expectations of one's marital situation—including "mind-reading," sexual perfectionism, and destructive disagreement—are negatively associated with satisfaction, and those beliefs may be tied to television consumption (Eidelstein & Epstein, 1982; Epstein & Eidelstein, 1981). A lack of salient role models could make young people

vulnerable to idealized portrayals of romantic love and marriage, and Signorielli (1991) argues that “television may be the single most common and pervasive source of conceptions and action related to marriage and intimate personal relationships for large segments of the population” (p. 121; Segrin & Nabi, 2002; Jones & Nelson, 1996).

Though overall television consumption had little affiliation with relationship expectations, Segrin and Nabi established a significant positive correlation between viewership of romance-themed television content, such as romantic comedies and soap operas, and a preference for a romantic, passionate style of love ($\beta = .15, p < .05$). Such thematic content also displayed a positive relationship to expectations of intimacy ($\beta = .23, p < .01$). In addition, study participants who reported watching relationship-themed television programs also indicated that they spent significantly more time fantasizing about marriage ($\beta = .39, p < .001$). The cultivation of such idealizations of marital relations, Segrin and Nabi argue, can lead to increased dissonance between romantic fantasy and reality and may contribute to the high rate of divorce endemic in modern society (Segrin & Nabi, 2002; Demo & Ganong, 1994; Baucom, Epstein, Daiuto, Carels, Rankin, & Burnett, 1996).

Cultivation research also reveals information about the development of occupational stereotypes. Quick (2009) studied the impact of viewing the ABC primetime medical drama *Grey's Anatomy* on viewers' perceptions and expectations of doctor behavior in real-life situations. Medical programs are considered by cultivation researchers to be fertile ground for media effects, as viewers often have limited experience in this context. This inexperience may enhance the credibility of a show's

depiction of doctors as viewers lack adequate examples to compare the validity of its portrayals (Quick, 2009; Pfau & Mullen, 1995).

Quick indicated a significant link between *Grey's Anatomy* viewership and the show's perceived credibility ($\beta = .35, p < .001$), which the author credited to the audience's unfamiliarity with the everyday activities of the show's setting, a teaching hospital (Quick, 2009). This finding has real-world ramifications, as those who rated *Grey's Anatomy* as highly credible also assigned an important character trait—courageousness—to actual medical practitioners ($\beta = .28, p < .001$) (Quick, 2009). The results of Quick's investigation provided a framework for this study, as agriculture, like medicine, presents a largely unfamiliar context in which cultivation may take hold.

Knowledge Gap Theory and Its Agrarian Function

History of Knowledge Gap Theory

In the middle decades of the 20th century, social scientists believed that the resolution of major social problems was enabled by inputs of information: "If a system is sufficiently saturated with information...a general understanding of the topic will develop within the system" (Donohue, Tichenor, & Olien, 1975, p. 3; Kang, 2005). The knowledge gap hypothesis, first published in 1970, was developed by Tichenor, Donohue, and Olien and strongly refuted the prevailing views of the time. Tichenor, Donohue, and Olien's work was based upon four previous studies: a 1966 news diffusion investigation; public opinion polling data on three science topics; a study investigating the impact of newspaper strikes on community knowledge; and the authors' 1968

research of two Minnesota cities measuring news recall (Gaziano, 1983; Tichenor, Donohue, & Olien, 1970).

In its simplest form, the knowledge gap theory explicated by Tichenor et al. (1970) states,

As the infusion of mass media information into a social system increase, segments of the population with higher socioeconomic status tend to acquire this information at a faster rate than the lower status segments, so that the gap in knowledge between these segments tends to increase rather than decrease. (pp. 159-160)

The authors do not insist that societal segments with lower socioeconomic status (SES) remained uninformed, but affirm that the differential rate of knowledge accumulation is greater for those of higher SES (Tichenor et al., 1970). In some studies, SES is measured by education; in others, socioeconomic status is indexed by other elements of “social location,” such as gender (Fredin, Monnett, & Kosicki, 1994).

Gaziano (1983) notes that topic publicity also influences the development of knowledge gaps and identifies two predictions that Tichenor’s team asserted regarding the nature of knowledge gaps and mass media coverage. First, acquisition of knowledge of a topic heavily publicized by mass media will, over time, proceed at a faster rate among better educated persons. Second, at any given point in time, a higher correlation between knowledge acquisition and education for highly publicized topics will be found (Gaziano, 1983; Tichenor et al., 1970). These additional hypotheses have been examined by subsequent studies (Bailey, 1971; Neuman, 1976; Gaziano, 1983).

Message Attention, Motivation, and the Knowledge Gap

More recent experimental knowledge-gap studies utilizing information-processing theories have expanded upon the time-tested survey approach utilized by earlier research and furthered the notion that message arousal and motivation have great impacts on knowledge gap formation (Grabe, Lang, Zhou, & Bolls, 2000; Grabe, Yegiyani, & Kamhawi, 2008). Such experiments demonstrate a movement from societal-level knowledge gap study to more micro-level analysis of individual factors in knowledge gap formation (Kang, 2005).

Among the theories tested is the limited capacity model of mediated motivated message processing (LC4MP), which provides a theoretical “scaffolding” for studying the knowledge gap phenomenon (Grabe et al., 2008; Lang, 2000; Shiffrin & Schneider, 1977). According to LC4MP, “limited cognitive resources are shared between three simultaneous subprocesses of memory formation: information into working memory (*encoding*), linkage of newly encoded information to existing memories (*storage*), and concurrent activation of information that has been previously stored (*retrieval*)” (Grabe et al., 2008, p. 551). Information processing may be constrained by overload, which occurs when incoming messages demand too many cognitive resources, or underengagement, when stimuli cannot elicit the resources necessary for processing (Grabe et al., 2008).

Arousing media content is often characterized as containing compelling content and packaging features and has been shown to increase resource allocation, attention, and memory across media genres (Grabe et al., 2008; Diao & Sundar, 2004; Grabe & Kamhawi, 2006; Grabe, Lang, & Zhao, 2003; Lang, Potter, & Grabe, 2003). Message arousal is often considered a motivational impetus for knowledge acquisition, “something

that has widespread salience and that acts as a *volitional* trigger to information gain” (Grabe et al., 2008, p. 553). Ettema, Brown, and Kline (1983) contend that motivation for attention is perhaps the most important element of unequal knowledge gains among social segments, noting that “gaps widen when there is a difference in motivation among population segments. Gaps narrow or do not open in the first place when motivation is equalized” (p. 519). They also suggest that motivation could “overpower” educational variance in facilitating knowledge acquisition (Ettema et al., 1983).

Ettema and Kline (1977) challenge Tichenor and colleagues’ assertion that SES as measured by education is the primary causal factor for knowledge acquisition. Instead, they believe that informational functionality may affect acquirement, arguing that “gaps in knowledge may emerge not because of differences in education per se but because of differences in motivation and salience for the information. If information is perceived to be functional by members of a social system...then education-based knowledge gaps are less likely to occur” (Viswanath, Kahn, Finnegan, Hertog, & Potter, 1994). Information deemed relevant to a social group, therefore, will be processed, while information that is viewed as less salient or useful will be less attended to (Viswanath, Kosicki, Fredin, & Park, 2000).

Ettema and Kline “suggest that the relationship between knowledge and socioeconomic status (usually indicated by education) is probably due less to a deficiency of information processing skills on the part of lower SES population segments than to differences between higher and lower SES segments in interest and use for the information being disseminated” (Ettema et al., 1983, p. 517). Ettema and Kline’s assumption was generated from the findings of several studies in which lower-SES

groups reported *greater* knowledge gains from health and agriculture campaigns than higher-SES groups, perhaps because the information disseminated was of greater use and importance for those in poorer, less educated social segments (Shingi & Mody, 1976; Galloway, 1974; Ettema et al., 1983). These studies form a knowledge gap framework different from that developed by Tichenor et al. (1970): one in which “motivation (whether defined as salience, interest, involvement, or functionality) may overcome education as a determinant of knowledge” (Viswanath et al., 1993).

Toward an Agrarian Knowledge Gap

American agriculture has been in constant, shifting development since the early 17th century (Cochrane, 1993). Following the establishment of the Jamestown Colony in 1607, settlers struggled for survival, dividing their time between protecting themselves from disease and hostile native tribes and collecting and producing food (Cochrane, 1993). The expansion of colonialism led to the development and cultivation of cash crops, such as tobacco and corn, that could be sold for profit – shifting the American agrarian landscape from subsistence to surplus between 1640 and the advent of the American Revolution (Cochrane, 1993). Westward expansion, too, contributed to the growth of large-scale production operations as land was offered at low prices to settlers traveling beyond the Appalachian Mountains (Cochrane, 1993). By the 1790s, 90 percent of the fledgling nation’s labor force worked in the agricultural sector (“Farmers & the Land,” n.d.).

Since the agrarian heyday of the late 18th and early 19th centuries, advances in farming technology and improvements in husbandry changed the nature of food production in the United States (“Farm Machinery & Technology,” n.d.). Innovations like

John Deere's steel plow, the McCormick reaper, and practical mowers encouraged the growth of industrial farming in the mid-1900s. At the turn of the 20th century, worker productivity skyrocketed as machines, such as the gasoline tractor, were substituted for traditional man- and horsepower (Cochrane, 1993; "Farm Machinery & Technology," n.d.). By the 1930s, the labor required to produce 100 bushels of corn and wheat had fallen to 15-20 hours, a fraction of the 250-300 hours necessary only a century before ("Farm Machinery & Technology," n.d.). The development of commercial fertilizers—potash, phosphate, and nitrogen—and pesticides also led to soaring yields per acre, allowing farmers to supply more people than ever before (Cochrane, 1993). At the same time, the population of farmers contributing to the American labor force also declined dramatically, from 69% in the 1840s to 21% by 1930 to a mere 4.6% by 1970 ("Farmers & the Land").

Because of increased productivity, the number of farms operating in the United States has steadily decreased since World War II (USDA, 2009c). According to the 2007 USDA Agricultural Census, major agricultural sectors, including grains, hogs and cattle, and horticulture, suffered losses in operation numbers between 2002 and 2007. At the same time, small "hobby" farms—those whose sales total less than \$1,000 and that typically cover less than 200 acres—and large-scale operations with sales over \$500,000 saw slight increases, indicating that traditional 400-acre "family farms," while still the majority of American operations, may be declining in favor of these vastly different competitors (USDA, 2009c).

As farm numbers fall and operation types diverge, agricultural demographics also shift. First, the average age of farm operator has gradually risen from 55.3 in 2002 to 57.1

in 2007; this statistical trend has been observed in census data since 1978 (USDA, 2009b). In addition, the number of principle farm operators over the age of 75 has grown by 20 percent since 2002, while the number of operators under the age of 25 slipped by 30 percent over the same time span (USDA, 2009b). Second, farming is decreasing as a primary source of income for many agriculturalists. Approximately 1.2 million of the nation's 2.2 million farms rely on non-farm income to cover farm expenses, and 65 percent of operators work off the farm to support their annual incomes, a 10-percent increase from 2007 (USDA, 2009b).

The declining involvement of the American populace in agriculture and food production has powerful ramifications related to knowledge gap research. If, as Ettema and Kline (1970) and Viswanath et al. (2000) posit, information functionality is key to both attention motivation and knowledge acquisition, the profound decrease in the number of citizens active in agriculture and the constant change in farm design, agricultural technology, and husbandry practices could theoretically reduce the perceived necessity of acquiring knowledge related to the field. Such changes could lead to a knowledge gap based, not on education or other SES indicators, but on experience with and interest in agriculture (Doerfert, 2003; Frick, Birkenholz, Gardner, & Machtmes, 1995; Pope, 1995; Frick, Kahler, & Miller, 1991). Agriculture professionals fear that such a gap could become especially dangerous in an era when agricultural issues like migrant labor, food safety, biotechnology, environmental pollution, and animal cruelty become both front-page news and referenda-based political issues (Harris & Birkenholz, 1996).

Visual Imagery in Television Advertising

Visual Imagery and Its Theoretical Implications

Visual imagery “has been assumed to be inherently less ambiguous than verbal messages, and images are perceived as more or less universal” (Bulmer & Buchanan-Oliver, 2006, p. 50). Gamson et al. (1992) classify imagery as “reproductions...a mental picture of something not real or present,” similar to Baudrillard’s (1988) argument that the explosion of the technology of visual reproduction has stimulated the “implosion” of representation and reality, leading to the creation of a reality independent of experience. Visual imagery is defined by Bone and Ellen (1992) as “a holistic, sensory method of encoding, processing, and evoking information” (p. 93).

Imagery may be processed in several ways; among the most widely accepted are availability valence and dual coding. The availability valence hypothesis states that “attitudinal judgments depend on the favorableness of information accessible in memory” (Kisielius & Sternthal, 1986, p. 418). “Availability” refers to the “ease with which an association can be accessed from memory” and is at least partially influenced by cognitive elaboration, while “valence” represents the favorableness of an association and is linked to attitudes and judgments (Kisielius & Sternthal, 1986, p. 420). Dual coding theory posits that there are two independent but connected subsystems that operate within memory: a verbal subsystem and a visual subsystem, both of which process information in different formats (David, 1996, p. 805). For example, the verbal system “engages in serial processing because it is more specialized to represent language”; the visual subsystem is “attuned to parallel processing because pattern recognition of images is better served with parallel processing” and is able to preserve analog information (David,

1996, p. 805). Under certain conditions, the verbal subsystem is capable of triggering imagistic processing, thus linking it closely to its visual counterpart (David, 1996).

Bone and Ellen (1992) note that both hypothetical processes were developed in order to explain how imagery influences attitude formation and behavioral intentions, and the availability-valence and dual-coding hypotheses stimulate attitude and behavior change in a similar manner. Judgments are shaped by the information that is most readily available when those judgments are made, and visual imagery is conducive to strong influence because information processed through images is more likely to be available because it readily activates information structures to induce elaboration and is more likely to be stored in two forms (semantic codes and visual images) (Bone & Ellen, 1992; Kisielius & Sternthal, 1984; Kisielius & Sternthal, 1986; Unnava & Burnkrant, 1991).

Bone and Ellen (1992) posit that two elements of television advertising influence consumers' abilities to process pertinent information: focal character and plausibility. Advertisement's focal character impacts imagery processing by making commercial content self-related: A consumer imagining himself or herself engaging in behavior similar to that of the focal character is more likely to develop organized, vivid schemata. Plausibility, or the likelihood of a viewer finding himself or herself in a situation like that presented in an advertisement, increases the probability of information processing because viewers are more familiar with ordinary situations and can recall more relevant associations with well-known contexts (Bone & Ellen, 1992).

Visual imagery utilized in television advertisements may be conceptualized as "an indeterminate semiotic resource that becomes meaningful according to the cultural lens used by the viewer" (Bulmer & Buchanan-Oliver, 2006, p. 52; Holt & Mulvey, 1997).

Cultural codes, or “culturally shared associations, expectations, and strategies of interpretation” (Hirschman & Thompson, 1997, p. 45), develop from early childhood and provide understanding of how to read the symbolic meanings embedded in media images (Boush, 2001). In theory, viewers with shared cultural backgrounds will derive similar denotative information from an advertisement, but connotative meanings are recovered through a combination of linguistic coding and non-linguistic knowledge. These interpretations, therefore, may be “variable and idiosyncratic...perhaps resembling the intention of the advertiser, but by no means identical to it” (Bulmer & Buchanan-Oliver, 2006, p. 52). While CMAB may have intended its advertising scheme to represent agricultural unreality, audiences with different cultural contexts may fail to identify it as such.

Idealization of Visual Images in Advertising

Advertising is often considered a “mirror” of society, but it is nonetheless a distorted mirror (Gulas & McKeague, 2000, p. 17). Advertising imagery promotes cultural ideology through continuous exposure to “prototypic expectations about the consumption patterns (e.g., dress, food preferences, leisure activities, appearance) characteristic of persons” (Hirschman & Thompson, 1997, p. 44). According to Bulmer and Buchanan-Oliver (2006), “consumers project fantasies into commercials and receive fantasies from them, reworking advertising content in an inner conversation” (p. 53). As Richins (1991) notes, television advertising tends to portray an idealized version of reality incongruent with the real world experienced by consumers, populated by thin, beautiful characters with unparalleled wealth. These idealized images, some scholars argue, lead to negative social comparisons as viewers denigrate their own realities by

weighing them against the constructed “unreality” of commercial advertisements (Richins, 1991; Belk & Pollay, 1985; Freedman, 1984; Snow & Harris, 1986).

Advertising images may also help relieve the effects of such negative evaluations of reality by implicitly promising that products can aid consumers in progressing to the desired, ideal state (Hirschman & Thompson, 1997).

One area of imagery research focuses on the production of stereotypes in commercial advertisements, which are “rife with...images that do not reflect reality” (Weimann, 2000, p. 127). According to Kim and Lowry (2005), advertisers believe that “the use of stereotypes makes it easier to communicate to a target audience and to sell their products than the use of multiple, realistic values and beliefs would” (pp. 901-902). Thus gender representations are often skewed in television commercials: Women are shown in narrowly defined roles, such as housewives, and are generally placed in domestic settings like kitchens or bathrooms to sell housekeeping products, personal hygiene items, and cosmetics, while men predominate commercials for cars, trucks, and gasoline (Weimann, 2000; O’Donnell & O’Donnell, 1978; Busby, 1975; Courtney & Whipple, 1974). Researchers have demonstrated that heavy television viewership tends to correlate positively with subjects’ acceptance of stereotypical sex roles, perceptions of masculinity and femininity, and agreement with traditional family values among both children and adult viewers (Kim & Lowry, 2005; Kimball, 1986; Volgy & Schwartz, 1980; Pingree, Starrett, & Hawkins, 1979; Ross, Anderson, & Wisocki, 1982).

Talking Animals and Schema Congruity

Animals have long held great material, emotional, and symbolic value for human beings, and the strong ties between man and beast have been exploited throughout history

in various media (Spears, Mowen, & Chakraborty, 1996). From the earliest days of human narrative, animals have been utilized as symbols of mankind's qualities, and "they form the basis for 'an inexhaustible repository which novelists, poets, artists, dramatists, film makers, and even advertisers draw on...when they wish to evoke an immediate yet profound response'" (Spears et al., 1996, p. 88; Rowland, 1973). Major social issues, like slavery, misogyny, domestic violence, and sexual abuse, are often explained in animal metaphor, forging strong ties between nature and the human condition (Lerner & Kaloff, 1999). The majority (92%) of the more than 69 million pet owners in the United States view their pets as family members, capable of "providing opportunities for deeply involving experiences; for example...to be altruistic and nurturing" (Lancendorfer, Atkin, & Reece, 2008, p. 385).

Used in advertisements as mascots for products and services, animals serve as examples of "social symbols" in non-human form (Spears et al., 1996), and consumers' awareness of brands with animal-based advertising is higher than those endorsed by celebrities (Lancendorfer et al., 2008). Animals generally serve two major functions in the realm of advertising: Animals either symbolize valued and desired qualities, such as loyalty and strength, or are involved in relationships with people and enjoy human attentions (Lerner & Kaloff, 1999). Lerner and Kaloff (1989) also identify six primary themes in the portrayal of animals in advertisements: as loved ones, as symbols, as tools, as allegories, as nuisances, and as part of nature (Lancendorfer et al., 2008).

The humanization and anthropomorphism of non-human characters imbues those animals and objects with human characteristics and have been used as advertising devices for decades (Lerner & Kaloff, 1989; Spears et al., 1996; Aggarwal & McGill, 2007).

Humanized animal characters behave like animals but possess human abilities, such as speech, cognitive thought, and discrete emotions. Anthropomorphized characters, on the other hand, are “animal[s] presented in human form,” complete with clothing, human smiles, or expressive eyebrows (Lerner & Kaloff, 1989, p. 568; Spears et al., 1996). Aggarwal and McGill (2007) identify three types of anthropomorphism: *partial*, *literal*, and *accidental*. *Partial* anthropomorphism occurs when people view objects and events as possessing human characteristics but not as “human” entities. People *literally* anthropomorphize when they believe an animal or object is actually a person. *Accidental* anthropomorphism results when people see elements of the human form in inanimate objects but believe the phenomenon to be coincidental (Aggarwal & McGill, 2007, p. 469).

Both humanization and anthropomorphism are closely linked to the cultural codes of animals’ symbolic meanings, and their use in advertising has been shown to enhance consumers’ positive opinions of products and services (Aggarwal & McGill, 2007). For example, anthropomorphized ants in an advertisement may represent a company’s energy and industry, and Borden’s famous Elsie the cow, with her daisy necklace, apron, and wide smile, has come to symbolize “wholesome country living and freshness” (Spears et al., 1996, p. 88).

Cognitive Schematics and Schema Activation

Animal anthropomorphism is closely linked to the concept of cognitive schematics. Schema are cognitive memory structures that “actively process and store information and generate expectations about future events and actions” and contain an individual’s general knowledge about stimuli, which is often generic and abstract (Allen

et al., 1989, p. 83; Smith, Houston, & Childers, 1985). Cognitive schemata are utilized in belief systems, which process, store, and organize the information collected from the social environment and focus perceptions of social reality (Allen et al., 1989). According to Smith et al. (1985), schematic memory affects the synthesis of visual images through a cyclical processing model based upon the premise that visual imagery and schema are intimately related. In this model, a schema is activated by a stimulus, which in turn provides an information database that generates a dynamic surface image. Because the process is theorized as cyclical, the surface image may be continuously refined through the gleaning of information from the schematic database, resulting in more vivid image synthesis (Smith et al., 1985, pp. 17-18).

Schema congruity is another important element in understanding how visual imagery can affect attitudes and judgments. Schematic congruity refers to “the extent to which correspondence is achieved between the configuration of a...portrayal in an advertisement and the configuration specified by a consumer’s schema or beliefs” (Feiereisen, Broderick, & Douglas, 2009, p. 814). According to congruity theory, advertising portrayals that are congruent with consumer schemas tend to generate more positive attitudes than incongruent portrayals (Feiereisen et al., 2009; Orth & Holancova, 2004). Advertisers, therefore, seek to capitalize on consumers’ tendency to anthropomorphize products and brands by presenting spokes-characters that fit into their target markets’ cognitive schemas related to the products, characters, or commercial context (Aggarwal & McGill, 2007).

Aggarwal and McGill (2007) studied the connection between consumers’ liking for a product and the “perceived fit between the features of the product and an activated

human schema” (p. 469). They hypothesized that when “marketers encourage consumers to anthropomorphize a product, consumers bring to mind their schema for the type of person suggested and that the product is evaluated in part by how well its features fit that schema” (Aggarwal & McGill, 2007, p. 469). The results of their study supported the hypothesis: Participants’ ability to anthropomorphize products depended on the schema in which products were presented and the presence or absence of product features that are human-like, and anthropomorphism impacted subjects’ evaluations of the product. In addition, participants were more likely to anthropomorphize products when their features were congruent with an activated human schema, and product evaluations were affected by the degree of satisfaction from product feature congruence with the activated human schema (Aggarwal & McGill, 2007, p. 477).

Uses and Gratifications of Television and Commercial Advertising

History, Precepts, and Criticisms of Uses and Gratifications Theory

According to Ruggiero (2000), “early in the history of communications research, an approach was developed to study the gratifications that attract and hold audiences to the kinds of media and the types of content that satisfy their social and psychological needs” (p. 3; Cantril, 1942). This line of research, dubbed “uses and gratifications” (U&G) theory, stemmed from the media effects tradition that studied the impact of the new “mass media”—in the guise of radio and large-market newspapers—on early 20th-century audiences (McQuail, 1994; Ruggiero, 2000). Forerunners of U&G research include Herzog’s (1944) surveys of housewives who listened to daily soap operas, which

revealed that gratifications from such media consumption included emotional release, fantasy, and information about the world (Weimann et al., 1992).

Understanding why audiences consume television content may provide insight into their perceptions of that content. Though many researchers regard the choice of medium as a passive or structural one (Comstock, 1980; Cooper & Tang, 2009; Webster, Phalen, & Lichty, 2006), the uses and gratifications approach “conceptualizes the audience as active and goal-directed when consuming media, and offers an understanding of how audience motivations, individual characteristics, and preferences link to media behavior” (Cooper & Tang, 2009; Ko, Cho, & Roberts, 2005; Roe & Minnebo, 2007). According to U&G theory, audiences possess awareness of their needs, evaluate available media channels and content, and select the medium that they believe will fulfill the gratifications they seek (Katz, Blumler, & Gurevitch, 1974; Nabi, Stitt, Halford, Finnerty, 2006; Palmgreen, Wenner, & Rosengren, 1985; Rubin, 2002).

Contemporary U&G research is grounded in five key assumptions. First, communication behavior is goal-directed, purposive, and motivated. Second, audiences initiate the selection and use of communication media to suit their needs and desires. Third, those needs and desires are mediated by a number of social and psychological factors. Fourth, communication channels compete with other “functional alternatives” for selection, attention, and use in gratifying needs and desires. Finally, people are generally considered the influential party in the audience-medium relationship (Papacharissi & Mendelson, 2007; Rubin, 1994). Following in Herzog’s theoretical footsteps, television researchers have found similar motivations, including surveillance, entertainment, personal identity, escape, and companionship (Kang & Atkin, 1999; Weimann et al.,

1992), and contemporary U&G motivation typologies incorporate diversion, or escaping from routines or for emotional release; social utility, or acquiring information for conversations; personal identity, or reinforcing attitudes, beliefs, and values; and surveillance, or learning about one's community, events, and political affairs (Ruggiero, 2000, p. 26).

Uses and gratifications researchers also delineate two types of media use: ritualized and instrumental (Papacharissi & Mendelson, 2007). Ritualized media use is based on habit, assumes that audiences use the medium to consume time or for escapism, and may involve a greater affinity for the medium itself (Cooper & Tang, 2009). Instrumental use, on the other hand, relates to the medium's informational function and the perceived reality of its content (Papacharissi & Mendelson, 2007; Rubin, 1994; Ruggiero, 2000). Cable television, with its surfeit of media content choices, was largely responsible for ushering in the debate between ritualistic or habitual television viewing and instrumental or goal-oriented use (Kang & Atkin, 1999; LaRose & Atkin, 1991; Rubin, 1994; Ruggiero, 2000).

Related to the idea of instrumental media use is media dependency theory, which states that "media influence is determined by the interrelations between the media, its audience, and society...[and that the] individual's desire for information from the media is the primary variable in explaining why media messages have cognitive, affective, or variable effects" (Ruggiero, 2000, p. 8; DeFleur & Ball-Rokeach, 1982). According to the theory, dependency is highest when goal satisfaction relies on information from media channels (Ball-Rokeach, 1985; Ruggiero, 2000).

Uses and gratifications theory has faced a number of criticisms throughout its history. Ruggiero (2000) identifies a number of primary concerns of U&G research. The theory's focus on audience consumption is often decried as too individualistic, making U&G difficult to apply to unstudied individuals or broader populations (Elliot, 1974). Uses and gratifications scholarship lacks denotative clarity among driving concepts such as needs, motives, behavior, consequences, uses, gratifications, and functional alternatives, and the very notion of an "active audience" capable of accurate self-reporting has been called "a little simplistic or naive" by communication scholars (Ruggiero, 2000, p. 12; O'Donohue, 1993; Severin & Tankard, 1997). Perhaps even more damning to U&G scholarship is the contention that the field is "vague and non-theoretical," relies on restating selective influence theories, and "offer[s] little more than a data collection strategy and lists of reasons why people attend to the mass media" (O'Donohue, 1993, p. 54; DeFleur & Ball-Rokeach, 1982; Severin & Tankard, 1997).

Uses and Gratifications of Advertising and Television Commercials

As scholarly perceptions of consumers have shifted from passive receivers of advertising content to active participants in the marketing realm, television advertising has also come under scrutiny from U&G researchers (Kwak, Andras, & Zinkhan, 2009; O'Donohue, 1993). New technology, such as the digital video recorder (DVR), allows television viewers to "opt in" or "opt out" of exposure to advertising content (Kwak et al., 2009). Such options do not mean, however, that advertising does not fulfill user needs; indeed, "consumers who go out of their way to seek out television and television ads may be more positively disposed to be influenced by exposure to the medium" (Kwak et al., 2009, p. 55).

O'Donohue (1993) undertook a study of young adults aged 18-24 to qualify their relationship with advertising in their everyday lives. Utilizing small-group discussion and one-on-one interviews with participants, O'Donohue compiled a typology of young people's advertising interaction based on "attitudes, interpretations and uses of advertising" (1993, p. 57).

Marketing uses information	Choice, competition and convenience Quality assurance/reassurance Consumption stimulation Vicarious consumption Added value
Structuring time	Structuring time
Enjoyment	Entertainment Diversion Escapism Play
Scanning the environment	Surveillance Familiarity Checking out the opposite sex Education
Social interaction	Family relationships Peer relationships
Self-affirmation	Reinforcement of attitudes and values Ego enhancement Aspirations and role models

Table 1. A categorization of advertising uses and gratifications

The author summarizes her findings:

Structuring time appears to be quite a distinctive use of advertising.

However, diversion, entertainment, play and escapism may all be

described as some form of enjoyment, while surveillance, familiarity,

education and checking out the opposite sex all seem to involve scanning the environment in some way. Family and peer relationship uses may be described in terms of social interaction. The remaining uses seem related to a sense of self. While ego enhancement and reinforcement of attitudes and values seem to involve self affirmation, aspirations and role models suggest a sense of self-transformation. (O'Donohue, 1993, p. 71)

Cultivation theory asserts that heavy television viewers tend to perceive the world around them as it is portrayed on television and in commercial advertising. The effect of cultivation is most pronounced when audiences are unfamiliar with the contexts presented. In the case of agriculture, the dwindling farm population and growing knowledge gap between those involved in the industry and consumers may encourage television viewers to perceive the idealized images presented in mass media as real portrayals of animal husbandry.

Chapter 3: Methodology

Television and its accompanying advertising can have a powerful impact on audience perceptions of social reality, shaping the ways in which viewers perceive the world around them. The effects of television viewership may be intensified when audience members lack knowledge or awareness of content, leading to stereotypes or exaggerated perceptions of that content's real-world ramifications. With a growing divide between society at large and those actively involved in production agriculture, describing the consequences of advertisers' portrayals of the industry may be helpful in correcting misconceptions about America's food system. The objectives of this study were:

1. To describe participants' television and advertising viewing habits and uses;
2. To describe participants' awareness of agriculture: specifically, their knowledge of modern production practices among dairy producers and their personal experiences with the industry;
3. To describe the affective response elicited by exposure to the "Happy Cows" advertising campaign among participants regarding quality of dairy husbandry, likability, and realism;
4. To compare participants' affective responses to the television campaign to those generated by images associated with modern dairy husbandry practices; and

5. To describe the potential relationships between media use and perceptions of the dairy industry.

Research Design

Subjects

The researchers sought to investigate the cultivation effects of the “Happy Cows” 10-year television advertising campaign upon perceptions of agriculture; thus, selecting a study population familiar with the campaign was paramount. Undergraduate students between the ages of 18-30 consume an average of 2.5 hours of television a day and report an average of 5 hours of daily Internet use (Loechner, 2009). In addition, a majority of college students (57.78%) utilize television as a source of both education and entertainment (Student Affairs Administrators in Higher Education [NASPA], 2008). These statistics indicate that a population of undergraduate college students offers an ideal level of familiarity with the campaign for the purposes of the study. The population of study participants, therefore, consisted of freshman and sophomore college students from a large Midwestern public university.

As random selection was difficult to ensure within the context of the research, study participants self-selected into the study. Participants were recruited from a population of undergraduate students enrolled in three introductory General Education Curriculum (GEC) courses in the university system: Introductory Biology, Introductory Chemistry, and Contemporary Issues in American Agriculture, a GEC writing course. The goal of the selection process was to develop a sample of students from diverse ethnic, socioeconomic backgrounds, and academic areas of study. The target sample of

300 participants was intended to provide a representative sample of the ethnic diversity of the university system: The campus from which the sample was collected reports a 14.4% minority student enrollment as of Autumn 2009 (“Statistical summary,” 2009). In addition, the university enrolls more first-generation college students (19 percent of the 2008 freshman class) than the national average (18 percent in 2008), indicating a broad range of represented socioeconomic statuses (“Ohio State,” 2008; Kloeppe & Feder, 2009). Finally, selecting participants from GEC courses allowed for a sample that encompassed a variety of academic majors, as those classes constitute the core curriculum required of all university students.

Instrument

The method chosen for this study was an online questionnaire developed through survey engine SurveyMonkey.com (see Appendix A). Online surveys have risen in popularity as a means of conducting communications research for several reasons: First, they provide access to unique populations that would otherwise be difficult to reach or would be unwilling to participate in a face-to-face context (Garton, Haythornthwaite, & Wellman, 1999; Wellman, 1997; Wright, 2005). Second, online survey services lower the costs of data collection by circumventing the need for paper, printing, postage, and data entry (Llieva, Baron, & Healey, 2002; Watt, 1999; Witmer, Colman, & Katzman, 1999; Wright, 2005). Third, Internet surveys have been praised for their time-saving qualities, as they allow researchers to reach a large number of potential participants with similar qualities by posting HTML links in Web communities or sending e-mails via listservs. They also enable researchers to analyze preliminary data while waiting for responses to accumulate (Cobanaglu, Warde, & Moreo, 2001; Llieva et al., 2002; Wright, 2005).

Finally, studies have shown that online surveys report higher response rates than those conducted via traditional mail service or fax (Cobanaglu et al., 2001).

The researchers utilized the questionnaire to evaluate *television and advertising use, campaign likability, and agricultural awareness* (independent variables) and their possible impact on *perceptions of dairy industry practices* (dependent variable). The questionnaire allowed the researchers to a) gather demographic information; b) describe participant media consumption; c) assess the agricultural awareness of the subject; and d) investigate participant attitudes toward agriculture-based video content. Relevant demographic data included age, gender, description of hometown (urban, suburban, rural), and academic area of interest.

Subjects described their television consumption habits using viewership (measured in hours watched per day) as well as the distribution of that viewership across multiple platforms, including the Internet, DVRs, and “on-demand” services. In addition, the questionnaire was used to analyze the uses and gratifications of television programming and advertising. Participants responded to eight items that were used to assess the “surveillance” and “entertainment” gratifications on a 5-point Likert-type scale, with 1 indicating strong disagreement and 5 indicating strong agreement. These scales were based on scale items developed by Kang et al. (1999) to determine television uses and gratifications.

Surveillance	<p>“I watch television...” ...to learn more about the world around me. ...because it shows me what society is like nowadays.</p>
Entertainment	<p>“I watch television...” ...because it is enjoyable. ...because it is amusing.</p>

Table 2. Sample questionnaire items for uses and gratifications

Because the researchers focused specifically on television advertising, questions related to the uses and gratifications of advertising consumption were also included in the questionnaire. Of the uses and gratifications delineated by O’Donohue (1993), four were selected as foci in this study: marketing uses information, surveillance, enjoyment, and self-affirmation.

Marketing uses information	<p>“I pay attention to commercials...” ...to learn about products and services. ...to keep up with new trends and styles.</p>
Surveillance	<p>“I pay attention to commercials...” ...to live vicariously through other people’s shopping habits. ...to understand what is fashionable or preferred.</p>
Enjoyment	<p>“I pay attention to commercials...” ...because they are entertaining. ...because they tell a story I am interested in.</p>
Self-affirmation	<p>“I pay attention to commercials...” ...to reinforce my beliefs about the world. ...because they resonate with my own situation in life.</p>

Table 3. Sample questionnaire items for advertising uses and gratifications

To assess agricultural awareness, respondents addressed statements along a numeric rating scale and were asked to rate their knowledge, experience, and beliefs related to agricultural and animal-husbandry practices on a scale of 1-5.

Via the questionnaire, the researchers also gathered information directly associated with the “Happy Cows” commercials. Participants were shown three examples of commercials from the campaign. These commercials (“Alarm Clock,” “Jenn,” and “April”) were selected because they represent different aspects of dairy husbandry, including housing (“Alarm Clock” and “April”) and calf-rearing (“Jenn”), within the fictional realm of the television campaign. Participants were first asked to explain their initial feelings about the video clips. Participants then responded to statements on a 7-point semantic differential scale to rate the commercials as closer to one or the other of two bipolar adjectives. Participants judged the commercials on three dimensions:

1. Realism, or the congruence between what is presented in the video and the subject’s preconceptions of agricultural reality;
2. Likability, or the subject’s affective response to the commercials’ content; and
3. Quality of perceived animal treatment, or the nature of how animals are fed, housed, and cared for.

Next, participants were shown a collection of clips from the video-sharing website YouTube that featured a tour of a dairy farm. These clips address husbandry practices related to cow housing and calf-rearing in the context of a large modern dairy. Attitudes about this second set of video clips were gauged in a similar manner with a 7-point bipolar adjective scale.

The chosen scales were selected for several reasons. Bipolar adjective scales are used to measure attitudes by presenting respondents with pairs of adjectives with opposing meanings and asking them to indicate the degree to which the word represents their attitude toward an object, group, or concept (Ary, Jacobs, Razavieh, & Sorensen, 2006). Ary et al. (2006) note that bipolar adjective scales are flexible and more easily constructed than Likert scales. In addition, adjective scales are easy to administer, requiring little reading time on the part of the participant. Numeric rating scales are a widely used instrument for measuring attitudes, as well. Rating scales present a number of statements about behaviors, activities, or phenomena with accompanying scales of categories (Ary et al., 2006).

Data Analysis

The results of the survey were analyzed in several ways. First, descriptive statistics, mean and standard deviations were calculated for each item. Some demographic data, such as major, gender, and class rank, were described by their frequencies, while age utilized both frequency and range. Questionnaire items that addressed each of the independent variables (*television and advertising use, campaign liking, and agricultural awareness*) were collapsed to develop measures for each variable.

Because the researchers sought to determine relationships among the selected variables, descriptive statistics for correlation were used to relate the independent variables (*television and advertising use, campaign liking, and agricultural awareness*) to the dependent variable (*perceptions of dairy industry practices*). Using a Pearson product

moment coefficient (Pearson r) allowed the researchers to describe the relationships between the dependent and independent variables.

Pilot Test

The survey instrument was pilot-tested to determine the validity of the questionnaire as well as the reliability of the attitude scales incorporated in the instrument. The questionnaire was sent via email to a GEC agricultural writing course with an enrollment of 47 students. Over the period of one week, three emails were sent to encourage students to participate in the survey. These efforts resulted in 21 responses, one of which was removed for lack of participant consent, for a response rate of 44.68%.

Reliability, or the extent to which the instrument will yield consistent results, was enhanced by providing enough items to ensure a representative sampling of all possible opinions. Cronbach alpha (α), which measures the extent to which the individual items agree with each other, was calculated as a statistical measure of reliability (Ary et al., 2006). Items measuring *surveillance* ($\alpha = .707$) and *entertainment* ($\alpha = .975$) as impetus for television consumption fared well on the reliability test. Scales measuring uses for viewing television advertising included *marketing uses* ($\alpha = .893$), *surveillance* ($\alpha = .726$), *enjoyment* ($\alpha = .69$), and *self-affirmation* ($\alpha = .89$).

Attitudes toward the videos shown to participants were measured for viewer *liking*, perceived *realism*, and perceived *quality of animal care* using 8 semantic-differential items for each. The Cronbach alpha for the first set of videos scored $\alpha = .871$ (*liking*), $\alpha = .388$ (*realism*), and $\alpha = .920$ (*quality of animal care*). To improve reliability for the realism scale, one item was removed ($\alpha = .625$). The second video received alpha scores of $\alpha = .814$ (*liking*), $\alpha = .695$ (*realism*), and $\alpha = .815$ (*quality of animal care*).

Scales for Video 3 scored $\alpha = .926$ (*liking*), $\alpha = .603$ (*realism*), and $\alpha = .921$ (*quality of animal care*). The fourth video had Cronbach alphas of $\alpha = .839$ (*liking*), $\alpha = .098$ (*realism*), and $\alpha = .848$ (*quality of care*). The low score for the *realism* scale was mitigated by removing an item, raising the scale's score to $\alpha = .423$.

The three scales were subsequently analyzed for their overall reliability across all four video sets. The Cronbach alpha for the *liking* scale was determined to be $\alpha = .846$. The *realism* scale scored $\alpha = .459$ overall; the removal of one item raised this score to $\alpha = .549$. The scale for perceived *quality of animal care* received a Cronbach alpha score of $\alpha = .912$.

General Survey

Once the instrument was adjusted for reliability, survey data was collected from two GEC science classes: an introductory biology course with undergraduate enrollment of 604 students and an introductory chemistry course in which 107 undergraduates were enrolled. The biology class was surveyed over the last two weeks of the spring academic session; the chemistry class was surveyed during the first two weeks of the summer term. Class instructors, who were contacted prior to the beginning of the survey, were asked to forward a series of three emails to their students over a two-week period to inform them of the opportunity and reward and encourage them to participate. The students were offered the opportunity to receive a \$10 iTunes gift card in exchange for their participation. These efforts led to a total of 66 responses for a response rate of 9.3%.

In order to confirm that those sample members who responded to the survey are representative, respondent demographics were compared to those of the population as a whole. The academic majors represented in the sample were indicative of the academic

program breakdown reported by the university registrar (“Top 10 undergraduate majors”): business and accounting, education and human ecology, engineering, the humanities (English and history), and social and behavioral sciences (communication, psychology, political science) are among the largest programs and were all well-represented in the study’s sample. The high rate of response from agricultural students can be attributed to the pilot study, conducted in an agricultural GEC course. The gender breakdown (45.6% male and 54.4% female) differed slightly from that of the greater university population, with 51.9% male students and 48.1% female students (“Statistical summary,” 2009). The average age of students at this university was reported as 21.1 years for both full- and part-time students and 20.7 years for full-time students (“General information,” 2010); the average age of the students sampled was 21.4 years of age.

To increase the sample size of the general study, the data collected from the pilot test was incorporated into the general data set after t-tests were conducted on demographic information. T-tests comparing group means for *age*, *hours of television watched*, *percent of television watched in real-time*, *percent of television watched via DVR*, and *percent of television watched via on-demand* revealed no significant differences between pilot-test subjects and participants in the general study. The two samples’ means varied significantly in only one category: *percent of television watched online*, with pilot-test subjects reporting a smaller percentage of their TV viewing time being spent online (13.13% +/- 18.34%) than respondents in the general survey (27.29% +/- 30.04%) ($t(42.89) = -2.25, P = 0.03$).

Chapter 4: Results

Demographics

Gender, Age, and Hometown

Seventy-eight participants agreed to participate in the survey. Of those, 57 individuals reported their gender: 45.6% were males ($n = 26$) and 54.4% ($n = 31$) were females, while 22 individuals (27.8% of the total respondents) did not provide that information. The breakdown between genders skews slightly from the university population, which consists of 51.9% male students and 48.1% female students (“Statistical summary,” 2009).

Fifty-seven participants reported their ages: Respondent ages ranged from 18 to 41, with a mean age of 21.4 years and a mode of 20 years ($n = 16$). The majority of respondents (91.2%; $n = 52$) were under the age of 24 years. Survey participants were asked to place their hometown or community into one of four categories: *rural-farming*, *rural-non-farming*, *suburban*, and *urban*. Suburban areas were the most widely reported (61.4%, $n = 35$), with rural-farming (19.3%, $n = 11$), rural-non-farming (10.5%, $n = 6$), and urban (8.8%, $n = 5$) trailing behind.

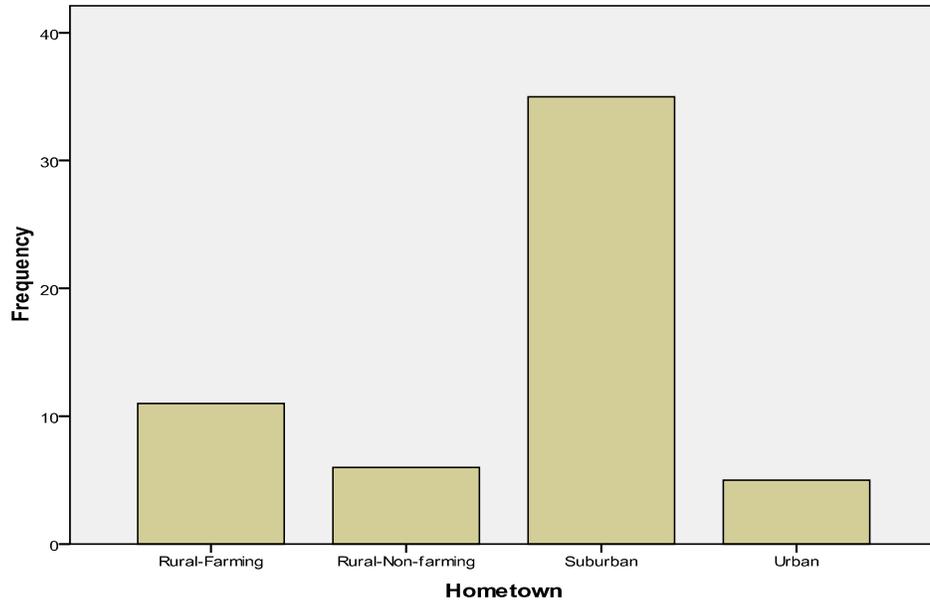


Figure 1. Frequency of respondent hometown types

Academic Major and Rank

One goal of the study was to collect data from students across a wide array of academic areas. Fifty-five respondents provided their academic majors, which were then grouped by college. Thirteen colleges and the university's exploration program for students who have not declared a major were represented in the sample. Most prevalent among those were social & behavioral sciences, which include psychology, sociology, communication, political science, and the business college with 9 representatives each. Eight respondents were enrolled in agricultural and environmental science programs, and six reported studying education and human ecology.

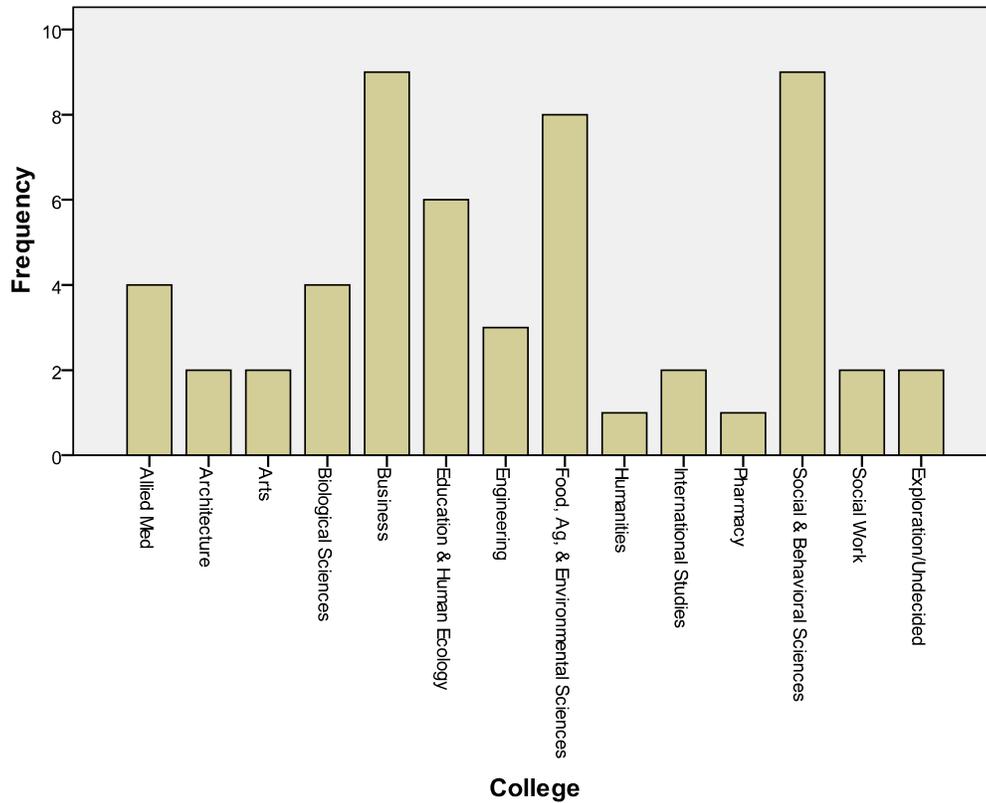


Figure 2. Frequency of respondent academic programs by college

Participants were also asked to identify their class rank. The responses were fairly evenly distributed among the four categories: Of the 56 survey-takers who responded, 11 were freshmen (Rank 1), 18 were sophomores (Rank 2), 13 were juniors (Rank 3), and 14 were seniors (Rank 4).

**Objective 1: Describe Participants' TV and Advertising Viewing Habits and Uses
Television Viewership, Platforms, and Uses**

Respondents were asked to indicate how many hours of television they view each day. Among the 73 respondents, 82.2% reported watching between 1-4 hours of TV per

day, with 41 reporting 1-2 hours of viewership, and 19 reporting 3-4 hours. Extreme television viewers—those who watch more than 6 hours every day—were not well represented in the sample ($n = 4$).

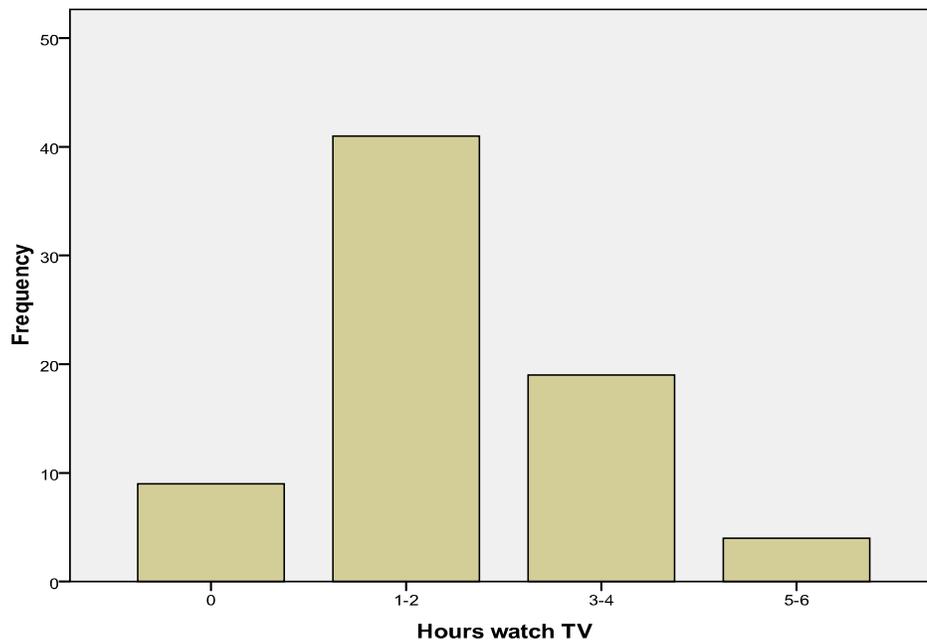


Figure 3. Respondent television viewing in hours per day

Survey participants were also questioned about their chosen platforms for consuming television content, based on the percentage of television programming they watch using each platform. Respondents reported that approximately 60.47% of the content they view is watched in real-time on a television set. On average, little content (4.17%) is viewed via cable or satellite on-demand services, while a significant portion is watched online (23.5%) or via a digital video recording (DVR) device (16.09%). That the majority of television programming is watched in real-time is significant, given that other

platforms – including DVRs and on-demand services – allow viewers to skip advertising content.

	N	Minimum	Maximum	Mean	Std. Deviation
Real-time	74	0	100	60.47	31.137
DVR	69	0	80	16.09	23.508
On-demand	64	0	50	4.17	8.622
Online	68	0	100	23.50	29.471
Valid N (listwise)	64				

Table 4. Percent of content viewed by platform

Respondents were questioned about their reasons for watching television.

Previous research has indicated that primary uses for TV consumption include *surveillance* and *entertainment*. Subjects were asked to respond to four Likert-type items to gauge their use of television for *surveillance* and *entertainment*, respectively. The mean scores for those items were collapsed in composite means for each television use. Based on their responses, subjects were slightly more likely to watch television for entertainment purposes ($M = 3.84$) than surveillance ($M = 2.77$).

	N	Minimum	Maximum	Mean	Std. Deviation
Surveillance	71	1.00	4.75	2.7746	.96377
Entertainment	73	1.00	5.00	3.8425	1.09251
Valid N (listwise)	70				

Table 5. Uses of television viewership

Advertising Uses and Attention

Audience uses for attending to television advertising were measured using four Likert-type scales. The first, which measured *marketing uses*, consisted of six items; the other three, which measured *surveillance*, *entertainment*, and *self-affirmation*, consisted of three items each. The means for individual items were collapsed to calculate a composite mean score for each scale. Among the four scales, entertainment received the highest mean score ($M = 3.13$). Marketing uses and surveillance received similar scores ($M = 2.52$ and $M = 2.49$, respectively). Self-affirmation scored the lowest with a mean score of 2.33.

	N	Minimum	Maximum	Mean	Std. Deviation
Marketing	69	.67	4.67	2.5169	.85709
Surveillance	70	.00	5.00	2.4952	.90400
Entertainment	68	1.00	5.00	3.1324	1.04324
Self-affirmation	69	1.00	4.67	2.3333	1.00651
Valid N (listwise)	66				

Table 6. Uses of advertising viewership

How often subjects attend to commercial advertisements was also a target of investigation. A majority of respondents (57.8%, $n = 37$) indicated that they often or always fast-forward through commercials when watching recorded programming. Subjects also reported that they pay closer attention to commercials when watching live television, with 69% paying attention at least some of the time, versus online content (20.30%).

Objective 2: Describe Participants' Awareness of Agriculture

In order to gauge participants' understanding of agriculture, several items were included on the survey questionnaire that pertained to agricultural *knowledge*, *awareness*, and *familiarity* and the perceived *importance* of agriculture. These Likert-type items were scored on a 5-point scale with "1" indicating no knowledge, awareness, or familiarity and "5" indicating firsthand knowledge of the industry.

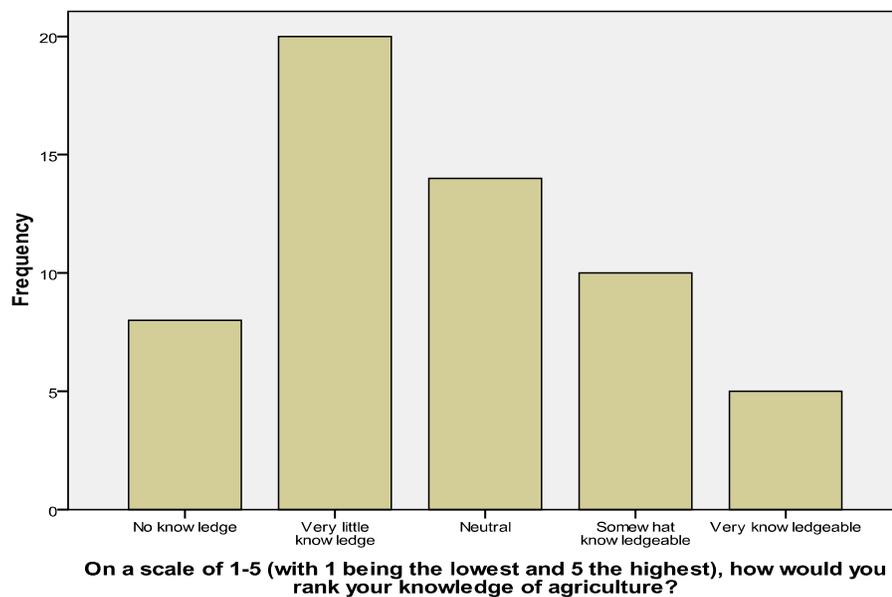


Figure 4. Respondent agricultural knowledge

Almost half of respondents (49.1%, $n = 28$) described themselves as possessing little to no knowledge of agriculture (Figure 4). The same percentage ($n = 28$) reported they were very or completely unaware of agricultural issues (Figure 5).

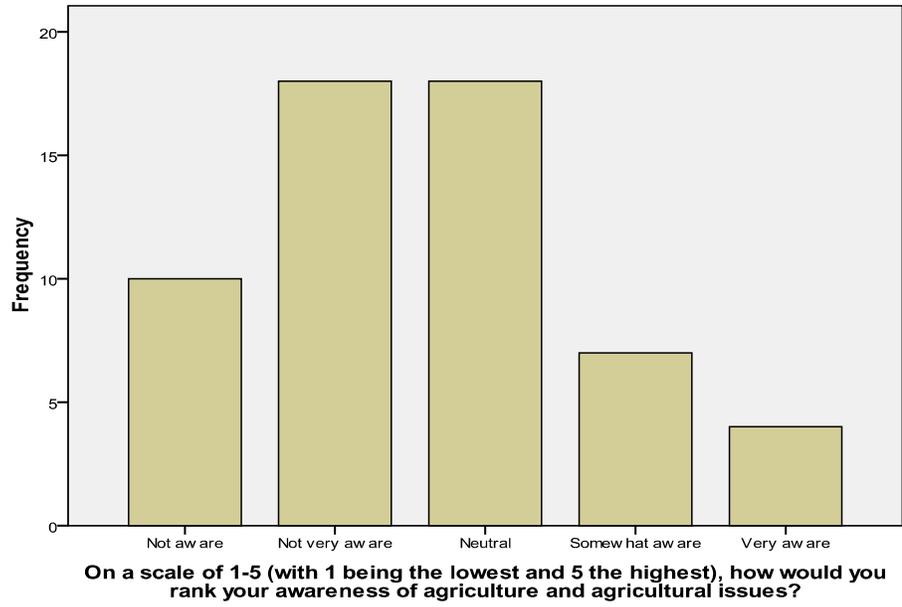


Figure 5. Respondent agricultural awareness

Almost half (45.6%, $n = 26$) of respondents indicated that they were very or totally unfamiliar with the industry.

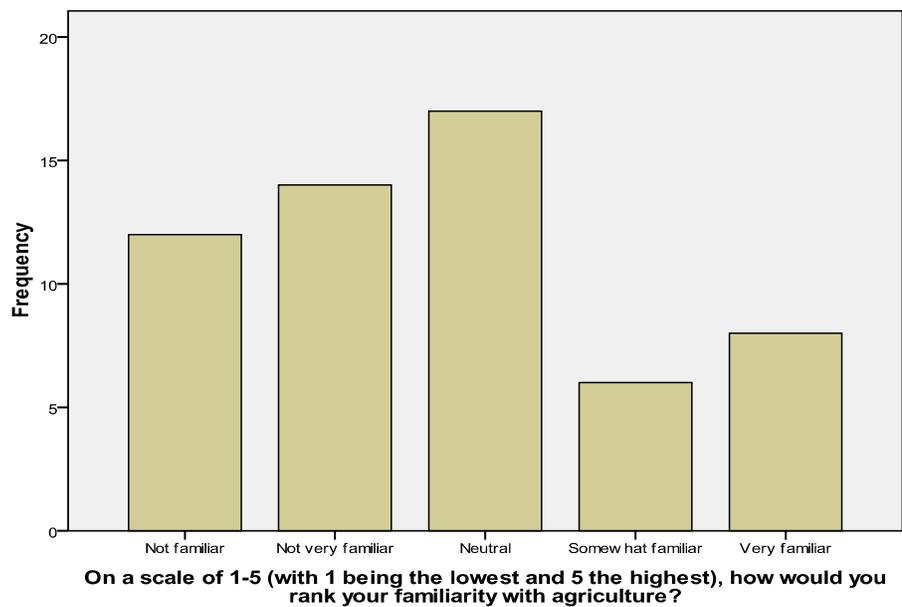


Figure 6. Respondent agricultural familiarity

A large number of participants (47.4%, $n = 27$) did report that they perceived agriculture as somewhat to very important.

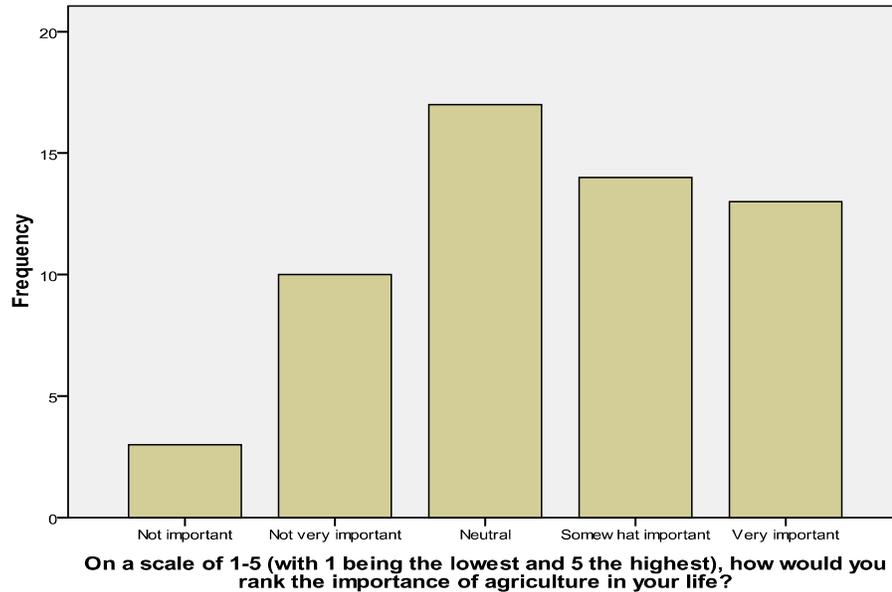


Figure 7. Importance of agriculture to respondents

The researcher sought to investigate respondents' firsthand experience with the agricultural industry. Four items asked survey-takers to indicate how often they had participated in agriculture-related activities, including visiting and working on farming operations, attending agricultural fairs, and speaking to people actively involved in the industry. A majority (64.2%, $n = 34$) of respondents reported visiting agricultural operations once or twice to several times, while only 11.3% ($n = 6$) had never been to a farm.

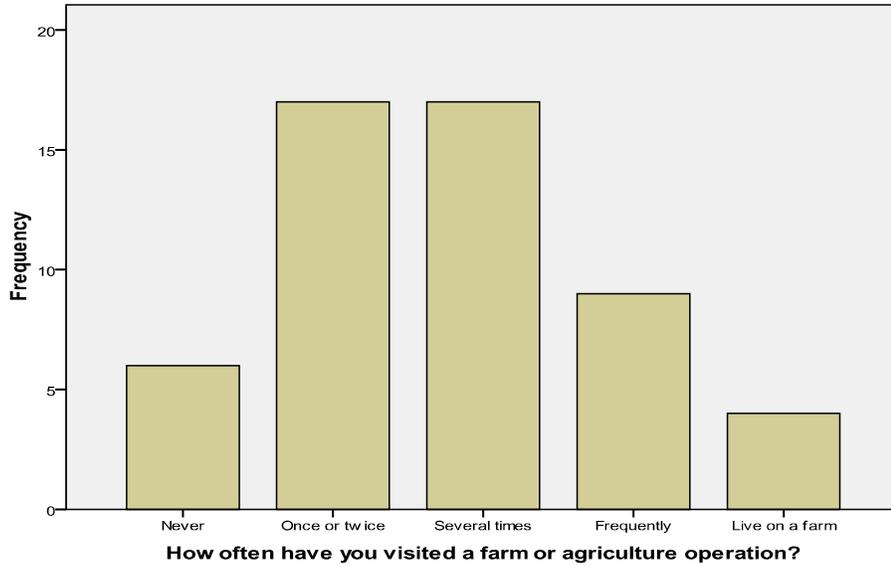


Figure 8. Frequency of respondent visits to farm or agricultural operation

Thirty-one (55.4%) respondents indicated that they had never worked on a farm.

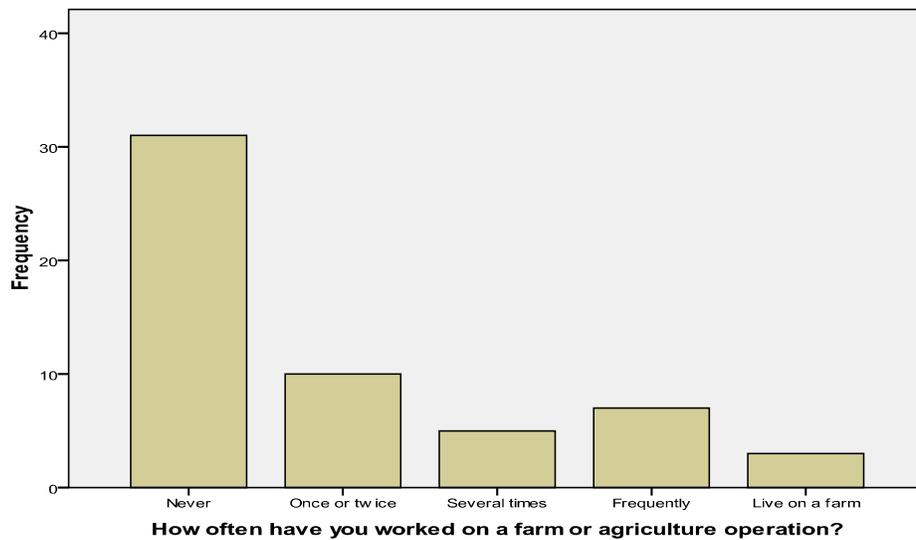


Figure 9. Frequency of respondent work on farm or agricultural operation

At least 87% ($n = 49$) reported that they had attended a fair or other agriculture-related event at least once.

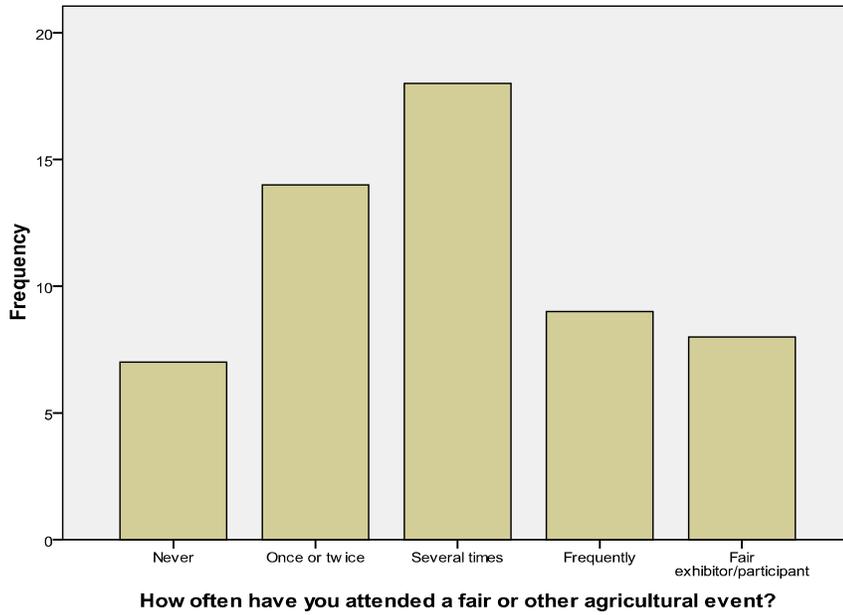


Figure 10. Frequency of respondent attendance at fair or agricultural event

Most participants (54.4%, $n = 31$) had spoken to those in agriculture less than twice.

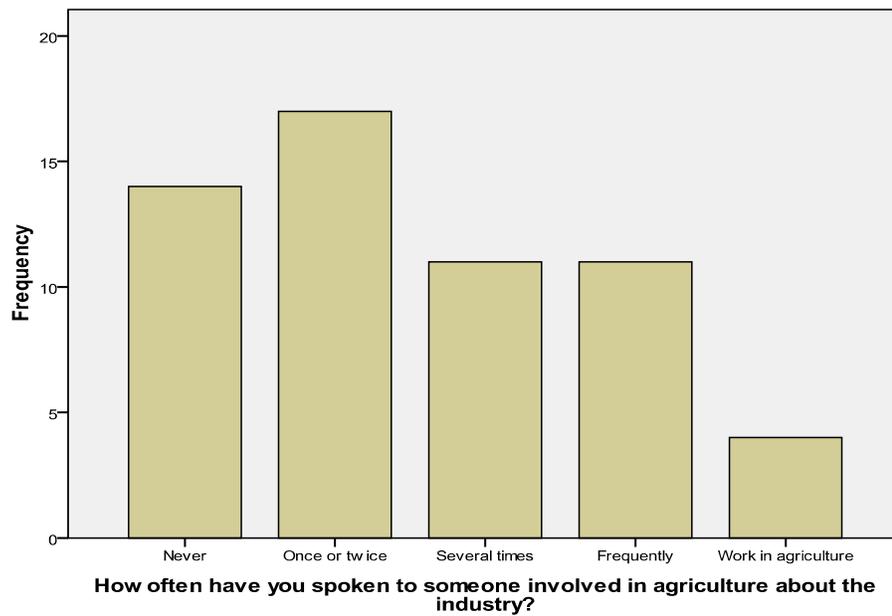


Figure 11. Frequency of respondent interaction with agriculturalists

Objective 3: Describe the Affective Response Elicited by Exposure to the “Happy Cows” Campaign Regarding Quality of Dairy Husbandry, Likability, and Realism

Of the 66 subjects who reported their familiarity with the “Happy Cows” advertising campaign, almost 60% ($n = 39$) indicated that they were somewhat or very familiar with the commercials.

Survey participants were asked to watch five groups of videos: three brief commercials from the “Happy Cows” campaign and two short clips of a tour of a large, modern dairy farm. Respondents were then asked to write their initial reactions to the video clips and respond to a semantic-differential scale intended to measure the *likability* of the video clips, the *realism* of the videos, and the *perceived quality of care* offered to the cattle in the videos. The mean scores for each video group were compiled into two scales (one for each set) for each of the three variables.

“Happy Cows” Mean Scores

The “Happy Cows” videos received an average *liking* score of 3.12, an average *realism* score of 3.49, and an average *quality of care* score of 3.61.

		Happy Cows Liking	Happy Cows Realism	Happy Cows Care
N	Valid	59	56	58
	Missing	20	23	21
Mean		3.1208	3.4900	3.6088
Median		2.8750	3.4063	3.5625
Mode		3.06	3.63	3.06
Std. Deviation		1.00610	.50982	.48787
Minimum		1.63	2.69	2.81
Maximum		6.00	4.88	4.94

Table 7. Descriptive statistics for “Happy Cows” scales

Open-Ended Responses to “Happy Cows” Campaign

A review of viewers’ initial reactions to the video echoes the sentiment displayed in the statistics. The “Happy Cows” videos, represented by Video Groups 1 and 3, received comments that focused on their entertainment value and eschewed the realism of their content. One participant wrote, “They were pretty cute commercials. If I were watching this on tv [sic] I’d probably remember those because of their humor. I was more focused on the humor and the animals though and nearly forgot it was [a] commercial for cheese or milk products.” Another commented that the commercials “are creative and I [sic] love the personification of the cows,” while a fellow respondent countered, “These clips are funny and amusing however they depict a false vision of the dairy industry. Many cows are not raised in old wooden barns today and I believe that the public should know this and why animals are raised this way.” Negative reactions included comments like “I am a vegetarian and loathe the commercial exploitation of animals” and “Cows cannot actually talk, so it is not a factual advertisement.” After watching Video 3 (which was viewed after the more realistic Video 2), one respondent stated that “its [sic] harder to think that this is funny after knowing the truth about the cows.”

Objective 4: Compare Participants’ Responses to the Television Campaign to Those Generated by Images Associated with Modern Dairy Husbandry Practices

Farm Tour Mean Scores

The farm tour videos scored 3.40 for *liking*, 4.51 for *realism*, and 3.87 for *quality of care*.

		Farm Liking	Farm Realism	Farm Care
N	Valid	51	55	50
	Missing	28	24	29
Mean		3.4032	4.5103	3.8700
Median		3.3750	4.4667	3.8750
Mode		3.75	4.27	3.63
Std. Deviation		.79719	.68820	.55499
Minimum		1.75	2.73	2.88
Maximum		5.75	5.93	5.81

Table 8. Descriptive statistics for farm-tour videos

A paired-samples *t* test for each variable revealed that the difference between both sets' *liking* scores was not statistically significant ($t(47) = -1.76, P = 0.085$), while the farm tour videos' mean scores for *realism* and *quality of care* were significantly higher ($t(47) = -8.66, P = 0.001$ and $t(43) = -2.99, P = .005$, respectively) than those for the "Happy Cows" commercials.

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	SD	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Happy Cows Liking – Farm Liking	-.33333	1.31186	.18935	-.71426	.04759	-1.760	47	.085
Pair 2	Happy Cows Realism – Farm Realism	1.10460	.88351	.12752	-1.36114	-.84806	-8.662	47	.000
Pair 3	Happy Cows Care – Farm Care	-.30682	.68104	.10267	-.51387	-.09976	-2.988	43	.005

Table 9. T-test for differences in scale results

Open-Ended Responses to Farm Tour Videos

The farm-tour videos' significantly higher scores for *realism* and *care quality* were bolstered by participants' initial reactions. The videos, though less entertaining than the advertisements, were praised for their "accurate and honest" depiction of dairying by one participant. Others called the videos "informative" and "realistic." One respondent commented, "I would buy products from this company...Room for cows to lay down and the cows looked healthy. I liked this clip way better." Similar comments included "it was good to see that animals were being treat[ed] humanely and were healthy" and "it is clear that they really do take care of these cows and treat them really well." Some respondents, however, noted that the free-stall housing and calf hutches seemed "crowded" and "unnatural" and doubted the humane treatment portrayed, especially the "smaaaaalllll [sic] cages." One stated, "I may have liked to see the cows outside the barn grazing." Another wrote, "It was depressing to see them all being fed that dusty grain and being so pressed together." One referred to the videos as "fake," and another said, "I now know how calves are cared for. I also kind of feel bad for them."

After watching all four video sets, respondents were asked to choose a) which best represented how dairy cattle *are raised* in today's industry and b) which represented how dairy cattle *should be raised*. The first query yielded 56 responses, and a large majority (82.2%, $n = 46$) selected either Video 2 or Video 4, both of which depicted a tour of a modern dairy facility. The fourth video set, which showed calf-rearing on a modern dairy, led with 55.4% of those responses ($n = 31$).

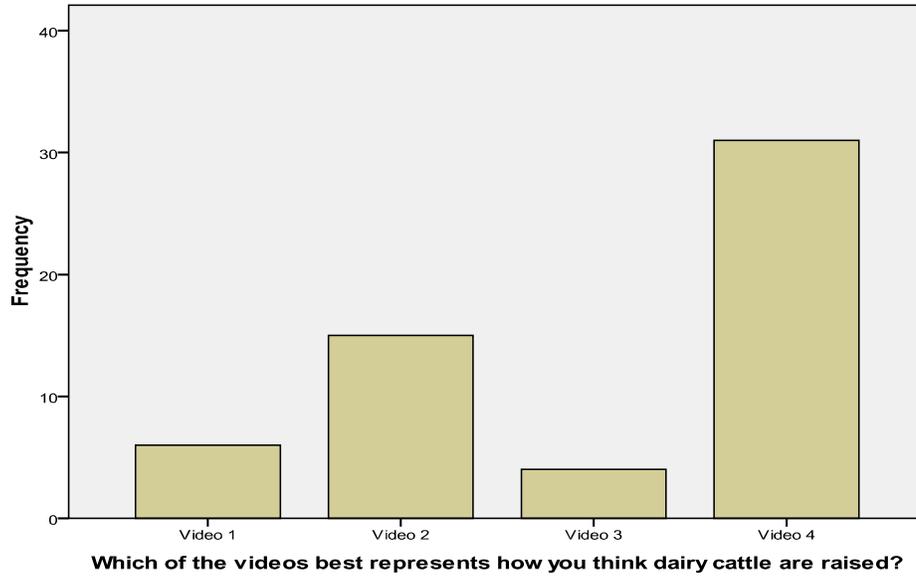


Figure 12. Respondents' choice for most accurate portrayal of dairy practices

Answers to the second question revealed similar feelings from the participants. Of the 57 responses, 84.2% were in favor of either Video 2 (35.1%, $n = 20$) or Video 4 (49.1%, $n = 28$) on the issue of how dairy cattle should be raised.

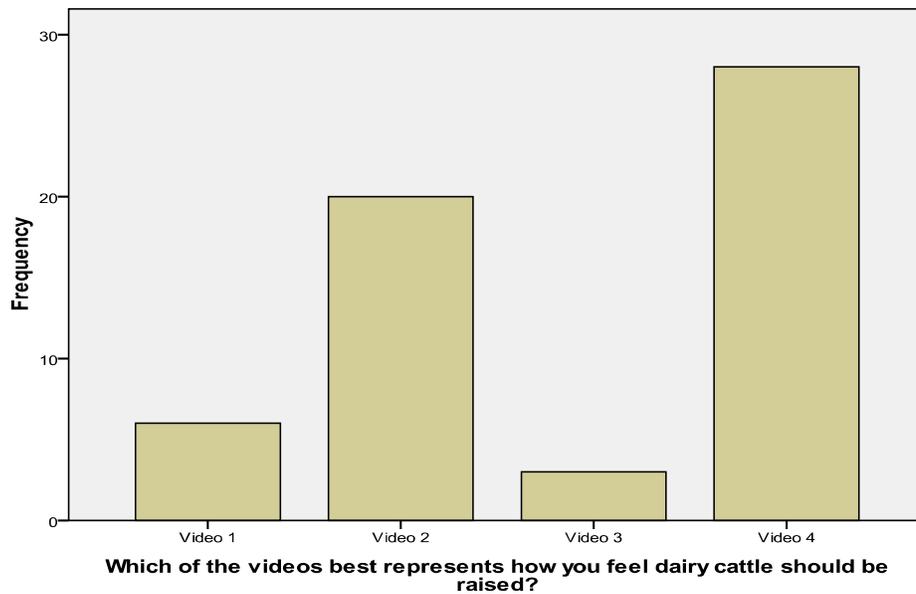


Figure 13. Respondents' choice for portrayal of preferred dairy practices

Objective 5: Describe the Potential Relationships between Media Use and Perceptions of the Dairy Industry

To describe the possible influence that television viewership and agricultural awareness have on perceptions of dairy husbandry practices, the researchers calculated a Pearson's product moment coefficient (Pearson r) to determine correlations among variables. Scales that measured *agricultural knowledge*, *agricultural awareness*, and *agricultural familiarity* were combined with participants' reported hands-on experience to create a measure for *overall agricultural awareness*. That measure was correlated with the video scales for *liking*, *realism*, and *quality of care*.

Awareness and "Happy Cows" Commercials

Overall agricultural awareness, which was calculated by adding and averaging the mean scores of the *agricultural knowledge*, *agricultural awareness*, and *agricultural familiarity* scales, effected weak negative correlations with the "Happy Cows" scales, none of which were significant at the .01 level. Unsurprisingly, a strong positive correlation ($r = .731, P = .0001$) was found between *liking* for the "Happy Cows" videos and the perceived *quality of care* in those videos, indicating that those who found those clips likable were more likely to feel that the husbandry practices portrayed were humane. A moderate positive relationship ($r = .367, P = .007$) was discovered between the *realism* of the commercials and respondents' perceptions of *care quality*.

		Happy Cows Liking	Happy Cows Realism	Happy Cows Care
Ag Awareness	Pearson Correlation	-.111	-.101	-.006
	Sig. (2-tailed)	.464	.512	.967
	N	46	44	47
Happy Cows Liking	Pearson Correlation	1	.187	.731**
	Sig. (2-tailed)		.185	.000
	N	59	52	55
Happy Cows Realism	Pearson Correlation	.187	1	.367**
	Sig. (2-tailed)	.185		.007
	N	52	56	53
Happy Cows Care	Pearson Correlation	.731**	.367**	1
	Sig. (2-tailed)	.000	.007	
	N	55	53	58

Table 10. Correlations between awareness and “Happy Cows” characteristics

Awareness and Farm Tour Videos

Correlating *overall agricultural awareness* with the scales for the farm-tour videos yielded surprising results. Awareness displayed a moderate negative correlation ($r = -.468, P = .001$) with liking for the farm-tour videos, indicating that those with less awareness of agriculture enjoyed the videos more than those with higher levels of awareness. Like the “Happy Cows” videos, the farm-tour clips displayed moderate positive relationships among their respective scales, including *liking* and *quality of care* ($r = .550, P = .0001$) and *realism* and *quality of care* ($r = .489, P = .0001$).

		Farm Liking	Farm Realism	Farm Care
Ag Awareness	Pearson Correlation	-.468**	.091	.070
	Sig. (2-tailed)	.001	.542	.657
	N	44	47	43

Table 11. Correlations between awareness and farm tour video characteristics

The researchers correlated participants' *hometowns* (with lower scores denoting farming or rural areas and higher scores, increasing urbanization) with the scales for the farm-tour videos to see if the above results for *overall agricultural awareness* would be corroborated. Indeed, a moderate positive correlation between *hometown* and *liking* for the more realistic farming videos ($r = .404, P = .004$) indicates that those participants from less rural areas found the farm-tour videos more enjoyable than those who may have more regional familiarity with dairy farming.

		Farm Liking	Farm Realism	Farm Care
Hometown	Pearson Correlation	.404**	.015	.061
	Sig. (2-tailed)	.004	.912	.676
	N	49	53	49

Table 12. Correlations between hometown and farm tour video characteristics

Television Viewership and Attitudes Toward Video Sets

To test for a possible cultivation effect, *television viewership* was correlated with the scales for each video set. No significant relationships were found among *television viewership* (measured in “hours watched per day”) and attitudes toward the “Happy Cows” commercials.

		Happy Cows Liking	Happy Cows Realism	Happy Cows Care
Hours watch TV	Pearson Correlation	-.050	.110	-.039
	Sig. (2-tailed)	.708	.423	.771
	N	58	55	57

Table 13. Correlations between TV viewership and “Happy Cows” characteristics

Similar results were generated by correlating *television viewership* and the farm-tour video scales.

		Farm Liking	Farm Realism	Farm Care
Hours watch TV	Pearson Correlation	.164	-.213	.075
	Sig. (2-tailed)	.251	.118	.603
	N	51	55	50

Table 14. Correlations between TV viewership and farm tour video characteristics

The uses of advertising—namely, marketing uses, surveillance, entertainment, and self-affirmation—were also correlated with the video scales. A weak negative correlation was found between *liking* for the “Happy Cows” videos and *advertising entertainment* ($r = -.274, P = .039$), indicating that those who attend to commercials for their entertainment value were slightly less pleased with the “Happy Cows” advertisements. No significant relationships were found between *advertising attention*, or participants’ level of attentiveness to television commercials, and the scales for “Happy Cows” commercial characteristics.

		Happy Cows Liking	Happy Cows Realism	Happy Cows Care
Adv. Marketing Total	Pearson Correlation	-.200	.134	.038
	Sig. (2-tailed)	.133	.330	.778
	N	58	55	58
Adv. Surveillance Total	Pearson Correlation	-.123	.109	.118
	Sig. (2-tailed)	.354	.424	.379
	N	59	56	58
Adv. Entertainment Total	Pearson Correlation	-.274 [*]	-.005	-.190
	Sig. (2-tailed)	.039	.969	.161
	N	57	54	56
Adv. Self-Affirmation Total	Pearson Correlation	.033	.168	.112
	Sig. (2-tailed)	.805	.220	.402
	N	58	55	58

Table 15. Correlations between advertising uses and “Happy Cows” characteristics

The researchers intended to describe the media-use habits of respondents, measure the agricultural awareness of the sample population, describe and compare participants’ affective responses to dairy-related advertisements and informative video content, and describe any correlations between television viewership, agricultural awareness, and perceptions of dairy husbandry. While no statistically significant relationships were found among the primary variables, the results of the study revealed intriguing connections about viewers’ preferences for agriculture-related television content.

Chapter 5: Conclusions and Recommendations

The researchers conducted this study in order to fulfill five objectives: to describe college students' television viewership habits and uses for TV and televised advertisements; to describe those students' awareness of and experience with agriculture; to delineate the affective responses elicited by viewing commercials from the "Happy Cows" advertising campaign and compare them to those produced by watching reality-based agricultural videos; and to determine any relationships between agricultural awareness, media use, and perceptions of dairy industry practices. An online survey was created and sent to college students at a large Midwestern public university enrolled in introductory General Education Curriculum courses.

Conclusions

Participants' TV and Advertising Viewing Habits and Uses

Television Consumption

According to recent Nielsen studies, American audiences watch an average of 5 hours of television per day (Gandossy, 2009). The data gathered by this study, on the other hand, indicated that the majority of the college students surveyed watched between 1-4 hours of television daily. Though initially surprising, this disparity between average television viewers and the students surveyed reaffirms what Nielsen reported in 2006: that college students living away from home watch 24.3 hours of television per week, or

3.47 hours a day (Aspan, 2006). Online TV consumption, which is practiced by nearly half of young people under 25 (Reardon, 2008), was also popular among survey respondents, who reported that they view more than 23% of television content online. The students in the sample, then, possess viewership habits similar to the general collegiate population.

Online TV and Video Consumption

College students indicated that watching online television content encompasses a significant portion (23.5%) of their TV viewing time. These data coincide neatly with a study conducted by the Pew Internet and American Life Project, which demonstrated that the consumption of primetime television content on the Internet has risen in the past two years. In 2007, 16% of adult TV viewers were watching programs online; that number doubled to 32% by 2009 (Purcell, 2010). In the 2009 survey, 32% of online adults reported watching television content online, and 15% watched commercial advertisements.

The viewership habits of young-adult audiences are slightly different: Young people aged 18-29 are more likely to watch videos online than older viewers (78% of young audiences versus 66% of viewers 30-49 and 45% of viewers 50 or older). A large portion of young people (62%) report watching television content online, more than older age groups. More young viewers (26%) report watching commercials online than their senior counterparts (23% for those aged 30-49 and 16% of viewers over 50) (Purcell, 2010).

Television and Advertising Uses and Gratifications

According to the Pew researchers, young people are more likely to consume entertaining content, like comedy videos, TV shows, and movies, than older audiences (Purcell, 2010). The results of this study strengthen that notion. The subjects surveyed were slightly more likely to watch television for entertainment purposes ($M = 3.84$) than surveillance based on the mean scores for the two attitude scales. Among the four Likert-type scales measuring respondents' uses of advertising, entertainment received the highest mean score ($M = 3.13$).

However, young people are still interested in educational or informational media content. Forty-nine percent of young adults surveyed by Pew reported watching educational content online (Purcell, 2010), and a large majority of young Internet users have searched for health-related information online (Lenhart, Purcell, Smith, & Zickhur, 2010). This ties in neatly with the results of this survey, which found that media content aimed at informing, not selling, was as entertaining to participants as the advertisements featuring anthropomorphic bovines ($t(47) = -1.76, P = 0.085$).

Awareness of Agriculture

The researchers anticipated the negative skew found in the Likert-type scales used to gauge respondents' knowledge and awareness of agriculture. Nearly half of respondents reported little to no knowledge (49.1%), awareness (49.1%), or familiarity (45.6%) with the industry. Agricultural experiences like farm visits and fairs remain very popular, but more than half of respondents had never worked on a farm or had regular conversations with those employed or active in the agriculture industry. This trend toward less involvement and knowledge of agriculture is not surprising, given the

statistics on the dwindling farm population in the United States (USDA, 2009b; USDA, 2009c).

These downward trends are somewhat mitigated by the results of the scale for the perceived importance of agriculture in respondents' lives. About half of respondents (47.4%) indicated that they feel agriculture is at least somewhat valuable to them; only a handful of survey participants reported agriculture as an unimportant aspect of their lives. These responses indicate that, while successive generations are further removed from the farm, young people understand agriculture's large role in society.

Response to the “Happy Cows” Videos and Farm-Tour Videos

Both the “Happy Cows” commercials and the videos of the farm tour were analyzed on a 7-point adjective scale for perceived *liking*, *realism*, and *quality of animal care*. The “Happy Cows” videos received moderate mean scores for all three characteristics, ranging from a surprisingly low 3.12 for *liking*, 3.49 for *realism*, and 3.61 for *quality of care*. In comparison, the videos of a tour of a large modern dairy received mean scores of 3.40 for *liking*, 4.51 for *realism* (the highest score across all variables), and 3.87 for *quality of care*. The tour videos' scores for *realism* and *quality of care* were statistically higher than those for the “Happy Cows” videos.

The more positive response to the realistic nature and high care standards portrayed in the tour videos is compounded by participants' responses to the items about standards of animal care. The respondents indicated that the more realistic videos—2 and 4, respectively—presented a more accurate portrayal of dairy husbandry than the “Happy Cows” commercials. Survey-takers were able to differentiate between modern and antiquated dairy husbandry practices, and they, surprisingly, preferred the modern

methods of housing and calf care to the “freer” and “more natural” elements in the commercials.

Cultivation Theory

While the viewership habits of survey participants statistically mirror those of the general collegiate population (as reported above), the study failed to support a possible cultivation effect produced by the “Happy Cows” campaign. The data showed no significant link between television viewership (measured in hours watched per day) and the *likability*, perceived *realism*, and *quality of care* in the advertisements. Similarly, no statistically significant relationship was discovered between *advertising attention* and those characteristics.

Had cultivation been in effect, the researchers would have detected a positive correlation between viewership and attention and those characteristics, particularly *realism*. Because cultivation theory states that heavy television viewers tend to perceive the real world as it is portrayed on television, a statistically significant positive relationship between television viewership and the perceived *realism* of the “Happy Cows” campaign would be necessary to make the claim that the CMAB’s campaign was potentially influencing audience’s view of dairy husbandry. In addition, respondents’ overwhelming choice of Videos 2 and 4 in response to queries of *how are* and *how should* dairy cattle be raised indicates that audiences recognize that the majority of dairy farms utilize such practices and that audiences perceive them as generally humane.

Because cultivation is theorized as a longitudinal effect of heavy television viewership, the chosen population—college students—was not ideal for detecting its impact. College students watch less television than average viewers, and because few

respondents reported extreme television consumption, no cultivation effect should have been found. In addition to limiting their TV consumption, young people who actively seek information, such as college undergraduates, may be less likely to accept the realities presented by advertising images than more passive knowledge-gatherers. Replicating the study among heavier television-watching demographics, such as teenagers, may yield more evidence of a cultivation effect.

The study focused on the potential cultivation effects of television commercials, which are often ignored, as opposed to more substantial programming. The primary intent of most advertising campaigns—brand awareness—was fulfilled, as a majority of respondents indicated at least some familiarity with the campaign; however, any possible cultivation effect was negligible.

Knowledge Gap Theory

The researchers posited that an agricultural knowledge gap—or an informational divide between those with agricultural backgrounds and experiences and those without—would impact how student participants understand the content of the “Happy Cows” commercials and the videos portraying modern dairy husbandry practices, including free-stall housing, feed and nutrition choices, and calf-rearing. No significant relationship between *overall agricultural awareness*—a measure combining *agricultural awareness*, *agricultural knowledge*, *agricultural familiarity*, and *agricultural experience*—and respondents’ attitudes toward the “Happy Cows” campaign was discovered, a result that fails to support the theory that a knowledge gap could contribute to viewers’ preference for the bucolic settings and antiquated practices shown in the commercials.

The study's results indicate a slight negative correlation between *overall agricultural awareness* and *liking* for the farm-tour videos. This relationship could be read as those participants with lower self-reported levels of awareness of agriculture enjoying the informational content more than those respondents who may already be familiar with those agricultural practices. The open-ended responses to the farm-tour video clips seem to support this inference, as many respondents wrote that they appreciated the realistic glimpse into modern dairying. A number of responses also indicated surprise at the humane treatment of the cattle, perhaps because contemporary farming practices are occasionally vilified by mass media.

In addition, participants' hometowns, typified by "rural-farming," "rural-non-farming," "suburban," and "urban," could also be considered an indicator of agricultural knowledge and a variable worthy of consideration. Like *overall agricultural awareness*, *hometown* displayed a statistically significant relationship with *liking* for the farm-tour videos; however, this relationship was positive, meaning that those with scores approaching the higher end of the 1-5 scale (indicating "urban" areas) showed greater liking for the videos than those with lower scores (indicating "rural" areas). This seeming preference for information-based content versus the idealized advertising materials among less agriculturally informed participants indicates a level of curiosity, not fear, about today's dairy industry. Because the respondents were degree-seeking college students, such desire for information seems appropriate.

Recommendations

Recommendations for Dairy Industry Marketing and Advertising

The “Happy Cows” advertising campaign has enjoyed unprecedented success in the realm of dairy commodity marketing, but its content has proved controversial. Decried by animal rights activists and dairy advocates for its potentially misleading depictions of dairy husbandry, the “Happy Cows” campaign serves as a prime example of the hazards of linking fantasy and reality in agricultural promotions. The purpose of this study was to delineate the possible effects of the California Milk Advisory Board’s advertising on young people’s perceptions and opinions of modern dairy husbandry.

The results of the study support movement away from unrealistic, purely entertaining commercial content in favor of informational, reality-based television advertisements. The students surveyed indicated that they enjoyed watching videos featuring actual dairy farmers caring for their cattle as much as they enjoyed the commercials featuring talking bovines; those less familiar with the practices of modern farming actually showed a greater liking for more educational content. Educating the public about current trends in animal husbandry while marketing dairy products is a more responsible way to promote both the commodity and its producers.

Such socially responsible marketing is now being utilized by the California Milk Advisory Board and other dairy commodity organizations. In 2009, CMAB added 20 videos from the Real California Dairy Families documentary series to its website, the online home of the “Happy Cows” campaign (Giambroni, 2010). According to Michael Freeman, CMAB’s Vice President of Advertising, “Each one is ‘a day in the life’ and some are quite touching, dispelling the myth that California farms are run by cold,

uncaring ‘corporations’” (Giambroni, 2009, para. 4). The success of these video clips (“hundreds of thousands of viewings”) led to the May 2010 debut of eight 90-second television commercials that, like their “Happy Cow” forerunners, feature a tie-in to the promotional site (Giambroni, 2010, para. 2). According to a CMAB press release, the shift was intended to allow farmers to “debunk myths” and “to help consumers put the face on the farmer responsible for the dairy foods they enjoy” (Giambroni, 2010, para. 3).

Other states have also embraced a more realistic approach to dairy advertising. In 2009, the American Dairy Association Mid-East (ADA), an affiliate of the National Dairy Council, organized a regional advertising campaign in Ohio to promote local dairy farmers and provide resources for consumers. Commercial advertisements feature interviews with farm families and information on cow care, including practices like dehorning and hoof trimming. ADA president and CEO Scott Higgins stated, “The dairy community, like all agriculture, is challenged by consumer misconceptions—due in large part to the increasing number of Ohioans who are several generations removed from the farm...[The] campaign showcases Ohio dairy farmers' dedication and commitment to the dairy community, to their cows and to their local communities” (“Campaign gives,” 2010, para. 3).

Recommendations for Educators

The results of this survey support the development of a divide between agricultural knowledge “haves” and “have-nots.” Though the survey failed to establish a significant, negative impact on participants’ perceptions of modern industry practices, it did reveal a low level of agricultural education among undergraduate college students. This widening gulf between agriculture and future consumers could open the industry to

problems caused by misinformation and a lack of awareness (Wachenheim & Rathge, 2000).

An agricultural knowledge gap, however worrisome, is not insurmountable, especially given the subjects' evident interest in learning more about the dairy industry and its practices. Citing the popularity of "Agriculture in the Classroom" programs in schools around the country, the researchers recommend implementing agriculture into primary and secondary education programs. Such programming provides both teachers and students with a "better understanding of agriculture" (Jackson, 2010, para. 3). Such programs consist of summer institutes aimed at demonstrating to teachers methods of integrating agricultural topics into their curricula. Classroom instruction is augmented by lesson plans developed by Ag in the Classroom programmers. Agriculture-related curricula have been deemed successful in improving students' knowledge of agricultural topics among both students and teachers (Meunier, Talbert, & Latour, 2002).

Recommendations for Agriculture Professionals

In addition to providing educational content to primary and secondary teachers, agricultural organizations and professionals should take advantage of Web 2.0 technologies that allow individuals greater freedom to inform a broad audience. Social media, such as social networking websites, microblogs, and video-sharing platforms, have been embraced by some agriculturalists as a means of disseminating information to an ever-expanding audience of Internet users. In 2009, the American Farm Bureau Federation reported that 46% of young agricultural professionals (aged 18-35) were regular social-media users; many utilize platforms like Facebook, Twitter, and YouTube

to promote the industry and provide consumers with firsthand knowledge of agricultural practices (Hoffman, 2009).

Given the large amount of online video content consumed by young people, the Internet's social media provide a much-needed stage to present information to an audience beyond the reach of the primary school system. YouTube, a website dedicated to amateur filmmakers, is one of the Internet's most popular destinations for young people (Bausch & Han, 2006). Video content can be easily uploaded, viewed, and searched by YouTube users, and farmers equipped with smartphones and wireless technology are able to produce their own commercials and document their everyday activities (Bradshaw, 2009). It is also vital that agriculture professionals keep pace with media trends exploited by opponents: D.C.-based environmental organization Food & Water Watch successfully lobbied for "hormone-free" milk for school lunches via a six-state campaign that was promoted and followed on Facebook, Twitter, and Flickr (Delany, 2010).

Limitations of the Study

Sampling and Response Rates

The sample for this study was drawn from a population of undergraduate students at a large, public Midwestern university. To encourage a variety of responses across backgrounds and majors, respondents were pooled from introductory GEC courses, which fulfill graduation requirements across a wide array of academic programs. This population selection limits the generalizability of the study to undergraduate students aged 18-24 at secondary institutions; the results cannot be applied to non-college students

in a similar age range due to variances in television viewing habits and education levels. Further exploration is needed into the mix of TV consumption habits, agricultural awareness, and perceptions of dairy practices among other age groups and education levels. In addition, the questionnaire could be used to gather more detailed demographic and motivational data: Such characteristics as parents' occupation, religious affiliation, or feelings about animal rights could influence why respondents chose to complete the survey or provided the responses that they did.

The most severe limitation of the study lies in its low response rate. Poor response rates are increasingly typical of surveys of college students: In 1991, the average response rate for a longitudinal study was 21% (Dey, 1997). Falling response rates for student surveys have increased the number of studies reporting rates of less than 40%, and Porter and Whitcomb (2003) report that incentives or rewards, even of large monetary value, augment those rates very little. The survey questionnaire was sent to a total of 758 students, and 78 responses were gathered for a response rate of 9.72%. In order to counter the high non-response rate, the researchers compared demographic data gathered from the sample to the same characteristics of the target population; namely, undergraduate college students. According to Miller and Smith (1983), this method of dealing with low response rates allows researchers to generalize from a small sample to a larger population if the characteristics of the sample are typical of the target population.

When replicating this survey for further study, researchers should consider some changes to the data-gathering protocol. To reach a wider target population and develop a more representative sample, subjects could be selected from a database from a university registrar and contacted directly by the researcher, rather than relying on an intermediary.

Special consideration should be given to the timing of survey distribution, as students tend to be distracted by end-of-term assignments and examinations. For example, the response rate for the third survey round, which was sent at the beginning of the summer academic session, was 20.56%, compared to 7.28% for the survey when distributed at the end of the spring term.

Like many surveys, this study suffered from random item nonresponse predicated on the fact that participants were not required to answer all questions in order to “complete” the survey. Because the low response rate necessitated using as many cases as possible, the researchers calculated parameters using all available cases to avoid discarding a large portion of the sample. Increasing the response rate would allow future researchers to discard incomplete surveys, thus improving the internal reliability of the study.

To supplement the results of the online survey, the researchers suggest adding a focus-group component to the study methodology. Focus groups “are used to gather opinions...about issues, products, services or opportunities” (Krueger & Casey, 2008, pp. 2-8). Such methods provide participants with the opportunity to interact and share opinions and perceptions in a comfortable, controlled environment. The results of focus-group studies can be used to gain understanding of audiences, to pilot-test products or services, and to evaluate audience responses to products or services (Krueger & Casey, 2008). Focus group members should have something in common, such as demographic characteristics or shared experiences, per traditional methodology (Krueger & Casey, 2008), and drawing participants from the survey sample could be an effective means of pooling group members.

Scale Reliability

To ensure the reliability of the questionnaire's scales, the survey was pilot-tested in a small GEC writing course. Following the pilot test, the scales for each variable were analyzed for their overall reliability. Because the scales measure the same characteristic across all four video sets, the researchers calculated Cronbach alpha scores by including all 24 items for each scale. The Cronbach alpha for the *liking* scale was calculated at $\alpha = .846$. The *realism* scale scored $\alpha = .459$. The *quality of animal care* scale received a Cronbach alpha score of $\alpha = .912$. The weakness of the *realism* scale ($\alpha = .459$) was mitigated by removing one item from the scale; the removal of Video 4's 4th realism scale item raised this score to $\alpha = .549$. Despite the increase in score, the *realism* scale remained a weak point in the data analysis, being the least reliable; thus, the significant disparity in mean scores between "Happy Cow" commercials' and farm-tour videos' realism scales may not be as wide as indicated. Further testing of this researcher-developed scale is necessary and would improve its internal reliability.

Choice of Media

The researchers' choice of the primary medium under investigation—the "Happy Cows" television campaign—limits the generalizability of the study to the cultivation effects of TV advertisements. In further research, investigators should consider studying other types of television content, including candid reality shows like Discovery Channel's *Dirty Jobs* and primetime dramas like FOX's *Bones*, both of which have featured agriculture-related themes and storylines. Such programming could present more substantial evidence for cultivation effects on audience perceptions of the agricultural industry and would be more generalizable to other content.

The videos utilized in the study were disparate in that the “Happy Cows” commercials were advertisements and the farm-tour videos contained no commercial content. Some respondents expressed some confusion about the purpose of the informational videos or mistook them for commercial advertisements. To prevent such uncertainty in future research, investigators could screen commodity advertisements that contain more realistic content, such as CMAB’s new television spots or ADA’s Ohio television campaign commercials.

In summary, the results of this study failed to support the hypothesized cultivation and knowledge-gap effects among a population of college students; however, they do support an industry movement toward new, primarily reality-based advertising content. Video content that provides audiences with factual information has the potential to increase transparency between producers and consumers, educate viewers about an industry from which they are increasingly removed, and maintain the popularity of commodity branding like CMAB’s “Real California Cheese.” Despite limitations to the study, the researchers strongly recommend further investigation into the potential effects of television viewing on societal perceptions of agriculture.

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Appendix A: Survey Instrument

Please note that none of your personal information will be released to the public.

Television Viewing Habits

Approximately how many hours of television do you watch per day?

0 1-2 3-4 5-6 More than 6 hours

Choose the response that most accurately completes the statement: "I watch television..."

...to learn more about the world around me.

1 (Strongly disagree) 2 3 (Neutral) 4 5 (Strongly agree)

...to find out things I need to know about daily life.

1 (Strongly disagree) 2 3 (Neutral) 4 5 (Strongly agree)

...because it helps me learn things about myself and others.

1 (Strongly disagree) 2 3 (Neutral) 4 5 (Strongly agree)

...because it shows me what society is like nowadays.

1 (Strongly disagree) 2 3 (Neutral) 4 5 (Strongly agree)

...because it is entertaining.

1 (Strongly disagree) 2 3 (Neutral) 4 5 (Strongly agree)

...because it is pleasurable.

1 (Strongly disagree) 2 3 (Neutral) 4 5 (Strongly agree)

...because it amuses me.

1 (Strongly disagree) 2 3 (Neutral) 4 5 (Strongly agree)

...because it's exciting.

1 (Strongly disagree) 2 3 (Neutral) 4 5 (Strongly agree)

What percentage of your TV viewing is done...

- In real-time on a television set? _____%
- Tape-delayed from a DVR? _____%
- Via an "on-demand" service? _____%
- Online? _____%
- Total = 100%

If you use a DVR, how frequently do you fast-forward through television advertisements?

1 (Never) 2 3 (Sometimes) 4 5 (Always)

When watching television in real-time, how closely do you pay attention to commercial advertisements?

1 (Not at all) 2 3 (Somewhat) 4 5 (Very closely)

When watching television in online, how closely do you pay attention to commercial advertisements?

1 (Not at all) 2 3 (Somewhat) 4 5 (Very closely)

Choose the response that most accurately completes the statement: "I pay attention to commercials..."

...to learn about products and services.

1 (Strongly disagree) 2 3 (Neutral) 4 5 (Strongly agree)

...to keep up with new trends and styles.

1 (Strongly disagree) 2 3 (Neutral) 4 5 (Strongly agree)

...to be aware of what other people are buying.

1 (Strongly disagree) 2 3 (Neutral) 4 5 (Strongly agree)

...to help distinguish among competing products.

1 (Strongly disagree) 2 3 (Neutral) 4 5 (Strongly agree)

...because they help me make purchasing decisions.

1 (Strongly disagree) 2 3 (Neutral) 4 5 (Strongly agree)

...because they make me more confident in my purchasing decisions.

1 (Strongly disagree) 2 3 (Neutral) 4 5 (Strongly agree)

...to learn about prominent or preferred goods and services.

1 (Strongly disagree) 2 3 (Neutral) 4 5 (Strongly agree)

...to understand what is fashionable or preferred.

1 (Strongly disagree) 2 3 (Neutral) 4 5 (Strongly agree)

...to live vicariously through other people's shopping habits.

1 (Strongly disagree) 2 3 (Neutral) 4 5 (Strongly agree)

...because they are entertaining.

1 (Strongly disagree) 2 3 (Neutral) 4 5 (Strongly agree)

...because they are funny.

1 (Strongly disagree) 2 3 (Neutral) 4 5 (Strongly agree)

...because they tell a story I am interested in.

1 (Strongly disagree) 2 3 (Neutral) 4 5 (Strongly agree)

...to reinforce my beliefs about the world.

1 (Strongly disagree) 2 3 (Neutral) 4 5 (Strongly agree)

...because they resonate with my own situation in life.

1 (Strongly disagree) 2 3 (Neutral) 4 5 (Strongly agree)

...because they promote values that I feel are important.

1 (Strongly disagree) 2 3 (Neutral) 4 5 (Strongly agree)

Video 1 – “Happy Cows” Commercial ([“Alarm Clock”](#) and [“April”](#))

Now you will watch 2 short video clips. Please respond to the items below.

Describe your initial reactions to these video clips:

I think the cows in these videos are...

Likable	___	___	___	___	___	___	___	Unlikable
Entertaining	___	___	___	___	___	___	___	Dull
Funny	___	___	___	___	___	___	___	Boring
Unrealistic	___	___	___	___	___	___	___	Realistic
Natural	___	___	___	___	___	___	___	Unnatural
Sad	___	___	___	___	___	___	___	Happy
Positive	___	___	___	___	___	___	___	Negative
Fake	___	___	___	___	___	___	___	Believable
Neglected	___	___	___	___	___	___	___	Well-cared for
Content	___	___	___	___	___	___	___	Unhappy
Human	___	___	___	___	___	___	___	Animal
Free	___	___	___	___	___	___	___	Oppressed

I find the setting of these videos...

Comfortable	___	___	___	___	___	___	___	Uncomfortable
Natural	___	___	___	___	___	___	___	Unnatural
Modern	___	___	___	___	___	___	___	Old-fashioned
Cruel	___	___	___	___	___	___	___	Humane
Fictional	___	___	___	___	___	___	___	True to life
Safe	___	___	___	___	___	___	___	Unsafe
Typical	___	___	___	___	___	___	___	Unusual
Appealing	___	___	___	___	___	___	___	Disgusting
Ugly	___	___	___	___	___	___	___	Attractive
Open	___	___	___	___	___	___	___	Confining
Clean	___	___	___	___	___	___	___	Dirty
Outdated	___	___	___	___	___	___	___	Current

How familiar are you with this advertising series?

1 (Not familiar) 2 3 4 5 (Very familiar)

Video 2 – Cow Comfort Clip

Describe your initial reactions to this video:

I think the cows in this video are...

Likable	___	___	___	___	___	___	___	Unlikable
Entertaining	___	___	___	___	___	___	___	Dull
Funny	___	___	___	___	___	___	___	Boring
Unrealistic	___	___	___	___	___	___	___	Realistic
Natural	___	___	___	___	___	___	___	Unnatural
Sad	___	___	___	___	___	___	___	Happy
Positive	___	___	___	___	___	___	___	Negative
Fake	___	___	___	___	___	___	___	Believable
Neglected	___	___	___	___	___	___	___	Well-cared for
Content	___	___	___	___	___	___	___	Unhappy
Human	___	___	___	___	___	___	___	Animal
Free	___	___	___	___	___	___	___	Oppressed

I find the setting of this video...

Comfortable	___	___	___	___	___	___	___	Uncomfortable
Natural	___	___	___	___	___	___	___	Unnatural
Modern	___	___	___	___	___	___	___	Old-fashioned
Cruel	___	___	___	___	___	___	___	Humane
Fictional	___	___	___	___	___	___	___	True to life
Safe	___	___	___	___	___	___	___	Unsafe
Typical	___	___	___	___	___	___	___	Unusual
Appealing	___	___	___	___	___	___	___	Disgusting
Ugly	___	___	___	___	___	___	___	Attractive
Open	___	___	___	___	___	___	___	Confining
Clean	___	___	___	___	___	___	___	Dirty
Outdated	___	___	___	___	___	___	___	Current

Video 3 – Happy Cows Commercial (“Jenn”)

I think the cows in this video are...

Likable	___	___	___	___	___	___	___	Unlikable
Entertaining	___	___	___	___	___	___	___	Dull
Funny	___	___	___	___	___	___	___	Boring
Unrealistic	___	___	___	___	___	___	___	Realistic
Natural	___	___	___	___	___	___	___	Unnatural
Sad	___	___	___	___	___	___	___	Happy
Positive	___	___	___	___	___	___	___	Negative
Fake	___	___	___	___	___	___	___	Believable
Neglected	___	___	___	___	___	___	___	Well-cared for
Content	___	___	___	___	___	___	___	Unhappy
Human	___	___	___	___	___	___	___	Animal
Free	___	___	___	___	___	___	___	Oppressed

I find the setting of these videos...

Comfortable	___	___	___	___	___	___	___	Uncomfortable
Natural	___	___	___	___	___	___	___	Unnatural
Modern	___	___	___	___	___	___	___	Old-fashioned
Cruel	___	___	___	___	___	___	___	Humane
Fictional	___	___	___	___	___	___	___	True to life
Safe	___	___	___	___	___	___	___	Unsafe
Typical	___	___	___	___	___	___	___	Unusual
Appealing	___	___	___	___	___	___	___	Disgusting
Ugly	___	___	___	___	___	___	___	Attractive
Open	___	___	___	___	___	___	___	Confining
Clean	___	___	___	___	___	___	___	Dirty
Outdated	___	___	___	___	___	___	___	Current

Video 4 – Calf Care Video Clip

I think the cows in this video are...

Likable	___	___	___	___	___	___	___	Unlikable
Entertaining	___	___	___	___	___	___	___	Dull
Funny	___	___	___	___	___	___	___	Boring
Unrealistic	___	___	___	___	___	___	___	Realistic
Natural	___	___	___	___	___	___	___	Unnatural
Sad	___	___	___	___	___	___	___	Happy
Positive	___	___	___	___	___	___	___	Negative
Fake	___	___	___	___	___	___	___	Believable
Neglected	___	___	___	___	___	___	___	Well-cared for
Content	___	___	___	___	___	___	___	Unhappy
Human	___	___	___	___	___	___	___	Animal
Free	___	___	___	___	___	___	___	Oppressed

I find the setting of this video...

Comfortable	___	___	___	___	___	___	___	Uncomfortable
Natural	___	___	___	___	___	___	___	Unnatural
Modern	___	___	___	___	___	___	___	Old-fashioned
Cruel	___	___	___	___	___	___	___	Humane
Fictional	___	___	___	___	___	___	___	True to life
Safe	___	___	___	___	___	___	___	Unsafe
Typical	___	___	___	___	___	___	___	Unusual
Appealing	___	___	___	___	___	___	___	Disgusting
Ugly	___	___	___	___	___	___	___	Attractive
Open	___	___	___	___	___	___	___	Confining
Clean	___	___	___	___	___	___	___	Dirty
Outdated	___	___	___	___	___	___	___	Current

Which of the videos best represents how you feel dairy cattle should be raised?

Video 1 Video 2 Video 3 Video 4

Explain:

Which of the videos best represents how you think dairy cattle are raised?

Video 1 Video 2 Video 3 Video 4

Explain:

Agricultural Awareness

Agriculture is defined as “the science, art, or practice of cultivating the soil, producing crops, and raising livestock and in varying degrees the preparation and marketing of the resulting products.”

On a scale of 1-5 (with 1 being the lowest and 5 the highest), how would you rank your knowledge of agriculture?

1 (No knowledge) 2 3 4 5 (Very knowledgeable)

On a scale of 1-5 (with 1 being the lowest and 5 the highest), how would you rank your awareness of agriculture and agricultural issues?

1 (Not aware) 2 3 4 5 (Very aware)

On a scale of 1-5 (with 1 being the lowest and 5 the highest), how would you rank your familiarity with agriculture?

1 (Not familiar) 2 3 4 5 (Very familiar)

On a scale of 1-5 (with 1 being the lowest and 5 the highest), how would you rank the importance of agriculture in your life?

1 (Not important) 2 3 4 5 (Very important)

How often have you...

...visited a farm or agriculture operation?

Never Once or twice Several times Frequently Live on farm

...worked on a farm or agriculture operation?

Never Once or twice Several times Frequently Live on farm

...attended a fair or other agricultural event?

Never Once or twice Several times Frequently Fair exhibitor/participant

...spoken to someone involved in agriculture about the industry?

Never Once or twice Several times Frequently Work in agriculture

When you hear the term “agriculture,” what words and phrases come to mind? Fill in below.

When you hear the term “dairy farming,” what words and phrases come to mind? Fill in below.

Demographics

Email address:

Age:

Rank (1 = Freshman; 2 = Sophomore; 3 = Junior; 4 = Senior):

Major:

Which of the following best describes the community you grew up in?

Rural-Farming Rural-Non-farming Suburban Urban

Appendix B: IRB Application for Exemption

APPLICATION FOR EXEMPTION

**FROM REVIEW BY THE INSTITUTIONAL
REVIEW BOARD**

The Ohio State University, Columbus OH

<p>For office use only PROTOCOL NUMBER:</p>
--

<u>Principal Investigator</u>	Name: Emily B. Rhoades	Phone: 614-292-6321
University Title: <input type="checkbox"/> Professor <input type="checkbox"/> Associate Professor <input checked="" type="checkbox"/> Assistant Professor <input type="checkbox"/> Instructor <input type="checkbox"/> Other. Specify: (may require prior approval.)	Department or College: College of Food, Ag, and Environmental Sciences – Dept. of Human & Community Resource Development	E-mail: rhoades.100@osu.edu
	Campus Address (room, building, street address): 208 Ag. Admin. – 2120 Fyffe Rd. Columbus, OH 43210	OSU ID:
	Signature: Date:	Fax:

Co-Investigator	Name: Annie R. Specht	Phone: 330-204-1796
University Status: <input type="checkbox"/> Faculty <input type="checkbox"/> Staff <input checked="" type="checkbox"/> Graduate Student <input type="checkbox"/> Undergraduate Student <input type="checkbox"/> Other. Specify:	Campus Address (room, building, street address) or Mailing Address: 250 Ag. Admin. – 2120 Fyffe Rd. Columbus, OH 43210	E-mail: Specht.21@osu.edu
		OSU ID: 06160370
	Signature: Date:	Fax:

Key personnel	Name:	Phone:
University Status: <input type="checkbox"/> Faculty <input type="checkbox"/> Staff <input type="checkbox"/> Graduate Student <input type="checkbox"/> Undergraduate Student <input type="checkbox"/> Other. Specify:	Campus Address (room, building, street address) or Mailing Address:	E-mail:
		OSU ID:
		Fax:

Additional Co-Investigators or Key Personnel → Complete [Appendix A1](#)
Key personnel are defined as individuals who participate in the design, conduct, or reporting of human subjects research. At a minimum, include individuals who recruit or consent participants or who collect study data.

PROTOCOL TITLE	Cultivation Effects of Television Advertising on College Students' Perceptions of Agriculture
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SOURCE OF FUNDING	None
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EDUCATION	
Have all investigators and key personnel completed the required web-based course (CITI) in the protection of human research subjects?	X Yes <input type="checkbox"/> No
Educational requirements must be satisfied prior to submitting the application for review. See CITI Training or contact ORRP for more information.	

FINANCIAL CONFLICT OF INTEREST	
Does any OSU investigator (including principal or co-investigator), key personnel, or their immediate family members have a financial interest (including salary or other payments for services, equity interests, or intellectual property rights) that would reasonably appear to be affected by the research, or a financial interest in any entity whose financial interest would reasonably appear to be affected by the research?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
All OSU investigators and key personnel must have a current COI disclosure form (updated as necessary for the proposed research) filed before review. Examples of financial interests that must be disclosed include (but are not limited to) consulting fees or honoraria; stocks, stock options or other ownership interests; and patents, copyrights and royalties from such rights. For more information, see Office of Research Compliance COI Overview and COI Forms .	

EXEMPT CATEGORY	
Please check the categories of exemption for which you are applying (IRB Exemption Categories). You may check more than one box. For more information, see the OSU HRPP Policy Exempt Research .	
1 <input type="checkbox"/>	2 X
3 <input type="checkbox"/>	4 <input type="checkbox"/>
5 <input type="checkbox"/>	6 <input type="checkbox"/>

SCREENING QUESTIONS

- Does any part of the research require that subjects be deceived? Yes No
- Will research expose human subjects to discomfort or harassment beyond levels encountered in daily life? Yes No
- Could disclosure of the subjects' responses outside the research reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation? Yes No
- Will individuals involuntarily confined or detained in penal institutions be subjects of the study? Yes No
- For research proposed under category 2, will research involve surveys, interview procedures, or observation of public behavior with [children](#)? Yes No
- For research proposed under category 4, will any of the data, documents, records, pathological specimens, or diagnostic specimens be collected or come into existence after the date you apply for exemption? Yes No
- For research proposed under category 4, will any of the information obtained from data, documents, records, pathological specimens, or diagnostic specimens that come from private sources be recorded by the investigator in such a manner that subjects can be identified directly or through identifiers linked to the subjects? Yes No

If you checked **YES** to **ANY** of the questions above, your research is **NOT EXEMPT**. Do not complete this application. Submit an [IRB Application for Initial Review of Human Subjects Research](#) for review.

If you have checked **NO** to **ALL** of the questions above, your research may be exempt. Please complete the remainder of the exempt application.

If you have questions about the application or review process, please contact:

Office of Responsible Research Practices
(614) 688-8457 / Fax: (614) 688-0366

GENERAL QUESTIONS REGARDING THE PROPOSED RESEARCH

Please describe your study clearly and completely, using a style of language that can easily be understood by someone who is not familiar with your research.

If the research involves protected health information (PHI) and you are requesting a waiver of authorization - → Complete **Appendix N**

If the research will be performed at an international site - → Complete **Appendix U**

1. Describe the purpose of the research activity to be undertaken. Describe how it involves human subjects. Attach a copy of the research protocol.

The study is intended to gauge the connection between young people's television viewing habits and their perceptions of agriculture. The study will be conducted using an online survey engine, and the questionnaire will collect demographic information and information about the amount of TV students watch and what media they use to watch it. In addition, students will be shown short video clips from the "Happy Cows" advertising campaign and video clips from a virtual dairy farm tour and asked to respond to those videos. Risks are minimal – the questionnaire will be completed online at the students' leisure in an environment of their choice. No graphic material will be utilized: The commercials are aired on major television networks, and the dairy tour videos are educational. The researchers hope to gain some insight into how exposure to television advertising correlates to perceptions of and opinions about agricultural practices, specifically dairy husbandry. The goal is to utilize that information to correct potential pitfalls in the way that agriculture is portrayed in TV campaigns.

2. Provide a brief description of the subjects you plan to recruit and the criteria used in the selection process. Indicate whether subjects are adults or children.

Subjects are undergraduate students enrolled in introductory General Education Curriculum (GEC) courses at Ohio State. Participants will be students, 18-24 years of age, who watch television. The researchers will contact course instructors to obtain access to course listservs as a means of communicating with the target population.

3. Describe how the proposed research meets the criteria for exemption from IRB review and oversight (refer to the [exempt categories](#)).

The research utilizes an online survey questionnaire. Only email addresses will be collected as identifying information, and those addresses will be immediately separated from the rest of the data to preserve anonymity and destroyed following selection for study incentives. No information provided by participants is potentially damaging to their financial standing, employability, or reputation.

4. Will your subjects be recruited through schools, employers, and/or community agencies or organizations, and/or are you required to obtain permission to access data that is not publicly available? If the answer is yes, provide a letter of support from the person authorized to give you access to the subjects or to the data in question. More than one letter may be required.

X Does not apply

- Letter(s) attached
- Comments:

5. Describe the means you will use to obtain data. Check all boxes that apply.

- Surveys or questionnaires distributed by mail or in person. I am attaching a copy of the instrument(s).
- X Surveys distributed through the Internet, listservs, or E-mail. I am attaching a copy of the instrument(s).
Provide the Internet address: <http://www.surveymonkey.com/s/T9J6JWW>
- Interviews. I am attaching a copy of the interview questions.
- Focus groups. I am attaching a copy of the questions that will shape the discussion.
- Observation of public behavior.
- Observation of activities in school classrooms.
- Audiotapes. I will obtain consent from the subjects to tape their responses.
- Videotapes. I will obtain consent from the subjects to tape their activities or responses.
- Review of existing records, including databases, medical records, school records, etc. I am attaching a copy of the data collection sheet. I am recording information in such a manner that subjects cannot be identified directly or through identifiers linked to the subjects. All of the information in the records to be reviewed exists as of the date of submission of this application.
- Tissue specimens. All of the specimens have already been collected and are “on the shelf.” I am recording information in such a manner that subjects cannot be identified directly or through identifiers linked to the subjects.

6. Indicate the date when you plan to begin research, and the date when you anticipate that data analysis will be complete.

Begin date: 5-10-2010

End date: 6-4-2010

CONFIDENTIALITY

- Investigators are required to protect the confidentiality of the information obtained during research, unless the subjects (a) explicitly agree to be identified or quoted, and/or (b) explicitly agree to the release of material captured on audiotapes or videotapes for use in presentations or conferences.
7. Provide a brief description of the measures you will take to protect confidentiality. Please describe how you will protect the identity of the subjects, their responses, and any data that you obtain from private records or capture on audiotape or videotape. Describe the disposition of the data and/or the tapes once the study has been completed.

Only the two researchers will have access to the data. It will be on a secure server that those two have the password for. All paper copies will be kept in a locked file cabinet in the researcher’s office. All identifying information will be separated from the data, utilized for the distribution of the study incentive, and destroyed to protect the anonymity of the participants.

INFORMED CONSENT

- In most cases, investigators are required to obtain informed consent from their subjects before collecting data. Respond to questions #8 and #9 to indicate how you will inform your subjects about the research and how you will obtain and document their consent.
 - Subjects must be told what they will be asked to do if they agree to participate in research, how long it will take, and how you will protect the confidentiality of the information they provide.
 - Subjects must be told that their participation is voluntary, they can refuse to answer questions that they do not wish to answer, and they can refuse to participate or they can withdraw at any time without penalty or repercussion.
 - With few exceptions, written consent of the child's parent(s) or guardian(s) is required if subjects are [children](#). In addition, older children should generally be asked to give written assent (agreement) to participate. Younger children unable to provide assent in writing should generally be asked to give verbal assent (agreement) to participate.
 - Provide a means for subjects to contact the investigator(s) if they have questions or concerns about the research. Make it clear to the subjects that you are affiliated with The Ohio State University.
8. What information do you plan to give to your subjects before you ask for their consent? Use a style of language that simply and clearly explains the research to your subjects. Respond in the space provided here, or attach a copy of the information you plan to provide to your subjects and/or their parents or guardians. (Note: if you use more than one method of recruitment, you may check more than one box)
- Letter(s) attached. I will give each of the subjects a copy of this letter.
- I will be contacting subjects by phone or in person. I am attaching a script that contains the information I will give them.
- Does not apply. My data analysis is limited to existing records or tissue specimens.
- Response:
9. How do you plan to document informed consent? Read all of the options before checking the appropriate boxes.
- The subjects are adults. Before collecting data, I will ask them to sign a written consent form. I am attaching a copy of the consent form.
- The subjects are adults. Before collecting data, I will ask them to give verbal consent to participate in this research study.
- The subjects are adults. I am distributing a survey or questionnaire to the subjects. They can choose whether or not they want to respond. I am requesting a waiver of written consent.
- The subjects are children. I am attaching a copy of the consent form that I will use to obtain consent from their parents or guardians and assent (agreement) from subjects who are capable of providing written assent.
- Some of the subjects are adults, and some are children. I have checked more than one box above to reflect the methods I will use to document informed consent.
- Does not apply. My data analysis is limited to existing records or tissue specimens.
- Other. Please explain and provide justification for your request: