

A FRAMING ANALYSIS OF ANIMAL  
IDENTIFICATION COVERAGE IN SELECDTED U.S.  
AGRICULTURAL NEWSPAPERS

By

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Title of Study: A Framing Analysis of Animal Identification Coverage in Selected U.S. Agricultural Newspapers

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Abstract: The need for a stronger system of traceability has become more of a focus for the food industry in recent years due to foodborne disease outbreaks and a need to increase safety in the food supply chain. To increase the likelihood of adoption of future programs within the cattle industry, program directors must better understand the influence of the agricultural media over industry member's opinions. In this study researchers sought to examine the tone, sources, affiliations and framing of the information presented by selected agricultural newspaper media regarding traceability and NAIS. Sixteen frames and five source types were established and used to code the selected material. Researchers found the most frequently used dominant frame was meeting summary, with the most frequent secondary frame being producer and industry opinions. Almost half of the articles were positive in tone. Moreover, the most frequently cited source type was non-profit. Future programs must be diligent in establishing a relationship with the agricultural media to help to ensure positive coverage of their program. By analyzing these results, future programs can determine the most effective way to represent their program to the agricultural press.

## TABLE OF CONTENTS

Chapter	Page
I. BACKGROUND AND SETTING.....	1
Statement of Problem.....	4
Purpose.....	4
Objectives .....	4
Scope of the Study .....	5
Significance of the Study .....	5
Assumptions.....	6
Limitations .....	6
Definitions.....	7
II. LITERATURE REVIEW.....	10
History of Traceability .....	10
Diffusion of Innovations .....	13
Organizational Diffusion of Innovations .....	14
Individual Diffusion of Innovations.....	16
Studies involving Diffusion of Innovations .....	17
Technology Acceptance Model .....	19
Concept of Whole-Chain Traceability (WCT) .....	22
Required Technology.....	25
Agriculture Media.....	26
Coverage of Traceability.....	30
Theoretical Framework.....	31
Framing .....	31
Agenda Setting.....	35

Chapter	Page
III. METHODOLOGY .....	38
Oklahoma State University Institutional Review Board.....	38
Research Design.....	39
Cases and Population .....	39
Data Collection .....	44
Coder Selection and Training .....	44
Framing Analysis.....	45
Validity .....	46
Reliability.....	46
Data Analysis .....	46
IV. FINDINGS.....	47
Cases and Population .....	48
Findings Related to Identifying Frames Used in Selected Newspaper Content ...	49
Findings Related to Identifying Sources Used in Selected Newspaper Content ...	59
Findings Related to Determining Tone of Selected Newspaper Content .....	62
V. CONCLUSION.....	67
Summary of Findings.....	68
Findings Related to Identifying Frames Used in Selected Newspaper Content .....	68
Findings Related to Identifying Sources Used in Selected Newspaper Content .....	71
Findings Related to Determining Tone of Selected Newspaper Content .....	72
Conclusions.....	73
Conclusions Related to Identifying Frames Used in Selected Newspaper Content .....	73
Conclusions Related to Identifying Sources Used in Selected Newspaper Content.....	76
Conclusions Related to Determining Tone of Selected Newspaper Content.....	78
Recommendations.....	80
Recommendations for Practice.....	81
Recommendations for Future Research.....	81
Implications.....	82

REFERENCES .....	83
APPENDICES .....	94

## LIST OF TABLES

Table	Page
1. Top Sources Used by Industry for Learning about New Products Members .....	30
2. Information on the Selected Articles .....	40
3. Frequencies from Each Publication .....	43
4. Frame Definitions .....	50
5. Frequency of Articles Assigned Dominant Frames .....	53
6. Dominant Frame Assigned to Each Publication's Articles.....	54
7. Frequency of Articles Assigned Secondary Frames .....	55
8. Dominant and Secondary Frames .....	57
9. Framing Counts for Article Type.....	58
10. Statistical Value for Types of Sources.....	59
11. Types of Sources Cited per Type of Article .....	60
12. Types of Sources Cited by Publication.....	61
13. Frequencies of Tone in Each Publication's Articles.....	62
14. Frequency of Tone in Relation to Dominant Frame Assigned .....	65
15. Tone in Relation to Type of Sources Cited.....	66

## LIST OF FIGURES

Figure	Page
1. Organizational Diffusion of Innovations Model .....	15
2. Individual Diffusion of Innovations Model.....	17
3. Technology Acceptance Model.....	20
4. Types of Agricultural Media Usage .....	27
5. Top Resources of Agricultural Media Used by Industry Members .....	27
6. Types of Agricultural Media Used by Different Age Groups .....	28
7. Introduction to New Agriculture Products .....	29
8. Agenda Setting Model.....	35



## CHAPTER I

### INTRODUCTION

#### **Background and setting**

The 2012 Agri Council Media Channel Study found that cattle industry members rely heavily upon print media for their news and information. There is a lack of data regarding the influence of the agricultural media over industry members' opinions. More specifically, there has been little research over the agricultural media's coverage of the issue of traceability within the cattle industry. Therefore the researchers in this study sought to analyze the frames the agricultural print media presented through coverage of traceability. A framing analysis is effective when studying media coverage of an issue, as evidence by similar studies (King, 2005; Sitton, 2000). With this data future programs that hope to replace the government's NAIS program can better prepare how to present their program to the media, to help avoid a poor adoption rate like that of the NAIS program.

The concept of traceability and marking ownership of livestock has existed through various forms in the cattle industry since the domestication of cattle nearly 8,000 years ago (Zeder, 2008). Traceability and physically marking ones livestock have grown from hot-iron brands to more developed forms of identification (Blancou, 2001; Stead, 1986).

While hot iron brands still are used in the beef industry, other forms such as freeze branding, ear tattooing, ear tagging, and ear marking are also used. Advanced forms of identification, including retinal imaging, molecular markers, and injectable electronic, identification also are used in modern livestock operations (Caja, Ghirardi, Hernández-Jover, & Garín, 2004). While forms of animal tracking have certainly advanced from the time of their conception, they have proven to still fall short when the issue of food security arises.

Animal health and food safety issues, traceability is vital to the productivity of the beef industry. The Centers for Disease Control reported that food borne illness infection rates are on the rise, with 48 million people sickened by food borne pathogens each year (Centers for Disease Control and Prevention, 2012). Thus far, the U.S. beef industry has only utilized group identification numbers termed animal group identifiers (AGID), that were implemented by the United States Department of Agriculture (Smith, Tatum, Belk, Scanga, Grandin, & Sofos, 2005). After the fourth case of BSE disease was discovered in the United States, on April 23, 2012, in a dairy cow from a California dairy operation, a more efficient system of tracing disease in the cattle industry has proven necessary (Sperry, 2012). Individual animal identification, known as the National Animal Identification System (NAIS), was attempted but was unsuccessfully adopted into the industry (USDA, 2009). The National Animal Identification System (NAIS) was created in 2004, after the 2003 discovery of a dairy cow in Washington infected with bovine spongiform encephalopathy (BSE) (“Can RFID Protect”, 2003). NAIS was designed to give every animal a unique identification number that would be entered into a national database, thereby tracking the movements of each animal. In the circumstance of a

disease outbreak or if a sick animal was found, the identified animal could be quickly located and quarantined. This system of tracking also would allow officials to see if other animals had been exposed by tracing the infected animal's shipment history, helping to break the cycle of disease outbreak in its initial stages (Smith et al., 2005).

Participation in the NAIS program was voluntary, so when the NAIS system was implemented it only received 40% participation from nation's livestock producers (Greene, 2010). Premise registration, which served as the precursor to NAIS, was expected to have 100% compliance by 2009. However, the USDA reported that because of the voluntary nature of both premise registration and NAIS, the expected number of participants was an unrealistic expectation (USDA, 2007). The 2008 report released from the USDA had a goal of 35% of that year's calf crop enrolling in the program (USDA, 2008). The USDA anticipated that by October 2009, 60% of the same crop would enroll in the program within a year (USDA, 2008). Reports released in 2011 showed that 10 million calves officially were identified in 2009, but by 2010 that number had fallen to 3.1 million (USDA, 2011).

As cow-calf producers serve as the first providers in the beef supply chain and are a large demographic of the beef industry, it is important to "consider the perceptions of cow-calf producers when attempting to implement individual animal traceability and maximize participation rates of these systems, as the views of producers will most certainly impact the success or failure of these efforts" (Schulz, 2008, p. 1). Therefore, future programs like whole-chain traceability that are seeking to be established need to evaluate the influence of the agricultural media's coverage of issues concerning traceability and NAIS has over cattle industry members.

## **Statement of the Problem**

There have not been studies conducted to analyze the agricultural media's coverage of traceability. Therefore, there is no data for the agricultural media, agricultural communicators, and future traceability program directors to examine to better prepare their programs for representation by the agricultural media.

By examining the tone, sources, affiliations and frames used by agriculture print media feature and news stories researchers can conclude the general representation of agriculture print media towards traceability. With this knowledge future programs developers, like those involved with whole chain traceability, can better prepare their relationship with the print media, in hopes to positively shape industry members' opinions and level of receptiveness towards implementing a whole-chain traceability system (Schulz & Tonsor, 2010).

## **Purpose**

This purpose of this study was to describe selected agricultural print media coverage of traceability, to produce data for future program developers to utilize to avoid a poor adoption rate like that of NAIS.

## **Objectives**

The following objectives guided this study:

1. Identify the frames used in selected agricultural print media content that contained information about traceability and NAIS.
2. Identify sources represented in the selected agricultural print media content.

3. Determine whether the tone of the selected newspaper content was positive, negative, or neutral toward traceability and NAIS.

### **Scope of the Study**

This study examined agricultural print media feature and news stories with coverage spanning four regions of the U.S., including the western region, southern region, plains region, and Midwest region of the nation. The selected feature and news stories from these print sources were archived from 2005 to 2013.

### **Significance of the Study**

The knowledge gained by determining the tone, frames, and sources in designated articles will provide traceability system developers, and developers of future programs, with a foundation for fostering a healthy relationship with agriculture media. Positive media coverage of future programs will help to ensure its acceptance and ready adoption into the cattle industry, and eventually into the agricultural industry at large. The data from this study will assist developers of future programs to more effectively tailor how their system is portrayed by the agricultural print media (Schulz & Tonsor, 2010). Positive portrayal of future programs may lead to a higher level of adoption.

More efficient data management and product traceability within the beef industry is needed to promote an outbreak response system that shortens the time between an outbreak (e.g., foodborne illness due to a food safety incident or a disease), detection, resolution, and recovery, while improving communication regarding product origin and processing history with consumers (Johnson, 2012). Outbreaks of foodborne illnesses due to food safety issues in the U.S. have displayed the need for a stronger traceability system

that highly involves producers (Center for Disease Control and Prevention, 2012; Sperry, 2012). Therefore a more advanced system of traceability needs to be introduced to the cattle industry, and needs to be successfully adopted by the industry members.

### **Assumptions**

This study was based on the following assumptions:

1. Reporters covering a topic are guided by a code of ethics of fairness when writing and researching about a topic (Commission on Freedom of the Press, 1947).
2. The printed agricultural press is the main channel of information for industry members (Agri Council Media Channel Study, 2012).
3. Coders were willing to come to consensus on selected articles' frames and tone.
4. All articles covering traceability from the selected publications were included in the study.

### **Limitations**

This study was subject to the following limitations:

1. The results of this study can be applied only to the agricultural media outlets included in the study.
2. The study only included a selected group of agricultural newspapers and tabloids, excluding all other forms of agricultural media.

3. The results of this study only included the opinions of the individuals who conducted the framing analysis.

### **Definitions**

**Agenda Setting:** The powerful influence of the media, over the general public, to tell the public what issues are of importance (Journalism and mass communication quarterly, 1995).

**AGID:** Animal group identifiers, a system of identification enacted by the USDA that identifies groups of lots of animals (USDA, 2008).

**Bias:** An inclination toward an outlook; a personal and sometimes unreasoned judgment (“Bias,” n.d., Merriam-Webster, 2012).

**Editorial:** As presented by Merriam-Webster.com, editorial is defined as “a newspaper or magazine article that gives the opinions of the editors or publishers” (“Editorial,” n.d., Merriam-Webster, 2012).

**Favorable:** “Disposed to favor; expressing approval” (“Favorable”, n.d., Merriam-Webster, 2012).

**Feature article:** “Feature stories go into depth about a generally newsworthy situation or person. Timeliness is relevant, but not critical” (Brooks, Kennedy, Moen, & Ranly, 2011, p. 233).

**Frame:** As described by Entman (1993), “to select some aspects of a perceived reality and make them more salient in a communication text, in such a way as to promote a

particular problem and definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described” (p. 52).

**NAIS:** National Animal Identification System, a system enacted by the USDA in 2004 in an effort to identify individual animals (USDA, 2007).

**News:** “A report of recent events; material reported in a newspaper or news periodical or on a newscast; a matter that is newsworthy” (“News”, n.d., Merriam-Webster, 2012).

**Newspaper:** “A paper that is printed and distributed usually daily or weekly and that contains news, articles of opinion, features, and advertising” (“Newspaper”, n.d., Merriam-Webster, 2012).

**Tabloid:** “A newspaper that is about half the page size of an ordinary newspaper and that contains news in condensed form and much photographic matter” (“Tabloid”, n.d., Merriam-Webster, 2012).

**Traceability:** “Knowing where diseased and at-risk animals are, where they've been, and when” (APHIS, 2013).

**Unfavorable:** “Opposed, contrary; expressing disapproval; not pleasing” (“Unfavorable”, n.d., Merriam-Webster, 2012).

**USDA:** United States Department of Agriculture, a governmental agency responsible for creating and executing US governmental policies on food, agriculture, and farming (APHIS, 2005).



**Whole-chain traceability:** A technology based system that would identify individual animals, and allow users to control what information they share with others, and with whom the information is shared with (Buser, 2011).

## CHAPTER II

### LITERATURE REVIEW

There is a lack of data regarding the influence of the agricultural media over industry members' opinions; specifically there has been little research over the agricultural media's coverage of the issue of traceability within the cattle industry. The researchers in this study sought to analyze the frames selected agricultural print media presented through coverage of traceability. The knowledge gained by determining the tone, frames, and sources of the selected articles in this study will provide traceability system developers with knowledge of how to represent their systems to the media for coverage. Positive media coverage of future programs will help to prevent a poor adoption rate like that of NAIS (Schulz & Tonsor, 2010).

#### **History of Traceability**

The concept of traceability and marking ownership over ones livestock has existed through various forms in the cattle industry since the domestication of cattle nearly 8,000 years ago (Zeder, 2008). Ancient Egyptians used fire-heated brands to mark and identify their livestock (Stead, 1986). Similarly, the ancient Romans branded their livestock with specific symbols that were believed to evoke powers that would protect their livestock (Blancou, 2001).

Branding reached the western hemisphere through the conquests of the Spanish, who imported cattle with their explorations. The Spanish, like the Romans, chose symbols to brand their cattle with. In this instance the cattle were branded with three Latin cross symbols, introducing the brand to the western world (Lackey, 2011). Forms of traceability have now developed into several forms of sophisticated identification. While hot iron brands are still used in the beef industry, other forms such as freeze branding, ear tattooing, ear tagging, and ear marking are also used. Advanced forms of identification including retinal imaging, molecular markers, and injectable electronic identification are also used in modern livestock operations (Caja, Ghirardi, Hernández-Jover, & Garín, 2004).

Due to animal health and food safety issues, traceability is vital to the productivity of the beef industry. To date the US beef industry only has group identification numbers termed animal group identifiers (AGID) (Smith et al., 2005). Individual animal identification was attempted, but was unsuccessfully adopted into the industry. The National Animal Identification System (NAIS) was created in 2004, after the 2003 discovery of a dairy cow in Washington infected with bovine spongiform encephalopathy (BSE) (Can RFID Protect, 2003).

In regards to the public introduction of NAIS, Veil (2007) summarized:

As the research on the two grants was still being conducted, in April of 2005, USDA APHIS released a draft of the Strategic Plan for the National Animal Identification System (NAIS) (APIDS, 2005). The plan called for animal trace-back within 48 hours to mitigate a naturally occurring disease or an intentional

attack. The plan also specified a timeline for full implementation of the system using RFID technology for tracking cattle by the end of 2008. The plan was released on the APHIS website, allowing organizations involved in the industry to share their reactions (APHIS, 2005).

The purpose of the NAIS was to give every animal a unique identification number that would be entered in a national database. The movements of animals would be tracked, and if there was a disease outbreak or a sick animal was found, officials could quickly locate other animals that had been exposed (Smith et al., 2005). Participation was voluntary, and when the NAIS system was implemented it only received a 40% participation of the entire nation's livestock producers (Greene, 2010). Premise registration, which served as the precursor to NAIS, was expected to have 100% compliance by 2009.

However, USDA reported that due to the voluntary nature of both premise registration and NAIS the expected number of participants was an unrealistic expectation (USDA, 2007). The USDA 2008a report had goals for NAIS participation of 35% of the 2008 calf crop by October 2009, and 60% of the same crop by October 2010 (USDA, 2008). Reports released in 2011 showed that 10 million calves were officially identified in 2009 (roughly 30%), but by 2010 that number had fallen to 3.1 million (USDA, 2011). Changes to NAIS, to increase adoption, have continued as evidenced by recent USDA announcements. On March 11, 2013 the USDA announced that the United States now has a flexible, effective animal disease traceability system for livestock moving interstate, without excessive burdens for ranchers and U.S. livestock businesses (USDA Secretary Tom Vilsack, Schmitz, 2013).

Due to the fact that cow-calf producers serve as the first providers in the beef supply chain and are a large demographic of the beef industry, it is important to “consider the perceptions of cow-calf producers when attempting to implement individual animal traceability and maximize participation rates of these systems as the views of producers will most certainly impact the success or failure of these efforts” (Schulz, 2008, p. 1).

### **Diffusion of Innovations**

Researchers used The Diffusion of Innovations Theory to explain the poor adoption of NAIS. The Diffusion of Innovations framework, developed by Everett Rogers, establishes five stages of the innovation decision process:

- (1) Knowledge of and access to the innovation
- (2) Persuasion of a favorable attitude toward the innovation
- (3) Decision to adopt
- (4) Implementation of the innovation
- (5) Confirmation of the innovation. (Rogers, 2003)

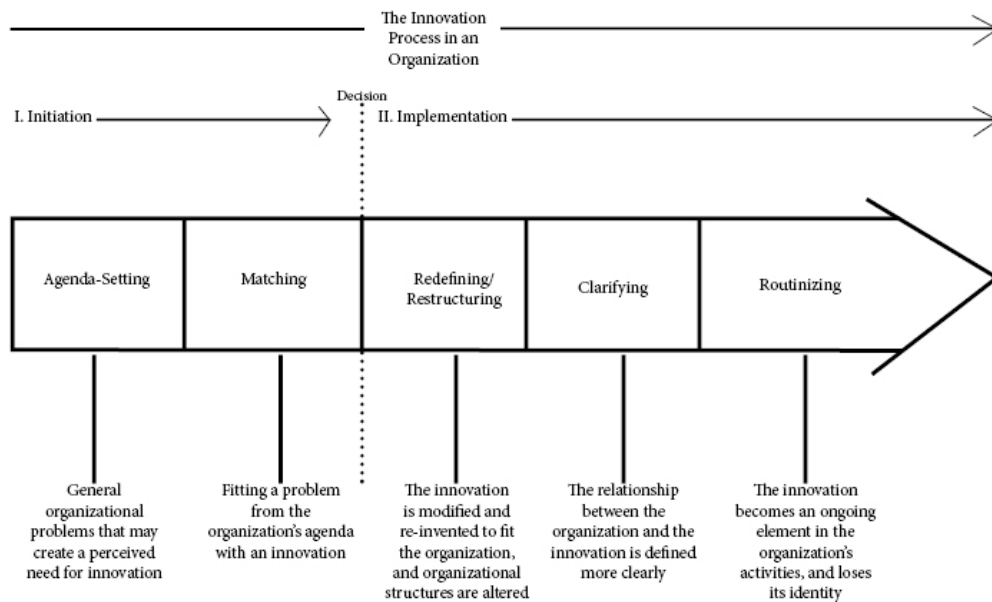
The Diffusion of Innovations framework states that there will be an increased rate of diffusion and the decision to adopt an innovation if it is perceived to have a relative advantage and if the innovation is compatible with existing values, needs, and experiences (Rogers, 2003).

Furthermore, the innovation is more likely to be adapted if it is not overly complex, but it can be experimented with on a limited basis, and it needs to offer visible, positive results (Niehm et al., 2010). Innovations differ in the level of behavioral change needed for their acceptance. “Resistance to innovations may be overcome when the innovation is perceived to provide value, involve minimal consumer learning and

relatively high certainty, and be high in social relevance, legitimacy, and adaptability” (Niehm et al., 2010, p. 512).

### **Organizational diffusion of innovations.**

Organizational diffusion of innovations is the study of how an organization chooses to adopt a technology, and at what rate (Antonelli, 1985). This theory applies to the observation that the beef industry was slow to adopt, and in the majority of cases did not adopt NAIS. With this knowledge we can better focus our research on what channels of communication we need to utilize to ensure that programs like WCT are successfully adopted amongst the beef industry members. As aforementioned section states, it is important to take into account that previous systems have been unsuccessfully adopted by the industry, which accounts for why WCT is being implemented in this fashion. Figure 6 illustrates the innovation decision process, and the channels Rogers defines for this process. Figure 1 displays the organizational diffusion model.



*Figure 1.* The Organizational Diffusion of Innovations Model displays the innovation process in an organization, from initiation, to the decision making point, to implementation. The figure depicts the problems that can arise in the process of decision making process. Copyright Rogers, 2003.

According to Rogers (2003):

The innovation process in an organization consists of two broad activities: (1) *initiation*, consisting of all of the information gathering, conceptualization, and planning for the adoption of an innovation, leading up to the decision to adopt, and (2) *implementation*, consisting of all the events, actions and decisions involved in putting the innovation into use. The decision to adopt, shown as a dotted line, divides the two stages of initiation from the three stages of implementation (p. 80).

As illustrated by Rogers's model, NAIS was rejected at the point of decision by the majority of the cattle industry, due to the poor match of the system with the industry's needs and a lack of restructuring of the system to better fit the cattle industry (Greene, 2010; USDA, 2011).

### **Individual diffusion of innovations.**

The industry members that were willing to adopt the program are defined as the early adopters according to Rogers's Diffusion of Innovations theory. Their opinions of the program and readiness to adopt can influence the remaining members of the industry to later adopt.

It is also important to note that while the industry members that chose to implement NAIS were the early adopters of this system, the previous traceability systems (NAIS) were not been successful in their adoption. Our research is therefore prepared with the knowledge that previous traceability systems have been met with resistance and were rejected, as figure 2 displays. Figure 2 also displays the continued rejection of the NAIS system by individuals within the cattle industry.



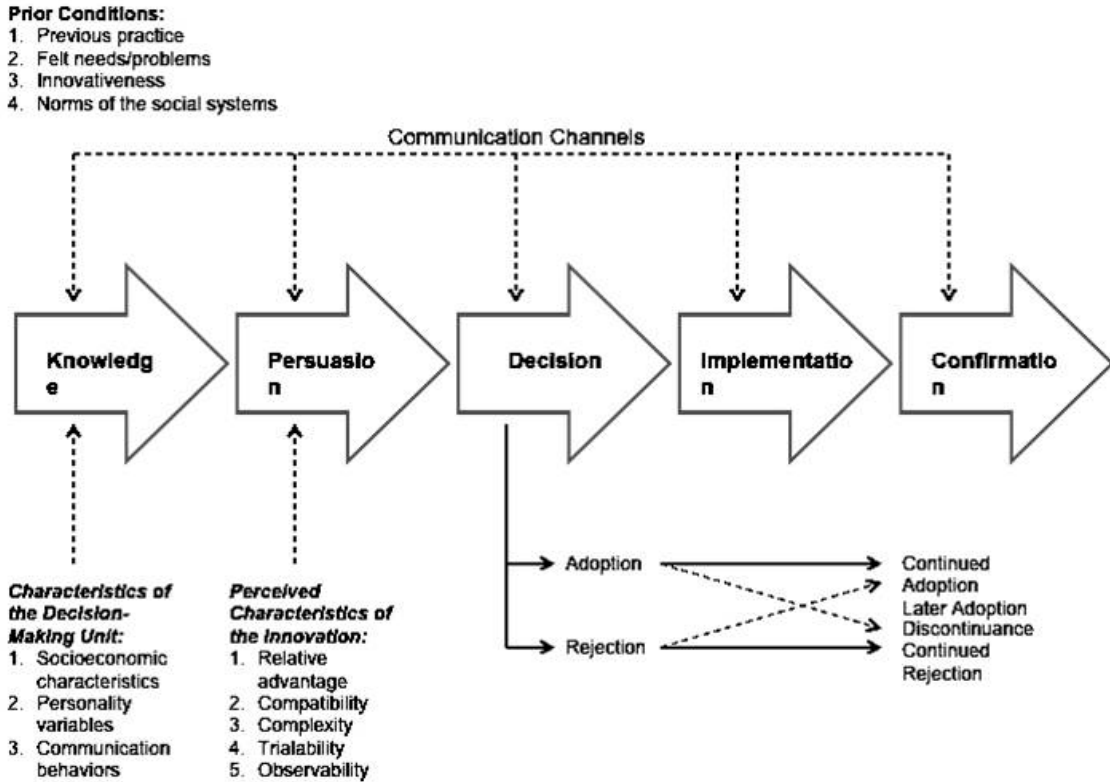


Figure 2. The Diffusion of Innovations Model displays the innovation process for an individual, highlighting the communication channels that are internally utilized to reach a decision. The figure depicts the process through which a decision is made, to either adopt or reject an idea. Copyright Rogers, 2003.

### Studies involving diffusion of innovations.

Niehm et al. (2010) established their research with the Diffusion of Innovations framework and the Technology Acceptance Model. They sought to find family business managers' prior knowledge and level of innovative technology (IT) use, the business location, and community size/type; the study stated these factors were important qualifications to the adoption of IT (Niehm et al., 2010). Niehm et al. (2010) found “ease of use and decision to adopt IT accounted for over 60% of the variance in usefulness of IT and implementation of internet and IT capabilities.” Furthermore, “the implementation

of IT capabilities accounted for nearly 40% of the variance in actual use of IT and perceived impact of the internet” (Niehm et al., 2010, p. 510).

Findings supported prior research that linked adoption of IT applications with knowledge and access, and with perceived ease of use and usefulness of the internet. The researcher results from their H1 stressed the important role of prior knowledge and level of integrated IT use as precursor for technology acceptance by smaller family businesses. Prior integrated IT use and knowledge was the strongest indicator of all qualifications in the analysis, followed closely by size of community (Niehm et al., 2010).

This study also showed that size of community is directly associated with ease of use and adoption of IT for small family businesses. The relationships suggested that there was a tendency toward greater IT use by small family firms in medium to larger communities. Results of this study suggested that family firms in greatest need of IT assistance and training may be those from the smallest communities, and home-based operations. Moreover, differences in the diffusion of IT by small family firms in smaller communities may be related to community access and the affordability of internet and related technologies (Niehm et al., 2010).

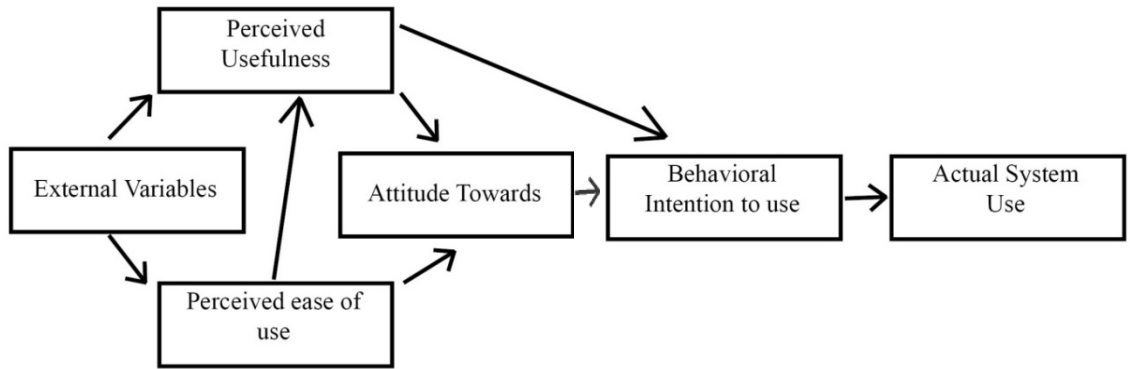
However, the members of the cattle industry cannot be solely defined with the early adopter’s definition of the Diffusion of Innovations theory, due to the lack of participation of the government’s aforementioned 2004 NAIS program.

As previously stated, the purpose of the NAIS was to give every animal a unique identification number that would be entered in a national database. And while participation was voluntary, when the NAIS system was implemented it only received a 40% participation of the entire nation’s livestock producers (Greene, 2010).

Therefore further theoretical support is needed to explain how to effectively implement the NWCTI program within the early adopters that have previously rejected the NAIS system.

### **Technology Acceptance Model**

Researchers also chose to use the second theory utilized by Niehm, the Technology Acceptance Model (TAM), to help explain how future programs can effectively gauge the level of perceived usefulness and therefore estimate acceptance of their system amongst industry members. TAM is considered an extension of Ajzen and Fishbein's Theory of Reasoned Actions (TRA). TAM was developed by Fred Davis and Richard Bagozzi (Davis, 1989). TAM functions to replace many of TRA's attitude measures with the two technology acceptance measures: ease of use and usefulness. Similar to TRA, TAM has strong behavioral elements as the theory assumes that when someone forms an intention to act they will be free to act without limitation (Davis, 1989). However, later research has pointed to the fact that in reality there will be many constraints, such as limited freedom to act (Davis, Bagozzi, & Warshaw, 1992). Figure 3 displays the elements that influence TAM.



*Figure 3.* The Technology Acceptance Model displays the primary factors that influence whether a technology is accepted or rejected by an individual or group. Copyright Davis, 1989.

Figure 3 illustrates the Technology Acceptance Model, which we utilized to further explain the poor adoption rate of NAIS and examine how future programs can establish their systems to better serve industry members. Therefore, we examined the external variables, like previous innovative technology (IT) knowledge and experiences that could affect the perceptions of industry members. The two perceptions that could be held by industry members were perceived ease of use of future programs (like whole-chain traceability) and perceived usefulness of these systems.

Davis et. al. (1992) stated:

Because new technologies such as personal computers are complex and an element of uncertainty exists in the minds of decision makers with respect to the successful adoption of them, people form attitudes and intentions toward trying to learn to use the new technology prior to initiating efforts directed at using.

Attitudes towards usage and intentions to use may be ill-formed or lacking in conviction or else may occur only after preliminary strivings to learn to use the

technology evolve. Thus, actual usage may not be a direct or immediate consequence of such attitudes and intentions (p. 660).

While the use of personal computers has become more commonplace since this research, data management via a computer, smart phone, tablet, etc., is still relatively rare amongst many producers and processors. Keeping this knowledge in mind while coding articles, and their tone and frame, can offer valuable insight into what new technologies may be useful to incorporate into future programs like WCT. Regarding his study, Davis (1989) stated “the present research develops and validates new scales for two specific variables, perceived usefulness and perceived ease of use, which are hypothesized to be fundamental determinants of user acceptance” (p. 319).

As Lengrisa, Inghamb, and Collerette (2003) stated TAM is useful in helping to analyze the fact that “enterprises decide to invest in information systems (IS) for many reasons, among these are: pressures to cut costs, pressures to produce more without increasing costs, and simply to improve the quality of services or products in order to stay in business” (p. 200).

A study released results in the eighties where researchers focused their study on identifying the factors that could assist the integration of IS into businesses. The research revealed several factors that seemed influential in forming if and how a business adopted the use of a technology (Bailey & Pearson, 1983). Bailey and Pearson conclusively identified 39 factors that can potentially influence user satisfaction when adopting an IS (Bailey & Pearson, 1983). Cheney et al. (1986) worked to abbreviate this list into three categories: (1) uncontrollable (2) partially controllable (3) fully controllable. Of this list, uncontrollable factors qualify as organizational time frame and task technology and

partially controllable factors include system development backlog. Lastly, fully controllable factors include system training, user computing and policies (Cheney et al., 1986).

Once Bagozzi et al. organized the two most important factors of explaining IS adoption and use (ease of use and usefulness), researchers modeled a diagram to function as the basis for tracing and explaining the external variable on users beliefs, attitudes and intentions (Bagozzi et al., 1992). The designed diagram demonstrates that external variables indirectly influence attitudes and the importance placed on perceived ease of use and perceived usefulness. Both perceived ease of use and perceived usefulness directly impact one another, as well the later behaviors of the user. These aforementioned factors culminate to form the attitudes towards using and behavioral intention to use. After studying these established factors, the final result of the actual system usage can be evaluated (Bagozzi et al., 1992).

### **Concept of Whole-Chain Traceability (WCT)**

“With traceability becoming ever more important within the beef industry for verification of animal health as well as marketing purposes, the need for traceability systems that are attractive to producers as well as meet the goals that they were designed for is evident” (Schulz & Tonsor, 2010, p.158). The importance of more development regarding traceability for a safer food supply has been evidenced by recent outbreaks of foodborne illnesses attributed to spinach, peppers, and tomatoes in the United States. The Centers for Disease Control reported that food-borne illness infection rates are on the rise with 48 million people sickened by food-borne pathogens each year (Center for Disease Control and Prevention, 2012).

The current approach to product traceability is one-up, one-back information sharing at the GTIN (global trade item number) lot level. “This type of traceability system has many disadvantages, including lack of privacy, and fails to maximize system benefits such as efficiency and more complete or ‘whole-chain’ information sharing” (Buser, 2011, p. 1). This current approach to traceability is flawed as it limits consumers and regulators capacity to identify the source of contamination and it limits mitigation efforts in the event of an outbreak or bioterrorism (Buser, 2011). Operating a traceability system that lacks this critical information can cause significant economic loss to every sect of the beef industry, thereby creating consumer uncertainty. Consumer uncertainty will eventually impact all facets of the beef industry, even those not related to the outbreak (Buser, 2011). Research suggests that whole-chain traceability can substantially limit the economic loss of food safety events (Resende-Filho, & Buhr, 2010).

Buser (2011) stated that whole-chain traceability will be “developed and implemented as an internet-based stakeholder-driven traceability and marketing system for the (beef industry) that is not punitive or profit-limiting but that adds value to the process while providing a method to limit and remedy food safety outbreaks and biosecurity breaches.” (p. 2). Whole-chain traceability will include and incorporate data input by producers, vendors, and consumers.

Furthermore, Buser (2011) stated whole-chain “data not only provides information to facilitate mitigation but also marketing information, value-added details, cultural and sociological features about the production or handling of the (products), quality standards criteria, and a feedback opportunity for consumers to rate or improve

product quality.” (p. 6). Whole-chain traceability data will be controlled within the multi-housed social media system (Buser, 2011).

Within whole-chain traceability stakeholders producers will maintain complete control over their data, and will therefore dictate who can access their data and where their data will be shared. This ability gives the producers the power to control their data to their preferential desire. Schulz and Tonsor (2010) found that “traceability systems that are most aligned with the preferences of cow-calf producers will enjoy higher voluntary participation.” (p. 157). This is critical, since the ability to trace food through a supply chain depends on private firms sharing product information with competitors as well as collaborators. If they are not assured of privacy control over information, they may refuse to participate in the system (Buser, 2011).

Buser (2011) also identified:

The whole-chain traceability system will be built using GS1 GTIN identification. This system will interface with internationally recognized and active traceability and marketing systems. It will interface with social networking internet opportunities and consumer information technologies. This system incorporates both traceability functions for food safety and biosecurity and data marketing functions. The data marketing functions will provide producers and processors an opportunity to develop new revenue streams by deploying new and innovative marketing strategies that make use of cell phone technologies and GIS graphic mapping web applications (p. 2).



Whole-chain traceability will reduce the mitigation time related to food safety emergencies, and increase producer's confidence in their data security within the system because they dictate who can access their data. Consumer confidence will also increase, because the information they receive is from a stakeholder-driven input built into the system, and therefore directly from the producers and processors.

***Required technology.***

When implementing new systems of traceability it is important to consider if the system's required technology will be a burden to industry members. Prior use of technology is often the precursor to adoption of new technologies (Niehm et al., 2010). Furthermore, the size of the community in which a producer or processor lives can impact the familiarity they have towards technology (Niehm et al., 2010). Niehm et al. (2010) also found "that family (businesses) in greatest need of IT assistance and training may be those from the smallest communities, and home-based operations; further differences in the diffusion of (technology) by small family (businesses) may be related to community access and the affordability of internet and related technologies" (p. 510).

The cost of new or additional technologies can be a burden. Furthermore, the introduction of unfamiliar technology can be cumbersome and decrease stakeholder participation. Whole-chain traceability will therefore only require access to a computer (desktop or laptop) for the sake of record keeping. Optional applications for a smart phone, tablet or other hand held device will be made optional but not required in order to participate in the program (Buser, 2011).

## **Agricultural Media**

Lundy, Ruth, Telg and Irani (2006) concluded that the public receives agricultural news from a variety of sources by stating “scientists, public information officers, and the media comprise a diverse group of individuals attempting to communicate scientific topics to the public” (para. 6). This diverse group of scientist, media professionals, and agricultural communicators are essential to disseminating the information. Furthermore, each member of this diverse group carries their own level of scientific knowledge and perceptions and plays their own roles in providing information to the public (Lundy et al., 2006). Ultimately, reporters and editors influence the way news is represented to the public in their roles as gatekeepers, through their personal decisions and definitions of the agricultural industry (Cartmell, 2001).

The Agri Council Media Channel Study, 2012 released reports that detailed how members of agriculture receive their information, and what forms they prefer. Figures 4-7 and Table 1 illustrate that their findings revealing that agriculture print media is still the largest form of information accessed and utilized by agriculture members. As the figures show, age is not a deterrent when it comes to agriculturalists reading print media. Lastly, print media in the agricultural industry offers the largest influence over when and how agriculturalist learn of new techniques or issues, like NAIS (Figure 7). These findings supported the researcher’s decision to use agriculture print media and the form of media examined for their framing analysis.

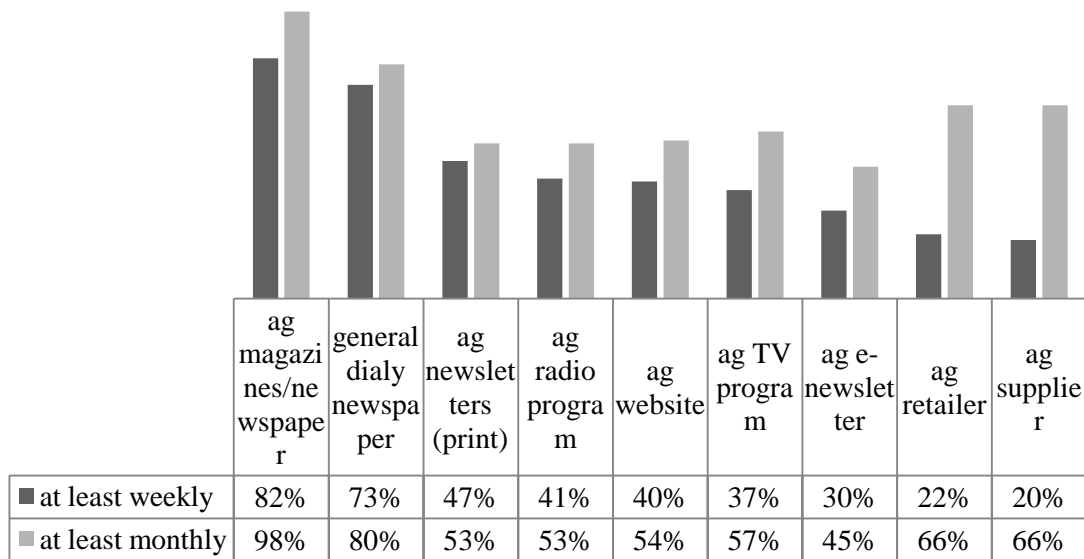


Figure 4. Types of Agricultural Media Usage. Bar graph displaying that the print media is the primary source of information for members of agriculture, with readers' subscription to print media at least monthly to weekly. Copyright 2012 Agri Council Media Channel Study.

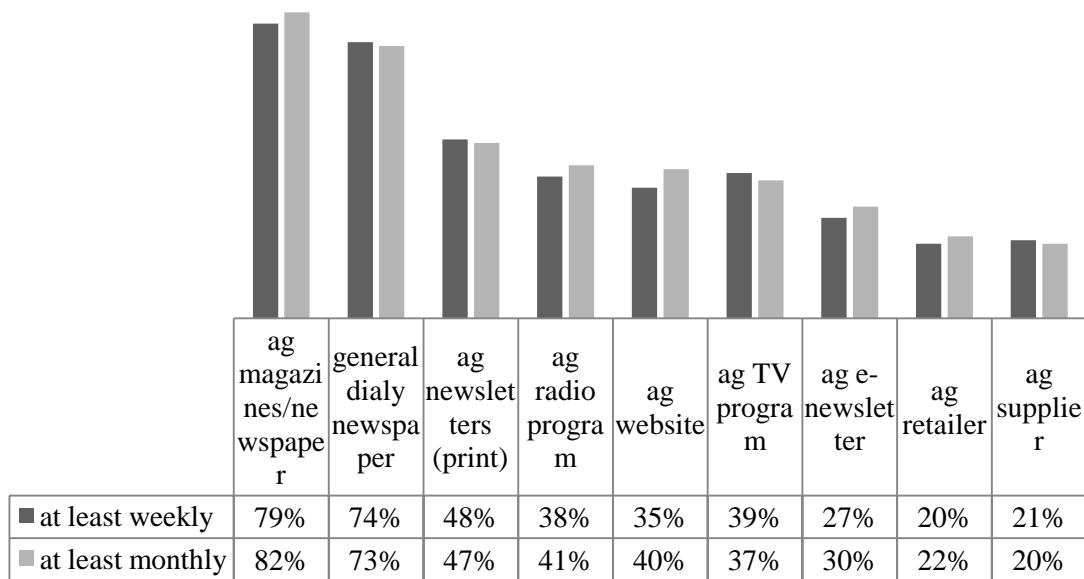
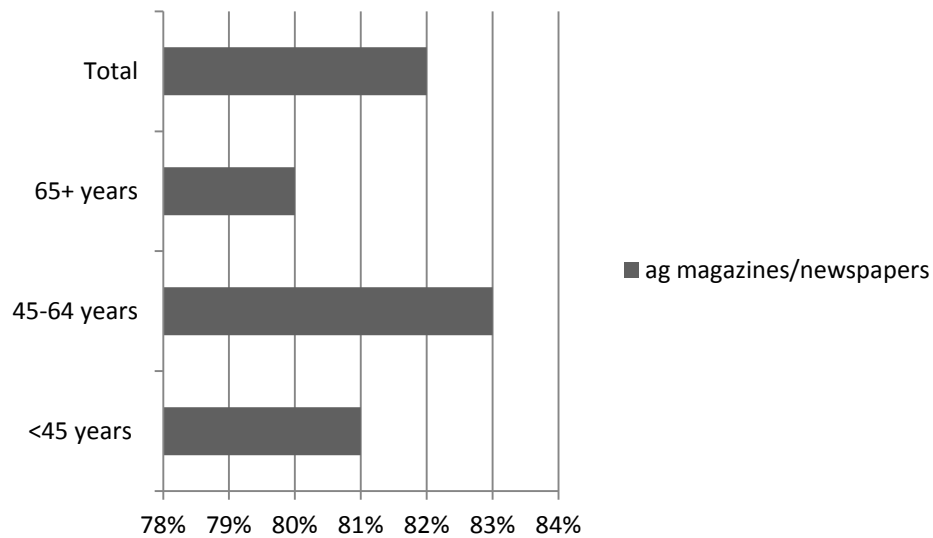
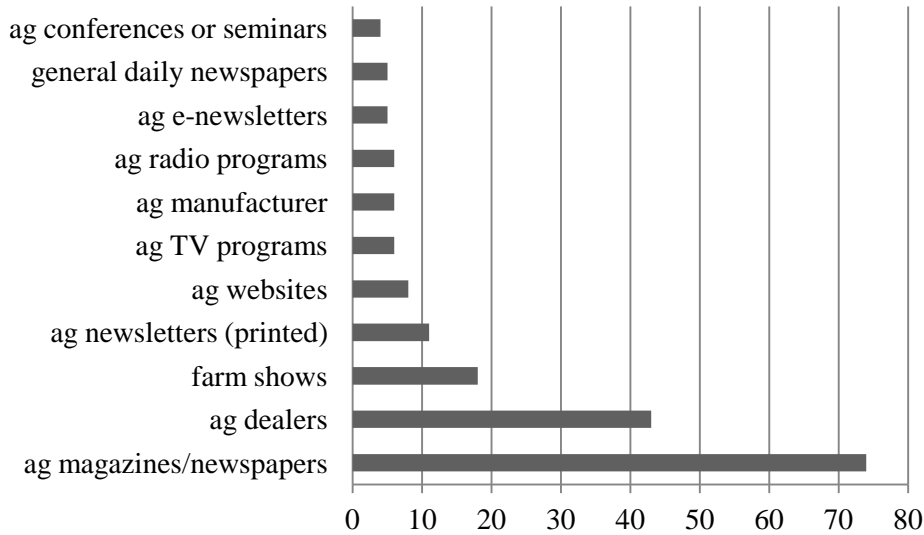


Figure 5. Top Resources of Agricultural Media Used by Industry Members. Bar graph displaying that the print media has remained consistently the top resources for industry members to use for information from 2010 to 2012. Copyright 2012 Agri Council Media Channel Study.

The challenge that modern day agricultural communicators face is form the agricultural industry’s message and relay it to the news media. Studies have found that while agricultural communicators understand the importance of relationships with reporters, they often fail to “authentic dialogic relationships” (Ruth-McSwain & Telg, 2008, p. 56). Ruth-McSwain and Telg also found that agricultural communicators often hinder their consultations with the news media and reporters, because they don’t want to trouble them. Agricultural Communicators need to foster these relationships would allow reporters to gain access to experts and other new sources (Irlbeck, Akers, & Palmer, 2011).



*Figure 6.* Types of Agricultural Media Used by Different Age Groups. Bar graph displaying that age does not influence the usage of print media as the primary source of information for industry members. Copyright 2012 Agri Council Media Channel Study.



*Figure 7.* Introduction to New Agriculture Products. The bar graph displaying that the introduction of new agricultural products and services, to agricultural industry members, comes primarily from print media (74%). Copyright 2012 Agri Council Media Channel Study.

Researchers have found that agricultural newspapers and general newspapers often lack complete and sufficient coverage of agricultural topics and issues (Reisner & Walter, 1994). More recent studies have revealed that the animal agriculture industry has the most difficulty when trying to deliver their message in an accurate and positive light (Croney, 2010). Croney (2010) concluded that to solve this problem the animal agricultural industry must convey a positive and transparent message to the media and public. Croney (2010) stated that it is important to be transparent about agricultural production practices, to avoid the impression of being deceptive. Researchers recommend reporters address this issue by writing stories with frames that “fit the current social structure in the culture”, which may include conventional farming images (Goodwin, Chiarelli, & Irani, 2011, p. 31).

Table 1

*Top Sources Used by Industry for Learning about New Products Members*

<u>Source of Learning</u>	<u>% of Age Group</u>		
	<45	45-64	65+
ag magazines or newspapers	76	73	74
ag dealers/retailers	44	48	35
farm shows	21	19	15
ag newsletters (printed)	7	11	12
ag websites	15	9	6
ag TV programs	2	5	8
ag manufacturer	3	5	8
ag radio programs	4	6	5
ag e-newsletters	3	5	5
general daily newspapers	4	3	8
ag conferences or seminars	5	4	3

**Coverage of Traceability**

Traceability has been a largely debated issue since its introduction in 2005, evidenced by its widespread agriculture media coverage. Golan, Krissoff and Kuchler (2004) stated:

Food traceability is in the news, from articles ranging from food safety and bioterrorism to the consumer's right to know. Recent news stories have focused on

tracking cattle from birth to finished product to control the risk of mad cow disease, on tracking food shipments to reduce the risk of tampering, and on traceability systems to inform consumers about food attributes like country of origin, animal welfare, and genetic composition (p. 14).

## **Theoretical Framework**

### **Framing**

The framing theory circulates around the idea that the way an issue is illustrated in news reports can have an influence on how it is understood by audiences (Scheufele & Tewksbury, 2007). Scheufele and Tewksbury (2007) detailed that framing is a tool for journalists, and those involved in other forms of media, to explain complex issues to their readers or viewers. Moreover, the researchers explained that framing is not essentially used to deceive audiences. Entman (2007) further described framing as “the process of culling a few elements of perceived reality and assembling a narrative that highlights connections among them to promote a particular interpretation”

Studies also described the theory with the statement “frames are cultural structures that organize understanding of social phenomena” (Abrams & Meyers, 2012, p.57). Frames are used to determine what issues are of concern to the public; to define belief systems, to identify the role of stakeholders, and define the language preferred when covering the topic (Hertog & McLeod, 2001). Entman (1993) further stated that framing is the selection of specific aspects of an issue and the process of making these aspects prominent in the news by communicating them through the news media. Framing performs this process of communication through four functions: definition of the

problem, diagnosis of the cause, creation of moral judgments, and advisement on remedies (Entman, 1993). Goffman (1974) noted that frames are not necessarily unethical, as they are used to organize issues and clarify them for the public. Perloff (2008) furthered this discussion on ethics by noting that frames created “word games,” which can distract the public from completely comprehending the issue (p. 294).

Callaghan and Schnell (2010) found that the media sometimes intervened with issue framing, including establishing its own frames, favoring one side of an issue, or creating their own subtexts. The media introduced their own frames into the coverage, in addition to those frames that were influenced by interest groups (Callaghan & Schnell, 2010). Content and framing analysis studies have shown that framing has implications for public policy and political communications. Entman (1993) explained that framing “plays a major role in the exertion of political power, and the frame in a news text is really the imprint of power” (p. 55).

Researchers Cannon and Irani (2011) stated that “communicating science is a complex task filled with challenges for scientists and communicators” (p. 6). Furthermore through their study published in 2011, the aforementioned researchers found that “in the field of agricultural communications, some of the most complex and controversial topics covered in today’s media are related to contagious animal diseases” (p. 6). Cannon and Irani (2011) explored the use of frames in two daily newspapers. The researchers chose to look at one newspaper covering the U.S., The New York Times, and the other covering the U.K., The Guardian. Coverage from the 2001 and 2007 outbreaks of foot and mouth disease (FMD) in Britain was analyzed.



Cannon and Irani (2011) stated that:

The analysis showed that the primary frame used in articles published during the outbreaks was fear, followed closely by a connection of FMD to bovine spongiform encephalopathy (BSE, or mad cow disease) and the potential for human infection. Secondary frames included criticism of government and politics, and a military/war frame (p. 12).

The findings from the analysis conducted displayed that the choice and use of frames by the media can create superfluous fear among consumers, who are already victims of their personal rudimentary level of knowledge regarding agricultural production and practices. Results like these are pertinent to the study we conducted because they indicate the level of influence the media holds over public perceptions and opinions, specifically through the framing they use within their delivery of information.

In a similar study examining the media through the scope of framing theory, Irlbeck et al. (2011) studied television news coverage of the 2009 Salmonella outbreak in peanut products. The researchers evaluated television news transcripts from four major television network stations: ABC, CBS, CNN, and NBC. Coverage was analyzed that was aired during the recall, and contained information pertinent to the peanut recall. Irlbeck et al. (2011) established three dominant frames from their analysis: informational, anti-Peanut Corporation of American, and anti-FDA. Furthermore findings related to sources used revealed that the most common sources cited were individuals who has been sickened with Salmonella, FDA officials (current and former), and politicians.

Irlbeck et al. (2011) found that there was an absence of frames related to agriculture along with almost no agricultural organizations cited as sources. Only one employee of the Georgia Department of Agriculture was interviewed and cited as a source, along with USDA's Agriculture Secretary Tom Vilsack (Irlbeck et al., 2011). The researchers found an apparent need for more food safety information to be more effectively communicated with the media. These findings can be correlated with the governments poor attempts to contact the media and inform them of the logistics behind the NAIS program, which led to media coverage that varied in degrees of information and usefulness.

Analogous research was conducted by Meyers and Abrams (2010) regarding the framing used for news coverage of organic food. The researchers examined five national newspapers during an 18-month period, specifically analyzing the news related to organic foods.

Meyers and Abrams (2010) found that:

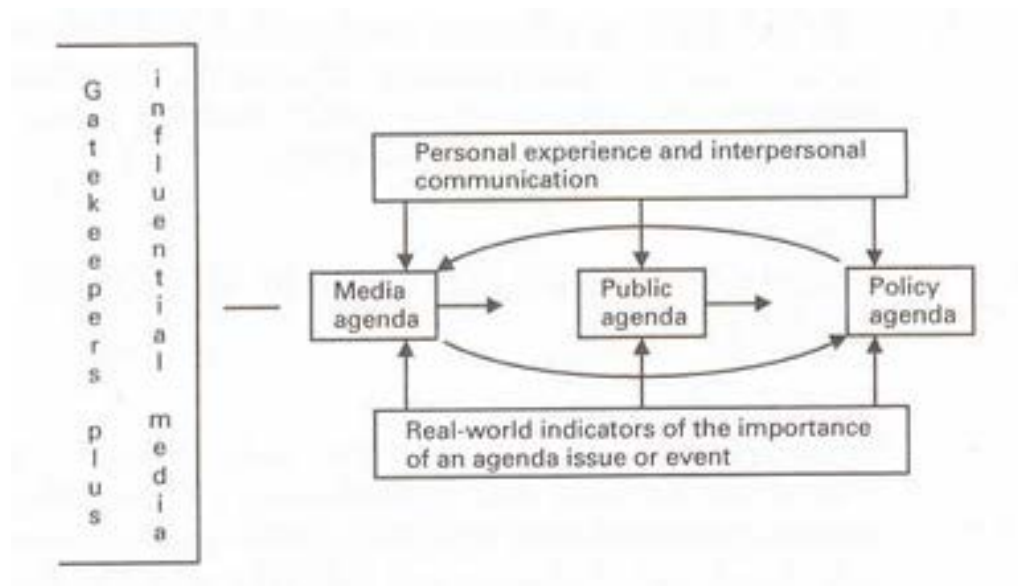
Emergent frames included "ethical," "health," "production," and "industrialization." Emphasis was placed on the ethical and moral reasons to purchase organic food with limited discussion of the scientific evidence for consumer claims of superior quality, safety, and nutrition. Overall, common sources included consumers, industry representatives, and organic farmers.

Again, the findings of this study demonstrated the media's bias through its framing, and the lack of scientific information in the media's coverage. These findings reiterate the importance and need for agricultural program developers to clearly

communicate the science based facts of their programs to the media, for proper and accurate coverage of the facts.

## Agenda Setting

Cohen (1963) stated: “The press may not be successful much of the time in telling people what to think, but it is stunningly successful in telling its readers what to think about” (p. 13). That statement illustrates the core of the Agenda Setting theory. Agenda setting serves to describe the commanding influence the media holds over the public’s opinion of what is important and essentially newsworthy (McCombs & Shaw, 1972). As McCombs and Shaw established, agenda setting is the construction of public consciousness and concern of relevant issues by the news media. The Agenda Setting Model is illustrated in figure 8.



*Figure 8.* The Agenda Setting Theory Model displays the driving forces behind the agenda of the media, and the external forces that shape the agenda that is set and how it is received by the public. Copyright McQuail & Windahl, 1993, p. 63.

There are two basic assumptions present in most research that utilizes the Agenda Setting theory (McCombs & Reynolds, 2002). The first assumption is that the press and the media do not reflect reality, the instead filter and form it. The second assumption is that when the media concentrates on a few issues and subjects, the public is lead to distinguish those issues or subjects as more important (McCombs & Reynolds, 2002). Mass communication play a key role in the Agenda Setting theory, as it directly affects the timeframe in which media is distributed and information is received by the public (McCombs, 2005). In today's mass communication society, social media phenomenon's can often be observed where a topic spreads rapidly through the different medians of news coverage. Additionally, different forms and/or affiliations of media hold different agenda-setting potentials (Rogers, 1993).

McCombs and Shaw (1972) focused on two elements in their research to establish the Agenda Setting theory: awareness and information. Their research focused on the relationship of what voters (in a chosen community) viewed as pertinent issues, and the actual content of coverage the media provided during the campaign (McCombs & Shaw, 1972). They conclusively found that the media held a measurable influence over what the voters considered to be key topics of the campaign. In essence, agenda-setting is the complex process "in which changes in media coverage lead to or cause subsequent changes in problem awareness of issues" (Brosius & Kepplinger, 1990, p. 190; Lang & Lang, 1981).

One key factor in the agenda setting process are the relationships the media shares with outside groups, and the ease of access these groups have to get their message published by the news media (Cobb & Elder, 1971). A primary example of this has been

illustrated in findings that conclude that legislators are more persuasive than other types of sources used by news media, typically because these political figures understand the media's need for dependable information and they understand what is deemed as newsworthy (Berkowitz, 1992).

Cobb and Elder (1971) recognized this key role of policy makers in their research stating that in order for an issue to be deemed important, it must receive support from policy makers, who are key to creating the agenda that the media uses to cover the issue. Furthermore, Cobb and Elder (1971) ascertained that the most noteworthy or influential policy makers are those with some celebrity status, whom the public recognizes, and therefore the media endows more influence to.

Berkowitz (1992) also found that government-affiliated sources have a higher frequency of appearing as sources in news media. This includes media with national, state, and local coverage. The relationship between policy makers and the media is understandable. The media need reliable and a consistent stream of information, while policy makers need the news media's coverage for various reasons (Berkowitz, 1992). Moreover, politicians who understand this culture are the most influential in their media coverage, the most capable of directly impacting the media, and often the ones with celebrity status because of this relationship with the media (Rogers & Dearing, 1988). Conversely, politicians can also be influenced by the media and its' agenda, viewing issue that the media covers as those of public interest (Rogers & Dearing, 1988).

## CHAPTER III

### METHODOLOGY

The concept of traceability has existed for nearly 8,000 years, from the original forms of hot-iron brands to more advanced forms found in modern society (Zeder, 2008). Due to animal health and food safety issues, traceability has proven to be a vital aspect of the beef industry. Due to the poor adoption of NAIS, a study to examine the framing of agriculture print media's feature and news stories covering traceability and NAIS was conducted. Entman (2007) defined framing as "the process of culling a few elements of perceived reality and assembling a narrative that highlights connections among them to promote a particular interpretation". Therefore, this study analyzed selected agriculture print media coverage of traceability, spanning from 2005 to 2013, which included coverage from when NAIS was first introduced. Researchers analyzed the tone, frames, and sources of selected articles. This study examined agriculture print media feature and news stories that provided coverage to four regions of the U.S., including the western region, southern region, plains region, and Midwest region of the nation.

#### **Oklahoma State University Institutional Review Board**

Institutional Review Board (IRB) approval was not required for this study, because human subjects were not involved.

## **Research Design**

Studies have described the idea of framing with the statement “frames are cultural structures that organize understanding of social phenomena” (Abrams & Meyers, 2012, p.57). A framing analysis was used to study selected feature and news articles about animal identification. The descriptive analysis of the selected articles focused on frames, tone, and sources in the selected articles, similar to studies like Miller, Stewart and, West (2006) who stated analysis like these are “a research technique for making replicable and valid inferences from textual data to their context” (p. 7).

## **Cases and Population**

The population of this study included feature stories, columns, editorials, reader-generated responses and news articles from newspapers selected from the 2013 Livestock Publication Councils (LPC) membership list. Feature and news articles were analyzed to allow for the most neutral material to be examined.

The initial selection process for the population began by eliminating publications that were funded by memberships or other organizations. The remaining publications then were classified as either newspaper/tabloid or magazine. During stratification, data about frequency of publication, region of coverage, and circulation were gathered. Thirty publications were included in the final stratified list. Of the 30 publications, nine were tabloid newspapers, four were traditional newspapers, one was a magazine insert, and 16 were magazines. From the list of 30 publications, seven weekly newspapers with regional coverage were selected for inclusion in the study. The selected newspapers collectively cover the U.S., with one in the western region, two in the southern region, three in the

plains region, one in the Midwest region, and one in the eastern region (LPC, 2013). Due to lack of an available archive, the publication covering the eastern region was not included in the study. See table 2 for the publications and their regions and circulation numbers.

Table 2

*Information on the Selected Articles*

Publication Title	Frequency of publication	Format	Circulation	Coverage
IFT	weekly	tabloid	75,000	Midwest region
HPJ	weekly	tabloid	51,300	Midwest and plains region
TSLN	weekly	newspaper	27,000	northern plains region
CBW	weekly	newspaper	10,500	southern plains region
WAR	weekly	tabloid	12,000	southern region
WLJ	weekly	tabloid newspaper	14,000	western region

*Note.* IFT= Iowa Farmer Today; HPJ= High Plains Journal; TSLN = Tri-State Livestock News; CBW= Cattle Business Weekly; WAR= Western Ag Reporter; WLJ= Western Livestock Journal.

*Note.* Areas of coverage for each newspaper were found in the 2013 Livestock Publication Manual Membership List.



The final list of publications included six newspapers that provide news to the plains, south, west and Midwest. The researchers group of 6 publications comprised of 5 tabloid newspapers and 1 traditional newspaper. These 6 were chosen because they had the highest frequency rate of all the publications, all being weekly published papers, and because of their regional coverage.

The search parameters for articles included three phrases: traceability, National Animal Identification System, and NAIS. Newspaper content from January 1, 2005, to March 31, 2013, was collected, to encompass the year NAIS was announced (2005) to the month the USDA announced changes to its NAIS system (March 11, 2013) (APHIS, 2005; Schmitz, 2013; Veil, 2007). The search was conducted by using both the search archives available on the newspapers websites and by contacting editors of the newspapers for email copies of their older archived stories. The primary researcher collected all of the articles. The primary researcher archived all of the articles from High Plains Journal, Cattle Business Weekly, Western Livestock Journal, and Iowa Farmer Today. The primary researcher received emailed articles from editors at Tri-State Livestock News and Western Ag Reporter.

An initial search for articles, including editorials, reader-generated responses, columns, news, and feature articles produced 727 articles. The search term “NAIS” produced 246 articles, and “National Animal Identification System” produced 248 articles with strong overlap with those found under NAIS (220 articles). The search term “traceability” produced 233 articles, with an overlap of 11 articles found under NAIS and three articles found under National Animal Identification System. From the total list of articles, the researchers chose to focus on feature and news articles. The list of news and

feature articles provided 355 articles. Content from all newspapers was identified and given a number. One article was eliminated after the first round of coding, because it was not a news article or a feature article, therefore the final group of selected articles was 354 ( $n = 354$ ).

As broken down by newspaper content type, 126 items were feature articles and 228 were news articles. The most content came from the High Plains Journal ( $f = 262$ ), with all of the articles being retrieved from the Internet archives by the primary researcher. Cattle Business Weekly ( $f = 26$ ) and Iowa Farmer Today ( $f = 37$ ) offered substantial search results from internet archives. The Western Livestock Journal ( $f = 49$ ), Tri-State Livestock News ( $f = 8$ ) and Western Ag Reporter ( $f = 8$ ) provided results through editorial searches that were emailed to the primary researcher, along with internet archive searches. Table 3 displays the search results from each publication. As broken down by newspaper content type, 126 items were feature articles and 228 were news articles.

Table 3

*Frequencies from Each Publication*

---

<u>Paper/Region</u>	<u>Final Article Count (f= 354)</u>
High Plains Journal (HPJ)/plains	226
Western Livestock Journal (WLJ)/ western	49
Iowa Farmer Today (IFT)/ Midwestern	37
Cattle Business Weekly (CBW)/ plains	26
Tri-State Livestock News (TSLN)/ plains	8
Western Ag Reporter (WAR)/ southern	8

---

The following definitions were established by the researchers to clarify articles:

**News article:** Presents factual information about a situation or event that has timeliness connected to it. Objective (The Missouri Group, 2011; Kuykendall, 2012).

**Feature article:** Presents factual information but does not necessarily have a timeliness factor. Often focuses on a person or activity of interest. May be subjective (The Missouri Group, 2011; Kuykendall, 2012).

**Editorial:** Expresses the opinion of the writer or publisher (Kuykendall, 2012).

**Column:** An opinion piece written in a recurring section by the same writer or about the same topic (Kuykendall, 2012).

**Reader-generated-response:** A submission by a reader not associated with the reporter or publication, most commonly a letter to the editor (A. Riggs, personal communication, November 8, 2011; Kuykendall, 2012).

After the first round of coding one article was dismissed from the study because it was not a feature or news article, resulting in a sample of 354 articles.

### **Data Collection**

Data Collection included in this study included two phases: coder selection and training, and content analysis of the selected feature and news articles.

#### **Coder Selection and Training**

Three coders conducted the framing analysis for this study. The principal investigator served as one coder, and two additional coders from the agricultural communications program at Oklahoma State University were chosen. The additional coders were an agricultural communications undergraduate student and a faculty adviser, from Oklahoma State University. Both additional coders had backgrounds in agricultural communications, giving them knowledge in journalism and communications in addition to general knowledge of topics and issues related to agriculture.

An initial meeting with all the coders was held to provide a brief training and background about traceability. Coders were introduced to the news and feature articles included in this study, and the Qualtrics round one instrument (Appendix A).

The principal investigator and a faculty adviser introduced the framing techniques and tone to the coders. Framing techniques were explained with references to previous

studies. Tone was described to the coders as being positive, neutral, negative, or not applicable toward traceability. Coders were trained to identify potential frames to be prepared to independently develop their own frames for the initial coding (Kuykendall, 2012).

### **Framing Analysis**

Following the initial training meeting the coders evaluated the selected newspaper articles dominant frames, tone, and sources cited. Coders recorded their responses through the online first round Qualtrics form. Coders independently developed their own frames for the articles. Tone was evaluated on four types: positive, negative, neutral, or not applicable. Coders also identified source types, and the source's title and affiliation (Kuykendall, 2012).

The coders met again for the first round of coding. During this meeting the coders aggregated the entries before the first round Qualtrics form, creating total list of 241 frames. Coder one produced 109 frames, coder two produced 113 frames, and coder three produced 19 frames. A list of the coder's initial frames is available in Appendix D. Coders then came to a consensus on 16 frames that logically emerged from their initial review of the content.

Following the meeting, coders independently applied one of the 16 frames to all of the articles. If more than one frame appeared, coders were given the option of assigning one or more secondary frame(s) for each article. Coders recorded their responses in the second round Qualtrics form (Appendix B).

Coders then met for final consensus meetings. During the final consensus meetings the coders come to a consensus on tone, dominant frame, and secondary frame is it applied. Articles that were assigned the dominant frame not related were labeled not applicable in tone. After the consensus meeting, those were the only articles labeled with not applicable as the tone.

### **Validity.**

The researchers used a modified instrument from a previous study, and coders reviewed the instrument for understanding (Kuykendall, 2012).

### **Reliability.**

Three coders analyzed the data during a period of meetings and two rounds of coding to ensure reliability. The coders independently coded all of the articles before coming to a consensus on frames that emerged. During the final consensus meetings the coders came to agreement on all discrepancies in tone and frame assignments.

## **Data Analysis**

Frequencies, medians, modes, and cross tabulations were calculated through the Statistical Package for Social Sciences software (SPSS) and Qualtrics and interpreted to satisfy the study's objectives.

## CHAPTER IV

### FINDINGS

Media coverage of issue concerning the beef industry has the potential to alter industry members' perceptions of and willingness to adopt new traceability programs (Charanza & Naile, 2012). It is a benefit to understand the role of the media and how it can influence opinions, both for reporters, program developers, and agricultural communicators (Charanza & Naile, 2012). The Agri Council (2012) study found that agricultural industry members get the majority of their information from printed sources, with newspapers ranking the highest in preference for printed news sources.

This study analyzed selected newspaper coverage of traceability, specifically the government program National Animal Identification System. Researcher analyzed selected articles tone, sources and frames. The selected articles publish date spanned from January 1, 2005 to March 31, 2013. This timeline included the introduction of NAIS to the cattle industry in 2005, to the most current legislative changes announced for NAIS. Traceability is a complicated issue that has caused large divisions in opinions within the cattle industry throughout the years of the government's continued attempts to implement the program.

To further complicate the levels of receptiveness toward NAIS, current forms of traceability vary from state to state. Currently, brand inspection laws do not exist in all 50 states, which may create more hesitancy about employing a program like NAIS (USDA, 2011). Legislation has passed that has incorporated some type of traceability program for the swine, sheep, and poultry industries (USDA, 2007). However, when the process of creating and introducing a traceability program to the cattle industry came to fruition, lack of communication from the government may have led to the poor industry member opinions of NAIS (Ruth-McSwain & Telg, 2008).

### **Cases and Population**

The newspapers identified for this study were chosen based on the description provided in the Livestock Publications Council membership list. The researchers group of six publications comprised of five tabloid newspapers and 1 traditional newspapers. These six were chosen because they had the highest frequency rate of all the publications, all being weekly published papers, and because of their regional coverage. The six chosen publications collectively cover the nation through their coverage, with one covering the western region, two covering the southern region, three the plains region and one the Midwest region. Due to archiving difficulties the publication covering the east coast region could not be included in the study. The following newspapers were included in the framing analysis: Iowa Farmer Today Publications (midwestern region), High Plains Journal (plains region), Tri-State Livestock News (plains region), Cattle Business Weekly (plains region), Western Ag Reporter (southern region) and Western Livestock Journal (western region). The search parameters for articles included three search phrases: traceability, National Animal Identification System, and NAIS.



The initial search produced 727 ( $N = 727$ ) articles. Reader-generated responses, editorials and columns were eliminated, to allow for the most neutral material to be analyzed for tone and frame. Duplicate articles were also eliminated. The final set of data included 354 articles ( $n = 354$ ). The most content came from the High Plains Journal (226), with all of the articles being retrieved from the internet archives by the primary researcher. Cattle Business Weekly (26) and Iowa Farmer Today (37) offered substantial search results from internet archives. The Western Livestock Journal (49), Tri-State Livestock News (8) and Western Ag Reporter (8) provided results through editorial searches that were emailed to the primary researcher, along with internet archive searches.

### **Findings Related to Identifying Frames Used in Selected Newspaper Content**

Objective one was to identify the frames used in selected agriculture print media content that contained information about traceability. During the first meeting for coding, the coders aggregated their entries from the first round Qualtrics form, creating total list of 241 frames. Coder one produced 109 frames, coder two produced 113 frames, and coder three produced 19 frames. A list of the coder's initial frames is available in Appendix D. Coders then came to a consensus on 16 frames that logically emerged from their initial review of the content.

Coders established a definition for each frame. Definitions of the frames are displayed in Table 4. Definitions were agreed upon by the coders; coders collapsed their first round frames into the 16 primary frames. The most frequently used frame was meeting summary, which was assigned to 95 of the 354 articles. Fifteen additional frames

were used, including not related, as a way to eliminate articles that were not pertinent to the analysis.

Table 4

*Frame Definitions*

Frame Title	Definition
Adoption:	Participation in traceability programs, including, but not limited to, benchmarks and statistics reported for various types of programs
Association Programs:	Traceability programs directed by membership organizations
Commercial Programs:	Traceability programs directed by commercial entities
Consumer Demands:	Consumer demands, wishes, needs, etc., related to traceability systems and information
Economics:	Including, but not limited to, the cost associated with traceability system implementation, potential taxes and funding available for programs related to traceability
International Trade:	Business with foreign countries regarding imports and exports
Meeting Summary:	The events of a meeting, including, but not limited to, voting, presentations and speakers
NAIS Structure:	Parts, guidelines and other working aspects of the NAIS

Not Related:	No information related to traceability programs, including NAIS; traceability or NAIS may be listed or mentioned but not described
Producer and Industry Opinions:	Highlighting the opinions of individual producers and industry organizations
Related Programs:	Existing traceability programs that are comparable to NAIS, including, but not limited to, those related to specific species or implemented by other countries
State Programs:	Traceability programs directed by state government
Technology:	Technology used to implement traceability systems
Traceability Justification:	Reasons for implementing and participating in traceability programs
University Programs:	Traceability programs directed by colleges or universities
Youth Programs:	Programs for the nation's youth, such as 4-H and FFA

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Articles that were found to be not related may have contained one of the search terms used by the primary investigator but the article failed to discuss traceability. An example being “in addition to food safety, he added, consumers are concerned about availability of products, consistency and traceability” (Miller & Smith, 2013). In this example, traceability is briefly mentioned in one sentence.

The number of all articles per frames is listed in table 5. Complete tables of all article numbers, source, type, tone, frames, and sources is provided in Appendix E,F,G, and H. As displayed in table 5 meeting summary was the most frequently assigned dominant frame. The next two most frequent frames were comparable in their frequencies; not related was the second most common dominant frame. NAIS structure was close to the aforementioned frequency. The forth most frequent dominant frame, producer and industry opinions, was used considerably less than the previously discussed frames. The frames commercial programs, state programs, and association programs held the same frequencies. The lowest occurring frame was consumer demands which was not used. The coders came to a consensus that consumer demands was an appropriate frame, but also discussed the similarities many of the frames held with one another and therefore the possibility that a frame would not be utilized. That is what happened in the instance of the using consumer demands as a dominant frame, preventing the frame from being utilized. Table 6 displays the frequencies of dominant frames with relation to each individual publication utilized in the study.

For articles that coders found more than one appropriate frame a secondary frame was assigned along with the dominant frame. Table 7 displays the frequency of secondary frames assigned to articles, 121 articles were assigned secondary frames. The largest secondary frame was producer and industry opinions, with NAIS structure and traceability justification being comparable in use.

While consumer demand was not utilized as a dominant frame it was used once as a secondary frame. Meeting summary was not utilized as a secondary frame because the

coders agreed that it would be used as a dominant frame. Similarly, not related was not utilized as a secondary frame because it was only appropriate as a dominant frame.

Table 5

*Frequency of Articles Assigned Dominant Frames*

<u>Dominant Frame</u>	<u>Article Count (<math>f = 354</math>)</u>
Meeting Summary	95
Not Related	54
NAIS Structure	53
Producer and Industry Opinions	30
Association Programs	20
Commercial Programs	20
State Programs	20
Related Programs	14
Adoption	11
International Trade	11
Traceability Justification	8
Economics	8
University Programs	6
Youth Programs	2
Technology	2
Consumer Demands	0

Table 6

*Dominant Frame Assigned to Each Publication's Articles*

Dominant Frame	<u>Publication</u>						Total
	CBW	HPJ	IFT	TSLN	WAR	WLJ	
Meeting Summary	3	66	8	5	2	11	95
Not Related	9	29	4	2	0	10	54
NAIS Structure	6	25	10	0	3	9	53
Producer and Industry Opinions	2	21	3	0	1	3	30
Association Programs	0	18	0	0	0	2	20
Commercial Programs	1	17	0	0	0	2	20
State Programs	1	15	1	1	0	2	20
Related Programs	2	7	4	0	0	1	14
Adoption	1	7	3	0	0	0	11
International Trade	0	3	2	0	0	6	11
Economics	1	2	2	0	2	1	8
University Programs	0	5	0	0	0	1	6
Youth Programs	0	2	0	0	0	0	2
Technology	0	2	0	0	0	0	2
Traceability Justification	0	7	0	0	0	1	8
Consumer Demands	0	0	0	0	0	0	0
Total	26	226	37	8	8	49	354

Table 7

*Frequency of Articles Assigned Secondary Frames*

<u>Secondary Frame</u>	<u>Article Count (n = 121)</u>
Producer and Industry Opinions	42
NAIS Structure	31
Traceability Justification	24
Technology	9
Adoption	5
International Trade	5
Youth Programs	4
Related Programs	3
Commercial Programs	3
University Programs	1
State Programs	1
Consumer Demands	1
Association Programs	0
Meeting Summary	0
Not Related	0
Economics	0

Table 8 displays the secondary frames assigned to articles in relation to the dominant frame assigned to articles. Forty-two articles were labeled with producer and industry opinions for a secondary frame and meeting summary as a dominant frame. Thirty-one articles were labeled with NAIS structure as a secondary frame and assigned with meeting summary as a dominant frame. Twenty-four articles were labeled with traceability justification as a secondary frame and meeting summary as a dominant frame.

Table 9 displays frequencies of frames by article type. Of the 126 feature articles, 48 were labeled meeting summary as a dominant frame while of the 228 news articles, 47 were labeled meeting summary as a dominant frame.



Table 8

*Dominant and Secondary Frames*

Dominant	<u>Secondary</u> and Industry Opinions	NAIS Structure	Traceability Justification	Technology	Adoption	International Trade	Youth Programs	Commercial Programs	Related Programs	State Programs	University Programs	Consumer Demands
Meeting Summary	35	27	19	3	1	4	1	0	3	0	1	1
NAIS Structure	5	0	2	0	1	0	0	0	0	0	0	0
Producer and Industry Opinions	0	2	0	0	0	0	0	0	0	0	0	0
Association Programs	0	0	0	0	0	0	0	1	0	0	0	0
Commercial Programs	1	0	1	2	1	0	0	0	0	0	0	0
State Programs	0	2	0	0	2	0	3	0	0	0	0	0
International Trade	0	0	1	0	0	0	0	0	0	0	0	0
Economics	1	0	1	0	0	1	0	0	0	0	0	0
University Programs	0	0	0	4	0	0	0	0	0	0	0	0
Youth Programs	0	0	0	0	0	0	0	0	0	1	0	0
Technology	0	0	0	0	0	0	0	2	0	0	0	0
Total	42	31	24	9	5	5	4	3	3	1	1	1

*Note.* Secondary frames that were not assigned to articles were excluded from the table.

Table 9

*Frequencies of Frame for Article Type*

<u>Dominant Frame</u>	<u>Article Type</u>	
	<u>Feature</u>	<u>News</u>
Meeting Summary	48	47
Not Related	22	32
NAIS Structure	7	46
Producer and Industry Opinions	7	23
Commercial Programs	5	15
State Programs	5	15
Association Programs	8	12
Related Programs	7	7
International Trade	6	5
Adoption	1	10
Economics	3	5
Traceability Justification	2	6
University Programs	4	2
Youth Programs	1	1
Technology	0	2
Consumer Demands	0	0

## Findings Related to Identifying Sources Used in Selected Newspaper Content

The articles included 767 citations, with 318 articles having cited sources; therefore 36 articles did not cite a source. Of the 318 articles, 123 were feature and 195 were news articles. The most frequently cited source type was nonprofit ( $f = 164$ ), followed by government ( $f = 140$ ), corporate ( $f = 73$ ), individual ( $f = 68$ ) and university ( $f = 46$ ). Table 10 displays frequencies of types of sources.

Table 10

### *Frequencies for Types of Sources*

Types of Source	<i>F</i>	Total
Nonprofit	164	290
Government	140	121
Corporate	73	121
Individual	68	99
University	46	59

Two hundred articles cited one type of source, while 74 articles cited two types of sources. Thirty-four articles cited three types of sources, nine articles cited four different types of sources and one article cited all five source types. Table 11 displays the number of types of sources cited in comparison to the type of article. Of the articles that cited nonprofit sources, 85 were feature articles and 99 were news. Within the government, 50 were feature articles and 90 were news articles. The corporate citations included 40 feature articles and 33 news articles. The individual citations were derived from 37

feature articles and 31 news articles. Lastly, the university sources were found in 30 feature articles and 16 news articles.

Table 11

*Types of Sources Cited per Type of Article*

Types of Article	<u>Number of Types of Sources Cited</u>						Total
	0	1	2	3	4	5	
Feature	3	64	28	23	7	1	126
News	33	136	46	11	2	0	228
Total	36	200	74	34	9	1	354

Table 12 displays the types of sources used in relation to the publications.

Nonprofit sources, the most frequently cited source type, was cited the most regularly by High Plains Journal, with 99 HPJ articles citing nonprofit organizations such as National Cattlemen’s Beef Association. Government sources like United States Department of Agriculture, were cited in 18 articles for both Western Livestock Journal and Iowa Farmer Today. Cattle Business Weekly cited corporate sources, such as AllFlex, in five articles. Tri-State Livestock News and Western Ag Reporter did not cite university sources but both publications cited individual sources in two articles.

Table 12

*Types of Sources Cited by Publication*

Publication	<u>Type of Source</u>					Total
	Nonprofit	Government	Corporate	University	Individual	
HPJ: High Plains Journal	99	88	49	31	41	308
WLJ: Western Livestock Journal	27	18	10	3	7	65
IFT: Iowa Farmer Today	19	18	6	10	13	66
CBW: Cattle Business Weekly	13	9	5	2	3	32
TSLN: Tri- State Livestock News	2	4	3	0	2	11
WAR: Western Ag Reporter	4	3	0	0	2	9
Total	164	140	73	46	68	491

## Findings Related to Determining Tone of Selected Newspaper Content

Tone was evaluated on four options: negative, neutral, positive, and not applicable. In the final round of coding, the only articles labeled as non-applicable in tone were the articles framed as not related. The largest occurring frequency was positive. More specifically, High Plains Journal articles (HPJ) held the highest frequency of positive articles with 109 of its articles being labeled with a positive tone. Numerical representations of frequencies for types of tone in relations to the selected publications are shown in Table 13. There were a total of 52 negatively toned articles, and 96 positively toned articles.

Table 13

### *Frequencies of Tone in Each Publication's Articles*

Publication	Tone			
	Positive	Neutral	Negative	Not Applicable
HPJ	109	56	32	29
WLJ	19	17	3	10
IFT	18	10	5	4
CBW	5	7	5	9
TSLN	1	3	2	2
WAR	0	3	5	0
Total	152	96	52	54

Nearly half of the articles were labeled positive ( $f = 152$ ). Articles that were found to be written in a positive tone contained quotes like “as more countries adopt animal and meat tracking systems, those early adopters of livestock and meat traceability systems have the opportunity to gain significant market advantage through increased consumer confidence” (“USMEF Releases Livestock,” 2011). Within the articles labeled with a positive tone included 73 government sources, 60 nonprofit sources, 34 corporate sources, 21 university sources, and 28 individual sources.

There were 96 articles that were labeled neutral. Articles that were written in a neutral tone contained quotes like “privacy has been a central issue in the debate over whether to make a National Animal Identification System mandatory or voluntary,” (Lucht & DeYoung, 2006). The articles labeled as neutral, included 42 nonprofit sources, 37 government sources, 14 corporate sources, 9 university sources, and 13 individual sources.

Fifty-two articles were labeled negative. Articles labeled as negative contained quotes like “the one concern that was voiced by everyone in attendance was the price tag of implementing the new program, and who will bear the cost” (Campbell, 2010). The articles labeled as negative included 40 nonprofit sources, 20 government sources, 8 corporate sources, 4 university sources and 16 individual sources.

Articles labeled not applicable ( $f = 54$ ) were articles assigned the frame not related. The frame producer and industry opinions held more negative tones, while meeting summary and NAIS structure frames held a comparable number of positive and neutral articles. Association programs held more positively toned articles. The tone per

dominant frame is shown in Table 14. Tone in relation to sources cited is displayed in Table 15. The selected papers from the plains region were more positive in tone. midwestern and western publications showed even distribution between neutral and positive tone in their articles. The southern region publication was more negative.



Table 14

*Frequency of Tone in Relation to Dominant Frame Assigned*

Dominant Frame	Tone			
	Positive	Neutral	Negative	Not Applicable
Meeting Summary	38	36	21	0
Not Related	0	0	0	54
NAIS Structure	19	30	4	0
Producer and Industry Opinions	11	3	16	0
Association Programs	18	2	0	0
Commercial Programs	11	8	1	0
State Programs	10	5	5	0
Related Programs	11	3	0	0
Adoption	9	1	1	0
International Trade	7	4	0	0
Economics	3	1	4	0
University Programs	5	1	0	0
Youth Programs	1	1	0	0
Technology	2	0	0	0
Traceability Justification	7	1	0	0
Consumer Demands	0	0	0	0
Total	152	96	52	54

Table 15

*Tone in Relation to Type of Sources Cited*

Types of Source	Positive	Neutral	Negative	Not Applicable
Nonprofit	60	42	40	22
Government	34	14	8	17
Corporate	73	37	20	10
Individual	21	9	4	12
University	28	13	16	11
Total	216	115	88	72

## CHAPTER V

### CONCLUSIONS, RECOMMENDATIONS, AND IMPLICATIONS

The knowledge gained by determining the tone, frame, and sources of designated articles will provide future traceability program developers with data that can benefit their efforts when representing their program to the media. Positive media coverage of future programs can help to ensure ready adoption into the cattle industry, and eventually into the agriculture industry at large. By determining the general tone of agriculture print media towards traceability, developers of future programs can more effectively tailor and implement their system with careful attention being paid to the agriculture print media (Schulz & Tonsor, 2010).

This study analyzed selected newspaper coverage of traceability and NAIS, including tones, frames and sources. Two types of article were used for the study: news articles and feature articles. The selected articles publish date spanned from January 1, 2005 to March 31, 2013.

## Summary of Findings

### Findings Related to Identifying Frames Used in Selected Newspaper Content

Objective one was to identify frames in the selected agriculture print media content. The following newspapers were included in the framing analysis: Iowa Farmer Today Publications (midwestern region), High Plains Journal (plains region), Tri-State Livestock News (plains region), Cattle Business Weekly (plains region), Western Ag Reporter (southern region) and Western Livestock Journal (western region). The search terms were used to identify appropriate articles from each publication: traceability, National Animal Identification System, and NAIS. Refer to table 2 for selected publication information.

The coders came to consensus on 16 frames: international trade, economics, meeting summary, state programs, university programs, association programs, commercial programs, youth programs, related programs, producer and industry opinions, technology, NAIS structure, adoption, traceability justification, consumer demands and not related. Refer to table 4 for definitions established for each frame.

The initial search produced 727 articles. The search term “NAIS” produced 246 articles, and “National Animal Identification System” produced 248 articles with strong overlap with those found under NAIS (220 articles). The search term “traceability” produced 233 articles, with an overlap of 11 articles found under NAIS and three articles found under National Animal Identification System. The final set of articles included 354 articles ( $n = 354$ ). Reader-generated responses, editorials, and columns were eliminated

to allow for the most neutral material to be analyzed for tone and frame. Duplicate articles also were eliminated. Refer to table 3 for the search results from each publication.

Of the final set of articles ( $n = 354$ ) published by the selected newspapers that contained relevant information on traceability, the most frequently used frame was meeting summary (26.84%). The next two most frequent frames were comparable in their frequencies; not related was the second-most common dominant frame, with 15.25% of articles assigned that title. NAIS structure was close to the aforementioned frequency, with 14.97% of articles labeled NAIS structure. The fourth most frequent dominant frame, producer and industry opinions, was used less than the previously discussed frames with 8.47% of articles labeled under this frame. The frames commercial programs, state programs, and association programs held the same frequencies, with 5.65% of articles assigned to them. The lowest occurring frame was consumer demands which was used on 0% of the articles. Refer to table 5 for frequencies of dominant frames.

The coders came to a consensus that consumer demands was an appropriate frame, but also discussed the similarities many of the frames held with one another and therefore the possibility that a frame would not be utilized. That is what happened in the instance of the using consumer demands as a dominant frame, preventing the frame from being utilized. Refer to table 6 for the frequencies of dominant frames with relation to each individual publication utilized in the study.

As the aforementioned numbers stated 126 items were feature articles and 228 were news articles. Of the 126 feature articles, 48 were framed with meeting summary,

22 were framed not related, 8 were framed association programs, 7 were framed NAIS structure, producer and industry opinions, and related programs. Of the 228 news articles 47 were framed with meeting summary, 32 were framed not related, 46 were framed with NAIS Structure, 23 were framed producer and industry opinions, 15 were framed with state programs and commercial programs, and 12 were framed association programs.

For articles that coders found more than one appropriate frame a secondary frame was assigned along with the dominant frame. Refer to table 7 for the frequency of secondary frames assigned to articles. There were 121 articles (34.2%) assigned secondary frames. The largest secondary frame was producer and industry opinions (35%), with NAIS structure (26%) and traceability justification (20%) being comparable in use. While consumer demand was not utilized as a dominant frame it was used once as a secondary frame. Meeting summary was not utilized as a secondary frame because the coders agreed that it would be used as a dominant frame, to allow for easier analysis of the articles. Similarly, not related was not utilized as a secondary article because it was only appropriate as a dominant frame. Refer to table 8 for the secondary frames assigned to articles in relation to the dominant frame assigned to articles. There were 28.93% of the articles labeled producer and industry opinions for a secondary frame and meeting summary as a dominant frame, while 22.31% of articles were labeled with NAIS structure as a secondary frame and assigned with meeting summary as a dominant frame. There were 15.7% of the articles labeled traceability justification as a secondary frame and meeting summary as a dominant frame. Refer to table 9 for frequencies of frames per article type.

## **Findings Related to Identifying Sources Used in Selected Newspaper Content**

Objective two was to identify sources represented in the selected agriculture print media content. Sources were placed into one of the following categories: nonprofit, government, university, corporate and individual. There were 767 citations, with 318 articles (89.8%) having cited sources; therefore 36 articles (10.2%) did not cite a source. Of the 318 articles, 123 were feature and 195 were news articles. The most frequently cited source type was nonprofit, followed by government sources, corporate sources, then individual sources, and lastly university sources. Refer to table 10 for frequencies of types of sources cited. Two hundred articles (56.5%) cited one type of source, while 74 articles (20.9%) cited two types of sources. 34 articles (9.6%) cited three types of sources, 9 (2.5%) articles cited four different types of sources and one article (.3%) cited all five source types.

The definitions of source types were created and agreed upon by the coders during the final meeting. Refer to table 11 for the number of types of sources cited in comparison to the type of article. Of the articles that cited nonprofit sources, 85 were feature articles and 99 were news. Within the government citations there were 50 feature articles and 90 news articles. The corporate citations included 40 feature articles and 33 news articles. The individual citations were derived from 37 feature articles and 31 news articles. Lastly, the university sources were found in 30 feature articles and 16 news articles. Refer to table 12 for the types of sources used in relation to the publications.

Nonprofit sources, the most frequently cited source type, was cited the most regularly by High Plains Journal, with 99 HPJ articles citing nonprofit organizations,

such as National Cattlemen’s Beef Association. Government sources, like the United States Department of Agriculture, were cited in 18 articles for both Western Livestock Journal and Iowa Farmer Today. Cattle Business Weekly cited corporate sources, such as AllFlex, in 5 articles. Tri-State Livestock News and Western Ag Reporter did not cite university sources, but both publications cited individual sources in 2 articles.

### **Findings Related to Determining Tone of Selected Newspaper Content**

Objective three was to determine the tone of the selected newspaper content. Tone was evaluated as positive, negative, neutral, or not applicable toward traceability. The option of not applicable in tone was assigned only to articles framed as not related during the final consensus meeting. The most frequently occurring tone for all articles was positive. High Plains Journal articles (HPJ) held the highest frequency of positive articles with 30.79% of its articles being labeled with a positive tone. Refer to table 13 for frequencies for types of tone in relations to the selected publications. Overall, nearly half of the articles were labeled positive (42.94%), while 27.12% of the articles were labeled neutral and 14.69% were labeled negative. Articles labeled not applicable (15.25%) were articles that were framed as not related during the final consensus meetings. Examples of statements from negative, neutral, positive and not applicable articles are listed in chapter 4.

The frame producer and industry opinions held more negative tones, while meeting summary and NAIS structure frames held a comparable number of positive and neutral toned articles. Association programs held more positively toned articles. Refer to



table 14 for tone per dominant frame. Refer to table 15 for tone in relation to sources cited.

## **Conclusions**

The following conclusions have been reached based on the findings of this study.

### **Conclusions Related to Identifying Frames Used in Selected Newspaper Content**

Traceability was a dominant topic among all forms of newspaper content. Moreover, the topic of traceability is one that industry members appeared passionate about. The coders produced a substantial list of frames for the final set of articles; refer to table 4 for frame definitions. This may be due to the fact that newspaper reporters are responsible for disseminating information from a variety of sources, creating several themes or frames amongst the selected articles (Lundy et al., 2006). Refer to tables 1 for information on selected publications used in this study. Refer to table 2 for frequencies of the publications.

The meeting summary frame was the most frequently used frame. This may be due in large part to the fact that NAIS is a government run program, and government agencies chose to introduce and discuss the program at cattle industry meeting. An additional caveat to this may be that NAIS was, and continues to be a controversial topic within the cattle industry, and it therefore was often the topic of forums and discussions and meetings involving producers, associations and governmental representatives. Refer to table 5 for dominant frames, and table 6 for dominant frames per publication.

Similarly, Cohen (1963) stated: “The press may not be successful much of the time in telling people what to think, but it is stunningly successful in telling its readers what to think about” (p. 13). According to Agenda Setting theory, because the agricultural print media held NAIS as a priority to report on, NAIS in turn became a priority in the public’s opinion (McCombs & Shaw, 1972).

Additionally, the framing theory circulates around the idea that the way an issue is illustrated in news reports can have an influence on how it is understood by audiences (Scheufele & Tewksbury, 2007). Scheufele and Tewksbury (2007) detailed that framing is a tool for journalists, and those involved in other forms of media, to explain complex issues to their readers or viewers. While framing is not used to deceive audiences, Entman (1993) explained that framing “plays a major role in the exertion of political power, and the frame in a news text is really the imprint of power” (p. 55).

Therefore the high frequency of meeting summary and NAIS structure, along with producer and industry opinions may be a reflection of the influence and priority of the agricultural print media to display the different facets of the NAIS program. The frame meeting summary established the aforementioned fact that NAIS is a hotly debated topic, and therefore is a central focus at industry meetings. Furthermore the frame NAIS structure functions to provide reader with the facts of how the NAIS functions. Lastly, the frame producer and industry opinions functions to emphasize how the readers feel towards the NAIS system and its implementation.

The frames adoption, international trade, economic, technology, as well as university and youth programs was used at a significantly lower frequency. The frame

consumer demands was not utilized as a dominant frame. These findings may be based on the press's priorities when representing and covering NAIS. Adoption has been slow amongst the cattle industry, as evidenced by the USDA's reports and therefore there was little for reporters to write about in terms of adoption of the program (USDA, 2007; USDA, 2011). Correspondingly the aspects of NAIS related to international trade, economics, technology and university and youth programs may not draw a substantial amount of interest from readers, the press therefore chose to minimize the use of these themes in their articles. The amount of not related articles found in the search may show that traceability is an issue that is discussed in many different fields of the agricultural industry, and is an issue that many members of the industry have a basic knowledge of.

Considering the findings of this study, future program developers should frame their information with topics related to meeting summaries, producer and industry opinions, justification, and structure when delivering their message to the media. Future program developers should avoid using frames like consumer demands and adoption. Findings regarding secondary frames echo these conclusions, as the most frequent secondary frame was producer and industry opinions, followed by NAIS structure. Moreover the pairing of meeting summary for the dominant frame, and producer and industry opinions or NAIS structure as the secondary frame was the most frequent label amongst the articles. Refer to table 7 for frequencies of secondary frames, and table 8 for secondary and dominant frames assigned. Refer to table 9 for framing counts for article types.

This reiterates the thought that because NAIS is a government run program, government agencies chose to introduce and discuss the program at cattle industry

meeting. Also, NAIS was, and continues to be a controversial topic within the cattle industry, and it therefore was often the topic of forums and discussions and meetings involving producers, associations and governmental representatives. Furthermore a likely common theme at these meetings was (and is) the vocalization of producer and industry opinions being expressed, as well as the presentation of the structure and function of NAIS.

### **Conclusions Related to Identifying Sources Used in Selected Newspaper Content**

There was a high frequency of citations amongst the articles, with 767 citations and with 318 articles (89.8%) having cited sources; only 36 articles (10.2%) did not cite a source. Of the 318 articles, 123 were feature and 195 were news articles which was a comparable division with consideration to the fact that there was more news article than feature articles in the study. Refer to table 10 for frequencies of types of sources, and table 11 for types of sources per type of article.

Reporters predominantly chose to cite sources from nonprofit organizations. The second highest frequency of type of citation was government sources. Nonprofit organizations, like National Cattlemen's Beef Association or R-CALF, were likely the most frequently cited source by the print media because these organizations offer valuable insight into the opinions of the industry and its members due to the fact that these organizations are funded and run by industry members. Again, this coincides with the frames most frequently used in the sense that print media chose to cite sources, and utilize frames, that were most likely catering to the interest of their readers. Refer to table 12 for types of sources cited by publication.

In Irlbeck et al.'s (2011) study of food safety news coverage, government sources, including the FDA, were relied heavily upon. These previous findings reflect those found in this framing analysis, in that reporters relied upon government sources for quotes. More specifically, because NAIS is a program spear-headed by the government, it was not surprising to see USDA officials cited throughout the selected articles, because these officials are responsible for the representation and presentation of the regulations of NAIS to the cattle industry.

The contrasting side to the sources cited was university and individual sources, which were the lowest frequency of sources cited. This may be due to the fact that individual and university sources were difficult to contact, or not desirable sources for reporters to contact (Irlbeck et al., 2011).

In terms of the type of article (news or feature) that cited sources, the findings were proportional to the number of articles utilized in the study (more news than features) and the frequency of types of sources cited (more nonprofit, etc.). The exception being that 90 news articles cited government sources, nearly as many news articles that cited nonprofit sources. This may be due to the fact that in order to report a substantial and fact based article reporters needed to rely on the information disseminated by government sources regarding NAIS. Feature articles did have a higher frequency of corporate, individual and university sources cited. This is an appropriate finding with consideration to the fact that feature articles often focus on a person or activity of interest and may be subjective (The Missouri Group, 2011; Kuykendall, 2012).

Overall, the majority of articles cited one type of source. This finding lends itself to the idea that the press was framing the articles, and by citing one source the subtext the reporter desired to convey may have been more apparent (Callaghan & Schnell, 2010). This also ties to the idea that the agricultural print media was, and is, capable of causing “changes in problem awareness of issues,” and by selecting a specific source type this influence was more strongly infused in their reporting (Brosius & Keppinger, 1990, p. 190; Lang & Lang, 1981).

### **Conclusions Related to Determining Tone of Selected Newspaper Content**

The tone for all selected newspaper content generated by the newspaper, including the news articles and feature content types, was largely positive. High Plains Journal articles, which were the largest group of articles in the study, were largely positive in tone (30.79%). This is the primary reason for the overall tone of the articles being positive. The frequency of neutral toned articles was significant. Similar studies found that the vast majority of reporting was accurate and fair (Irlbeck et al., 2011), which was mirrored by the findings in this study when the frequencies of tone for each publication are referenced. Refer to table 13 for frequencies in tone per publication.

The articles labeled with the most frequent dominant frame, meeting summary, were evenly distributed between positive, neutral, and negative labels for tone. This strengthens the finding of previous studies that most reporting is fair, and represents all sides of an issue (Irlbeck et al., 2011). Refer to table 14 for frequencies in tone per dominant frame. Types of sources cited revealed more differences in tone. Nonprofit and government sources were more positive in tone. This may due to the fact that government

sources, which are implementing NAIS, would naturally be in favor of the program and thus a positive source to cite. Nonprofit sources may favor the program because they share strong working relations with the government. The findings support Callaghan and Schnell's, (2010) statement that reporters use one source to allow their own personal subtext to be more strongly conveyed. These conclusions also echo the aforementioned statement that the agricultural print media was, and is, capable of causing "changes in problem awareness of issues," and by selecting a specific source type this influence was more strongly infused in their reporting because a specific tone was more apparent in the article (Brosius & Kepplinger, 1990, p. 190; Lang & Lang, 1981). Refer to table 15 for tone in relation to type of source cited.

The selected papers from the plains region were more positive in tone. midwestern and western publications showed even distribution between neutral and positive tones in their articles. The southern region publication was more negative. The display in different tones in relation to region may be explained by the differences in current traceability laws, such as brand registration that exist in these regions. Many plains states like Colorado, Nebraska, and Kansas have already implemented a state-run voluntary version of NAIS, familiarizing industry members with the program and potentially increasing positive opinions of the program (USDA, 2011). This state-based implementation may also influence the media's inclination to more favorably cover the NAIS program.

Again it needs to be noted that High Plains Journal covers the plains region, strongly influencing the tone of that regions coverage. On the contrary, southern states do not participate in any level of NAIS, and furthermore do not enforce brand registration of

inspection. Due to this region not participating in these forms of animal tracking and therefore not having any familiarity towards these types of systems, the reporting may tend to be more negative towards NAIS because of a general unease or distrust towards the program. The list of states that require a brand inspection is provided in Appendix I.

## **Recommendations**

### **Recommendations for Practice**

Future attempts to implement new programs within the agriculture industry should start their implementation by developing relationships with the agriculture media. Kuykendall, 2012 state “agricultural communicators should strive to educate the media and the public about agriculture” (p. 51).

When attempting to implement a new program, the organization propelling the implementation should carefully consider that there will be an increased rate of diffusion and the decision to adopt their innovation if it is perceived to have a relative advantage and if the innovation is compatible with existing values, needs, and experiences (Rogers, 2003). Future programs can learn from NAIS by studying how it was rejected at the point of decision by the majority of the cattle industry, due to the poor match of the system with the industry’s needs and a lack of restructuring of the system to better fit the cattle industry (Greene, 2010; USDA, 2011). Moreover, realizing that a previous program was attempted and failed to be adopted will better prepare future program leaders for the level of resistance that may be displayed if proper steps to introduce their program are not taken. Furthermore, future programs should carefully consider the early adopters and their opinions of the program. The WCT program, and those like it, should be designed



with these ideals in mind. Thus the industry member's opinions of what is desired and needed in the program should be surveyed, to ensure adoption of the program amongst producers and processors.

To further the analysis future programs should take when critically looking at the usefulness of the program Lengrisa, Inghamb, and Colletterette (2003) stated the Technology Acceptance Model (TAM) is useful in helping to analyze the fact that "enterprises decide to invest in information systems (IS) for many reasons, among these are: pressures to cut costs, pressures to produce more without increasing costs, and simply to improve the quality of services or products in order to stay in business" (p. 200). TAM is useful for future programs as it displays that both perceived ease of use and perceived usefulness directly impact one another, as well the later behaviors of the user. These aforementioned factors culminate to form the attitudes towards using and behavioral intention to use. After studying these established factors future programs, like whole chain traceability, can strengthen the actual system usage of their program (Bagozzi et al., 1992).

### **Recommendations for Future Research**

Additional research needs to be conducted on the impact of agricultural media on agricultural programs implementation and industry members' perceptions. More insight into this impact could help reporters better understand what information their readers deem as relevant. Also, further research could assist future programs in understanding how they should manage their relationship with the media to positively influence the adoption of their program. Furthermore, developing different ways to stratify newspapers would be beneficial to future studies.

This study may serve as a basis for using the article types eliminated from this study (reader generated response, columns, editorials) in a framing analysis involving newspaper coverage of traceability, specifically NAIS. To ensure reliable coding, coders should code a percentage of the articles and verify coding with the researcher to develop consistent coding practices. This study may serve as a basis for a content analysis, by the using the same articles analyzed in this study. Future studies could also focus on the different types of media (magazines, online blogs or articles, etc.) that were excluded from this study when analyzing the media's coverage of traceability and NAIS.

### **Implications**

This study presents an overview of how the government run program of NAIS was presented in news and feature articles published by agricultural print media. More than half of the articles (226) in this study were archived from High Plains Journal. There were 54 articles that were labeled not related.

Reporters and agricultural communicators can ensure that by disseminating the correct and most relevant information to readers and potential voters, they provide an accurate picture of agricultural issues. Government and state funded organizations involved in this issue can gain a greater understanding of how this type of news is being covered in the media, which allows them understand how they should tailor their presentation of the NAIS program to increase communication with cattle industry members. For reporters involved in covering the NAIS debate, incorporating a variety of sources will benefit all parties involved and will help to ensure a neutral and bias free tone for newspaper coverage.

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## APPENDICES

APPENDIX A  
ROUND ONE INSTRUMENT

**Article number**  
Article Number

**Publication**  
CBW: Cattle Business Weekly     HPJ: High Plains Journal     IFT: Iowa Farmer Today     TSLN: Tri-State Livestock News     WAR: Western Ag Reporter     WLJ: Western Livestock Journal

**Coder**  
CH     TN     DB

**Dominant Frame**

**Tone**  
Positive     Neutral     Negative     Not applicable

**Sources Cited**

	Affiliation	Title	Type
1	<input type="text"/>	<input type="text"/>	<input type="text"/>
2	<input type="text"/>	<input type="text"/>	<input type="text"/>
3	<input type="text"/>	<input type="text"/>	<input type="text"/>
4	<input type="text"/>	<input type="text"/>	<input type="text"/>
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6	<input type="text"/>	<input type="text"/>	<input type="text"/>
7	<input type="text"/>	<input type="text"/>	<input type="text"/>
8	<input type="text"/>	<input type="text"/>	<input type="text"/>
9	<input type="text"/>	<input type="text"/>	<input type="text"/>



APPENDIX B  
ROUND TWO INSTRUMENT

**Article number**

Article Number

**Publication**CBW: Cattle  
Business WeeklyHPJ: High Plains  
JournalIFT: Iowa Farmer  
TodayTSLN: Tri-State  
Livestock NewsWAR: Western Ag  
ReporterWLJ: Western  
Livestock Journal**Coder**

CH

TN

DB

What was the main frame present in the article? (Select all that apply)

- INTERNATIONAL TRADE - Business with foreign countries regarding imports and exports
- ECONOMICS - Including, but not limited to, the cost associated with traceability system implementation, potential taxes and funding available for programs related to traceability
- MEETING SUMMARY - The events of a meeting, including, but not limited to, voting, presentations and speakers
- STATE PROGRAMS - Traceability programs directed by state government
- UNIVERSITY PROGRAMS - Traceability programs directed by colleges or universities
- ASSOCIATION PROGRAMS - Traceability programs directed by membership organizations
- COMMERCIAL PROGRAMS - Traceability programs directed by commercial entities
- YOUTH PROGRAMS - Programs for the nation's youth, such as 4-H and FFA
- RELATED PROGRAMS - Existing traceability programs that are comparable to NAIS, including, but not limited to, those related to specific species or implemented by other countries
- PRODUCER AND INDUSTRY OPINIONS - Highlighting the opinions of individual producers and industry organizations
- TECHNOLOGY - Technology used to implement traceability systems
- NAIS STRUCTURE - Parts, guidelines and other working aspects of the NAIS
- ADOPTION - Participation in traceability programs, including, but not limited to, benchmarks and statistics reported for various types of programs
- TRACEABILITY JUSTIFICATION - Reasons for implementing and participating in traceability programs
- CONSUMER DEMANDS - Consumer demands, wishes, needs, etc., related to traceability systems and information
- NOT RELATED - No information related to traceability programs, including NAIS; traceability or NAIS may be listed or mentioned but not described

APPENDIX C  
ROUND THREE INSTRUMENT

Article number

Publication

CBW: Cattle Business Weekly
  HPJ: High Plains Journal
  IFT: Iowa Farmer Today
  TSLN: Tri-State Livestock News
  WAR: Western Ag Reporter
  WLJ: Western Livestock Journal

Article type

News
  Feature

Tone

Positive
  Neutral
  Negative
  Not applicable

Dominant frame

INTERNATIONAL TRADE - Business with foreign countries regarding imports and exports  
 ECONOMICS - Including, but not limited to, the cost associated with traceability system implementation, potential taxes and funding available for programs related to traceability  
 MEETING SUMMARY - The events of a meeting, including, but not limited to, voting, presentations and speakers  
 STATE PROGRAMS - Traceability programs directed by state government  
 UNIVERSITY PROGRAMS - Traceability programs directed by colleges or universities  
 ASSOCIATION PROGRAMS - Traceability programs directed by membership organizations  
 COMMERCIAL PROGRAMS - Traceability programs directed by commercial entities  
 YOUTH PROGRAMS - Programs for the nation's youth, such as 4-H and FFA  
 RELATED PROGRAMS - Existing traceability programs that are comparable to NAIS, including, but not limited to, those related to specific species or implemented by other countries  
 PRODUCER AND INDUSTRY OPINIONS - Highlighting the opinions of individual producers and industry organizations  
 TECHNOLOGY - Technology used to implement traceability systems  
 NAIS STRUCTURE - Parts, guidelines and other working aspects of the NAIS  
 ADOPTION - Participation in traceability programs, including, but not limited to, benchmarks and statistics reported for various types of programs  
 TRACEABILITY JUSTIFICATION - Reasons for implementing and participating in traceability programs

- CONSUMER DEMANDS - Consumer demands, wishes, needs, etc., related to traceability systems and information
- NOT RELATED - No information related to traceability programs, including NAIS; traceability or NAIS may be listed or mentioned but not described

Secondary frame

- INTERNATIONAL TRADE - Business with foreign countries regarding imports and exports
- ECONOMICS - Including, but not limited to, the cost associated with traceability system implementation, potential taxes and funding available for programs related to traceability
- MEETING SUMMARY - The events of a meeting, including, but not limited to, voting, presentations and speakers
- STATE PROGRAMS - Traceability programs directed by state government
- UNIVERSITY PROGRAMS - Traceability programs directed by colleges or universities
- ASSOCIATION PROGRAMS - Traceability programs directed by membership organizations
- COMMERCIAL PROGRAMS - Traceability programs directed by commercial entities
- YOUTH PROGRAMS - Programs for the nation's youth, such as 4-H and FFA
- RELATED PROGRAMS - Existing traceability programs that are comparable to NAIS, including, but not limited to, those related to specific species or implemented by other countries
- PRODUCER AND INDUSTRY OPINIONS - Highlighting the opinions of individual producers and industry organizations
- TECHNOLOGY - Technology used to implement traceability systems
- NAIS STRUCTURE - Parts, guidelines and other working aspects of the NAIS
- ADOPTION - Participation in traceability programs, including, but not limited to, benchmarks and statistics reported for various types of programs
- TRACEABILITY JUSTIFICATION - Reasons for implementing and participating in traceability programs
- CONSUMER DEMANDS - Consumer demands, wishes, needs, etc., related to traceability systems and information
- NOT RELATED - No information related to traceability programs, including NAIS; traceability or NAIS may be listed or mentioned but not described

Sources (type and number)

- Nonprofit
- Corporate
- Government
- University
- Individual



APPENDIX D  
LIST OF INTIAL FRAMES

*Original Frames*

---

Coder 1

4-H

Academic

ADT

Agritourism

AllFlex

Angus- Consumers

Angus Source

APHIS

Beef verification/ BV solutions

Biosecurity

BQA

Brand Inspection

Brandings/brands

CAB

Colorado Cattlemen's Association

Commercial

Commercial and Marketing

Confidentiality

Consumer

Consumer demands

Convention/ meeting

COOL

Cost

Crops

Disease

Economic/economics  
Environmental  
Exports and Economics  
Exports/export  
Farm Bureau  
Feed  
FFA  
Food Safety  
Genetic  
Government  
Government- APHIS  
Government- Industry Meeting  
Government meeting  
Horse  
Horse slaughter  
IdentiGen  
Imports  
Imports and Exports  
Industry  
Industry- Beef Verification Solution  
Industry- Canada  
Industry- Crops  
Industry- Farm Bureau  
Industry- Farming  
Industry- Iowa  
Industry- LMA  
Industry meeting



Industry meeting- NCBA  
Industry- Missouri  
Industry- NBQA  
Industry- NCBA  
Industry- Nebraska  
Industry- Pork  
Industry- Poultry  
Industry- Producers  
Industry- Quality Systems Association  
Industry- RFID  
Industry- Sheep  
Industry- Small Farms  
Industry- TAHC  
Industry- USMEF  
Industry-4-H  
Labeling  
Labeling- tags  
Legislation/ amendment  
Legislations  
LMA  
Marketing  
Meat  
Meeting  
Meeting- NCBA  
Microbeef  
National Disaster  
NCBA

New Mexico  
NIAA  
Nutrition  
Optibrand  
Pork  
Premise ID  
Premise Registration  
Privatization  
Process Verified  
Producers  
R-CALF  
RFID  
Sale Barns  
Sheep  
Source Verified  
Source verify  
South Dakota  
Tags  
Tax  
Technology  
Technology- Beef Verification  
Texas Animal Health Committee  
Traceback  
University/ academic  
USAIO  
USMEF  
Value added

Weather  
ZigBeef  
Locate in 48  
840  
Coder 2  
12 principles  
AFB  
AFB meeting  
Angus/ red tags  
Animal health  
Animal ID  
Audit  
Australia  
Beef  
Beef production  
Beef verification  
Benchmark  
Bison production  
Branding  
Business plan  
Canada  
Cattle  
Check-off  
Completion  
Concerns  
Conference  
Convention

Cost  
Database  
Debate  
Drought  
Ear tags  
E-coli  
Education  
Election  
Emergency  
Enrolling  
Expo  
Export  
Exports  
Feed  
Feed production  
FFA  
Food safety  
Forum  
Funding  
Genetics  
Grain  
Guidelines  
Horse meat  
Identification  
Implementations  
Internet  
Issues

Laws  
Lawsuit  
Livestock  
Lobbying  
Manage  
Meeting  
Meetings  
Microchip  
NCBA  
Pork production  
Pork/ swine  
Poultry  
Prefix  
Prevention  
Privacy  
Production  
Red Angus  
Registering  
Registration  
Rescue  
Research  
Restaurant  
SDCA  
Sheep  
Sheep and goat  
Sows  
Sows housing

Soy  
Speaker  
Standards  
State-run program  
Sustainability  
Swine  
Tax  
TB  
Technology  
Traceability  
USDA  
Verification  
Verified  
Veterinary  
Video  
Voting  
Coder 3  
Association programs  
Commercial programs  
Consumer demands  
Controversy  
Economics  
Federal update  
Food safety  
Future plans  
International trade  
Meeting update

Not related

Overview

Producer and industry opinions

Progress

Related programs

State programs

Structure

Trends

University programs

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APPENDIX E

LIST OF ARTICLE NUMBERS, SOURCE, TYPE, AND TONE



Number	Publication	Type	Tone
1	CBW	feature	Not applicable
2	WLJ	feature	Positive
3	WLJ	feature	Positive
4	WLJ	feature	Neutral
5	WLJ	feature	Not applicable
6	WLJ	feature	Positive
7	WLJ	feature	Positive
8	WLJ	feature	Positive
9	WLJ	feature	Positive
10	WLJ	feature	Neutral
11	WLJ	feature	Not applicable
12	WLJ	feature	Not applicable
13	WLJ	feature	Neutral
14	WLJ	feature	Negative
15	WLJ	feature	Positive
16	WLJ	feature	Positive
17	WLJ	feature	Not applicable
18	WLJ	feature	Neutral
19	WLJ	feature	Not applicable
20	WLJ	feature	Positive
21	WLJ	feature	Positive
22	WAR	feature	Negative
23	WAR	feature	Negative
24	WAR	feature	Negative
25	TSLN	feature	Not applicable
26	TSLN	feature	Positive
27	TSLN	feature	Neutral
28	TSLN	feature	Negative
29	IFT	feature	Positive
30	IFT	feature	Negative
31	IFT	feature	Negative
32	IFT	feature	Positive
33	IFT	feature	Positive
34	IFT	feature	Positive
35	IFT	feature	Positive
36	IFT	feature	Positive
37	IFT	feature	Neutral
38	IFT	feature	Negative
39	IFT	feature	Neutral
40	IFT	feature	Positive
41	IFT	feature	Not applicable
42	IFT	feature	Negative
43	IFT	feature	Not applicable
44	IFT	feature	Positive
45	IFT	feature	Positive
46	IFT	feature	Neutral
47	IFT	feature	Not applicable
48	IFT	feature	Positive
49	IFT	feature	Not applicable

50	IFT	feature	Positive
51	HPJ	feature	Positive
52	HPJ	feature	Positive
53	HPJ	feature	Positive
54	HPJ	feature	Neutral
55	HPJ	feature	Not applicable
56	HPJ	feature	Positive
57	HPJ	feature	Not applicable
58	HPJ	feature	Positive
59	HPJ	feature	Positive
60	HPJ	feature	Negative
61	HPJ	feature	Neutral
62	HPJ	feature	Positive
63	HPJ	feature	Positive
64	HPJ	feature	Positive
65	HPJ	feature	Positive
66	HPJ	feature	Positive
67	HPJ	feature	Neutral
68	HPJ	feature	Positive
69	HPJ	feature	Negative
70	HPJ	feature	Positive
71	HPJ	feature	Positive
72	HPJ	feature	Positive
73	HPJ	feature	Positive
74	HPJ	feature	Neutral
75	HPJ	feature	Positive
76	HPJ	feature	Positive
77	HPJ	feature	Neutral
78	HPJ	feature	Neutral
79	HPJ	feature	Positive
80	HPJ	feature	Neutral
81	HPJ	feature	Positive
82	HPJ	feature	Negative
83	HPJ	feature	Neutral
84	HPJ	feature	Positive
85	HPJ	feature	Positive
86	HPJ	feature	Neutral
87	HPJ	feature	Neutral
88	HPJ	feature	Positive
89	HPJ	feature	Positive
90	HPJ	feature	Neutral
91	HPJ	feature	Neutral
92	HPJ	feature	Positive
93	HPJ	feature	Positive
94	HPJ	feature	Not applicable
95	HPJ	feature	Positive
96	HPJ	feature	Neutral
97	HPJ	feature	Not applicable
98	HPJ	feature	Positive
99	HPJ	feature	Neutral

100	HPJ	feature	Negative
101	HPJ	feature	Not applicable
102	HPJ	feature	Negative
103	HPJ	feature	Positive
104	HPJ	feature	Negative
105	HPJ	feature	Positive
106	HPJ	feature	Not applicable
107	HPJ	feature	Neutral
108	HPJ	feature	Neutral
109	HPJ	feature	Not applicable
110	HPJ	feature	Not applicable
111	HPJ	feature	Negative
112	HPJ	feature	Positive
113	HPJ	feature	Positive
114	HPJ	feature	Positive
115	HPJ	feature	Neutral
116	HPJ	feature	Positive
117	HPJ	feature	Positive
118	HPJ	feature	Positive
119	CBW	feature	Not applicable
120	CBW	feature	Not applicable
121	CBW	feature	Negative
122	CBW	feature	Positive
123	CBW	feature	Not applicable
124	CBW	feature	Positive
125	CBW	feature	Negative
126	IFT	feature	Positive
127	CBW	news	Not applicable
128	CBW	news	Neutral
129	WLJ	news	Not applicable
130	WLJ	news	Not applicable
131	WLJ	news	Negative
132	WLJ	news	Positive
133	WLJ	news	Positive
134	WLJ	news	Neutral
135	WLJ	news	Neutral
136	WLJ	news	Negative
137	WLJ	news	Neutral
138	WLJ	news	Neutral
139	WLJ	news	Positive
140	WLJ	news	Not applicable
141	WLJ	news	Neutral
142	WLJ	news	Neutral
143	WLJ	news	Positive
144	WLJ	news	Neutral
145	WLJ	news	Neutral
146	WLJ	news	Positive
147	WLJ	news	Neutral
148	WLJ	news	Neutral
149	WLJ	news	Positive

150	WLJ	news	Not applicable
151	WLJ	news	Positive
152	WLJ	news	Positive
153	WLJ	news	Neutral
154	WLJ	news	Positive
155	WLJ	news	Neutral
156	WLJ	news	Neutral
157	WLJ	news	Not applicable
159	WAR	news	Negative
160	WAR	news	Negative
161	WAR	news	Neutral
162	WAR	news	Neutral
163	TSLN	news	Not applicable
164	TSLN	news	Neutral
165	TSLN	news	Neutral
166	TSLN	news	Negative
167	IFT	news	Neutral
168	IFT	news	Positive
169	IFT	news	Positive
170	IFT	news	Positive
171	IFT	news	Positive
172	IFT	news	Neutral
173	IFT	news	Positive
174	IFT	news	Neutral
175	IFT	news	Neutral
176	IFT	news	Positive
177	IFT	news	Neutral
178	IFT	news	Negative
179	IFT	news	Neutral
200	IFT	news	Neutral
201	HPJ	news	Not applicable
202	HPJ	news	Positive
203	HPJ	news	Neutral
204	HPJ	news	Positive
205	HPJ	news	Positive
206	HPJ	news	Neutral
207	HPJ	news	Positive
208	HPJ	news	Negative
209	HPJ	news	Neutral
210	HPJ	news	Neutral
211	HPJ	news	Positive
212	HPJ	news	Positive
213	HPJ	news	Positive
214	HPJ	news	Positive
215	HPJ	news	Neutral
216	HPJ	news	Positive
217	HPJ	news	Positive
218	HPJ	news	Positive
219	HPJ	news	Positive
220	HPJ	news	Positive

221	HPJ	news	Positive
222	HPJ	news	Positive
223	HPJ	news	Not applicable
224	HPJ	news	Positive
225	HPJ	news	Positive
226	HPJ	news	Neutral
227	HPJ	news	Neutral
228	HPJ	news	Positive
229	HPJ	news	Neutral
230	HPJ	news	Positive
231	HPJ	news	Positive
232	HPJ	news	Positive
233	HPJ	news	Negative
234	HPJ	news	Positive
235	HPJ	news	Not applicable
236	HPJ	news	Positive
237	HPJ	news	Not applicable
238	HPJ	news	Negative
239	HPJ	news	Neutral
240	HPJ	news	Negative
241	HPJ	news	Negative
242	HPJ	news	Negative
243	HPJ	news	Positive
244	HPJ	news	Neutral
245	HPJ	news	Negative
246	HPJ	news	Neutral
247	HPJ	news	Not applicable
248	HPJ	news	Neutral
249	HPJ	news	Neutral
250	HPJ	news	Positive
251	HPJ	news	Neutral
252	HPJ	news	Not applicable
253	HPJ	news	Neutral
254	HPJ	news	Not applicable
255	HPJ	news	Negative
256	HPJ	news	Positive
257	HPJ	news	Neutral
258	HPJ	news	Positive
259	HPJ	news	Neutral
260	HPJ	news	Positive
261	HPJ	news	Positive
262	HPJ	news	Neutral
263	HPJ	news	Positive
264	HPJ	news	Positive
265	HPJ	news	Positive
266	HPJ	news	Neutral
267	HPJ	news	Positive
268	HPJ	news	Positive
269	HPJ	news	Neutral
270	HPJ	news	Positive

271	HPJ	news	Neutral
272	HPJ	news	Negative
273	HPJ	news	Positive
274	HPJ	news	Positive
275	HPJ	news	Positive
276	HPJ	news	Positive
277	HPJ	news	Positive
278	HPJ	news	Negative
279	HPJ	news	Neutral
280	HPJ	news	Neutral
281	HPJ	news	Positive
282	HPJ	news	Neutral
283	HPJ	news	Negative
284	HPJ	news	Positive
285	HPJ	news	Not applicable
286	HPJ	news	Positive
287	HPJ	news	Positive
288	HPJ	news	Positive
289	HPJ	news	Positive
290	HPJ	news	Positive
292	HPJ	news	Negative
293	HPJ	news	Negative
294	HPJ	news	Positive
295	HPJ	news	Positive
296	HPJ	news	Not applicable
297	HPJ	news	Positive
298	HPJ	news	Neutral
299	HPJ	news	Positive
300	HPJ	news	Positive
301	HPJ	news	Neutral
302	HPJ	news	Positive
303	HPJ	news	Positive
304	HPJ	news	Positive
305	HPJ	news	Neutral
306	HPJ	news	Negative
307	HPJ	news	Neutral
308	HPJ	news	Negative
309	HPJ	news	Neutral
310	HPJ	news	Positive
311	HPJ	news	Positive
312	HPJ	news	Neutral
313	HPJ	news	Positive
314	HPJ	news	Not applicable
315	HPJ	news	Not applicable
316	HPJ	news	Positive
317	HPJ	news	Not applicable
318	HPJ	news	Neutral
319	HPJ	news	Positive
320	HPJ	news	Positive
321	HPJ	news	Positive

322	HPJ	news	Negative
323	HPJ	news	Not applicable
324	HPJ	news	Positive
325	HPJ	news	Negative
326	HPJ	news	Negative
327	HPJ	news	Negative
328	HPJ	news	Positive
329	HPJ	news	Negative
330	HPJ	news	Neutral
331	HPJ	news	Negative
332	HPJ	news	Neutral
333	HPJ	news	Negative
334	HPJ	news	Not applicable
335	HPJ	news	Not applicable
336	HPJ	news	Not applicable
337	HPJ	news	Not applicable
338	HPJ	news	Not applicable
339	HPJ	news	Not applicable
340	HPJ	news	Not applicable
341	HPJ	news	Neutral
342	HPJ	news	Negative
343	HPJ	news	Neutral
344	HPJ	news	Neutral
345	HPJ	news	Not applicable
346	HPJ	news	Negative
347	HPJ	news	Neutral
348	HPJ	news	Positive
349	HPJ	news	Positive
350	HPJ	news	Positive
351	HPJ	news	Positive
352	HPJ	news	Negative
353	HPJ	news	Neutral
354	HPJ	news	Positive
355	HPJ	news	Positive
356	HPJ	news	Neutral
357	HPJ	news	Positive
358	HPJ	news	Positive
359	CBW	news	Negative
400	CBW	news	Neutral
401	CBW	news	Not applicable
402	CBW	news	Positive
403	CBW	news	Not applicable
404	CBW	news	Negative
405	CBW	news	Not applicable
406	CBW	news	Neutral
407	CBW	news	Not applicable
408	CBW	news	Neutral
409	CBW	news	Negative
410	CBW	news	Positive
411	CBW	news	Positive

412	CBW	news	Neutral
413	CBW	news	Neutral
414	CBW	news	Neutral
415	HPJ	news	Positive
416	WAR	news	Neutral

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APPENDIX F

LIST OF ARTICLES AND DOMINANT FRAME

Article	IT	EC	MS	SP	UP	AP	CP	YP	RP	PO	TE	ST	AD	TJ	CD	NR
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
7	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
9	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
13	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
15	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
18	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
20	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
22	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
26	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
30	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
33	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
37	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
40	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
42	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
44	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
48	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
50	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
51	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
52	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
53	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
54	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

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57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
58	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
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63	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
65	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
67	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
69	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
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71	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
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73	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
74	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
75	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
76	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
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78	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
79	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
80	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
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82	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
83	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
84	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
85	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
86	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
87	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
88	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
89	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
90	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
91	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
92	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
95	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
96	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
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355	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
356	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
357	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0

358	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
359	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
400	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
401	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
402	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
403	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
404	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
405	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
406	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
407	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
408	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
409	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
410	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
411	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
412	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
413	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
414	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
415	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
416	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*Note.* IT = international trade; EC = economics; MS = meeting summary; SP = state programs; UP = university programs; AP = association programs; CP = commercial programs; YP = youth programs; RP = related programs; PO = producer and industry opinions; TE = technology; ST = NAIS structure; AD adoption; TJ = traceability justification; NR = not related.

*Note.* Consumer demands was not included in the table because it was not utilized as a dominant frame.

*Note.* A 1 represents the frame assigned to the article.



APPENDIX G

LIST OF ARTICLES AND SECONDARY FRAME

Article	IT	EC	SP	UP	AP	CP	YP	RP	PO	TE	ST	AD	TJ	CD
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	1	0	0	0	0
3	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	1	0
16	0	0	0	0	0	0	0	0	0	0	0	0	1	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	1	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	1	0	0	0	0	0
23	0	0	0	0	0	0	0	0	1	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	1	0	0	0
27	0	0	0	0	0	0	1	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	1	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	1	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0	1	0
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	1	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0	0	1	0	0	0
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	1	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	1	0
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	1	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0

50	0	0	0	0	0	0	0	0	0	0	0	1	0	0
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	0	1	0	0	0	0
53	0	0	0	0	0	0	0	0	0	0	1	0	1	0
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0	0	1	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	1	0	0	0	0	0
61	0	0	0	0	0	0	0	0	0	1	0	0	0	0
62	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0	0	0	0	1	0	0	0
64	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	0	0	0	0	1	0
66	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	1	0	0	0	0	0
70	0	0	0	0	0	0	0	0	1	0	0	0	0	0
71	0	0	0	0	0	0	0	0	0	0	0	0	1	0
72	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	0	0	0	0	0	0	0	0	0	0	0	0	1	0
74	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	0	0	0	1	0	0	0
76	0	0	0	0	0	0	0	0	0	0	1	0	0	0
77	0	0	0	0	0	0	0	0	0	0	1	0	0	0
78	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80	0	0	0	1	0	0	0	0	0	1	0	0	0	0
81	0	0	0	0	0	0	0	0	0	0	0	0	0	0
82	0	0	0	0	0	0	0	0	1	0	0	0	0	0
83	0	0	0	0	0	0	0	0	0	0	1	0	0	0
84	0	0	0	0	0	0	0	0	0	0	0	0	1	0
85	0	0	0	0	0	0	0	0	0	0	0	0	1	0
86	0	0	0	0	0	0	0	0	0	1	0	0	0	1
87	0	0	0	0	0	0	0	0	0	1	0	0	0	0
88	0	0	0	0	0	0	0	0	0	0	0	0	1	0
89	0	0	0	0	0	0	0	0	0	0	0	1	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	1	0
91	0	0	0	0	0	0	0	0	0	0	1	1	0	0
92	0	0	0	0	0	1	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99	1	0	0	0	0	0	0	0	1	0	0	0	0	0

100	0	0	0	0	0	0	0	0	1	0	0	0	0	0
101	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	0	0	0	0	0	0	0	0	1	0	1	0	0	0
103	0	0	0	0	0	0	0	0	0	1	0	0	0	0
104	0	0	0	0	0	0	0	0	0	0	1	0	0	0
105	0	0	0	0	0	0	0	0	0	0	0	0	1	0
106	0	0	0	0	0	0	0	0	0	0	0	0	0	0
107	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	0	0	0	0	0	0	0	0	0	0	1	0	0	0
109	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111	0	0	0	0	0	0	0	0	1	0	0	0	0	0
112	0	0	0	0	0	0	0	1	0	0	0	0	0	0
113	0	0	0	0	0	0	0	0	0	0	0	0	1	0
114	0	0	0	0	0	0	0	0	0	0	0	1	0	0
115	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116	0	0	0	0	0	0	0	0	0	0	0	0	0	0
117	0	0	0	0	0	0	0	0	0	0	0	0	0	0
118	0	0	0	0	0	0	0	0	0	0	0	0	0	0
119	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0	0	0	0	0
121	0	0	0	0	0	0	0	0	1	0	0	0	0	0
122	0	0	0	0	0	0	0	0	0	1	0	0	0	0
123	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	0	0	0	0	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0	0	0	0	0
126	0	0	0	0	0	0	0	0	0	0	0	1	1	0
127	0	0	0	0	0	0	0	0	0	0	0	0	0	0
128	0	0	0	0	0	0	0	0	0	0	1	0	0	0
129	0	0	0	0	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0	0	0	0	0
131	0	0	0	0	0	0	0	0	1	0	1	0	0	0
132	0	0	0	0	0	0	0	0	0	0	0	0	0	0
133	0	0	0	0	0	0	0	0	0	0	0	0	0	0
134	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0	0	0	0	0
136	0	0	0	0	0	0	0	0	1	0	0	0	0	0
137	0	0	0	0	0	0	0	0	0	0	0	0	0	0
138	0	0	0	0	0	0	0	0	0	0	0	0	0	0
139	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0	0	0	0	0
141	0	0	0	0	0	0	0	0	0	0	0	0	0	0
142	0	0	0	0	0	0	0	0	0	0	1	0	0	0
143	0	0	0	0	0	0	0	0	0	0	0	0	0	0
144	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0	0	0	0	0
146	1	0	0	0	0	0	0	0	0	0	0	0	0	0
147	0	0	0	0	0	0	0	0	0	0	0	0	0	0
148	0	0	0	0	0	0	0	0	0	0	0	0	0	0
149	0	0	0	0	0	0	0	0	0	0	0	0	0	0

150	0	0	0	0	0	0	0	0	0	0	0	0	0	0
151	0	0	0	0	0	0	0	0	0	0	0	0	1	0
152	0	0	0	0	0	0	0	0	0	0	0	0	0	0
153	0	0	0	0	0	0	0	0	0	0	0	0	0	0
154	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0	1	0	0	0
156	0	0	0	0	0	0	0	0	0	0	0	0	0	0
157	0	0	0	0	0	0	0	0	0	0	0	0	0	0
159	0	0	0	0	0	0	0	0	1	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0	0	0	0	0
161	0	0	0	0	0	0	0	0	0	0	0	0	0	0
162	0	0	0	0	0	0	0	0	0	0	0	0	0	0
163	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	0	0	0	0	0	0	0	0	0	0	1	0	0	0
165	0	0	0	0	0	0	0	0	0	0	1	0	0	0
166	0	0	0	0	0	0	0	0	1	0	0	0	0	0
167	0	0	0	0	0	0	0	0	0	0	0	0	0	0
168	1	0	0	0	0	0	0	0	0	0	0	0	0	0
169	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0	0	0	0	0
171	0	0	0	0	0	0	0	0	0	0	0	0	0	0
172	1	0	0	0	0	0	0	0	0	0	0	0	0	0
173	0	0	0	0	0	0	0	0	0	0	0	0	0	0
174	0	0	0	0	0	0	0	0	1	0	0	0	0	0
175	0	0	0	0	0	0	0	0	1	0	0	0	0	0
176	0	0	0	0	0	0	0	0	0	0	0	0	0	0
177	0	0	0	0	0	0	0	0	0	0	0	0	0	0
178	0	0	0	0	0	0	0	0	0	0	0	0	0	0
179	0	0	0	0	0	0	0	0	0	0	0	0	0	0
200	0	0	0	0	0	0	0	0	0	0	0	0	0	0
201	0	0	0	0	0	0	0	0	0	0	0	0	0	0
202	0	0	0	0	0	0	0	0	0	0	0	0	0	0
203	0	0	0	0	0	0	0	0	0	0	0	0	0	0
204	0	0	0	0	0	0	0	0	0	0	0	0	0	0
205	0	0	0	0	0	0	0	0	0	0	0	0	0	0
206	0	0	0	0	0	0	0	0	0	0	0	0	0	0
207	0	0	0	0	0	0	0	0	0	0	0	0	1	0
208	0	0	0	0	0	0	0	0	1	0	0	0	0	0
209	0	0	0	0	0	0	0	0	0	0	0	0	0	0
210	0	0	0	0	0	0	0	0	0	0	0	0	0	0
211	0	0	0	0	0	0	0	0	0	0	0	0	1	0
212	0	0	0	0	0	0	0	0	0	0	0	0	0	0
213	0	0	0	0	0	0	0	0	0	0	0	0	0	0
214	0	0	0	0	0	0	0	0	0	0	0	0	0	0
215	0	0	0	0	0	0	0	0	0	0	0	0	0	0
216	0	0	0	0	0	1	0	0	0	0	0	0	0	0
217	0	0	0	0	0	1	0	0	0	0	0	0	0	0
218	0	0	0	0	0	0	0	0	0	0	0	0	0	0
219	0	0	0	0	0	0	0	0	0	0	0	0	1	0
220	0	0	0	0	0	0	0	0	0	0	0	0	0	0

221	0	0	0	0	0	0	0	0	0	0	0	0	0	0
222	0	0	0	0	0	0	0	0	0	0	0	0	0	0
223	0	0	0	0	0	0	0	0	0	0	0	0	0	0
224	0	0	0	0	0	0	0	0	0	0	0	0	0	0
225	0	0	0	0	0	0	0	0	0	0	0	0	0	0
226	0	0	0	0	0	0	0	0	0	0	1	0	0	0
227	0	0	0	0	0	0	0	0	1	0	0	0	0	0
228	0	0	0	0	0	0	0	0	0	0	1	0	0	0
229	0	0	0	0	0	0	0	0	0	0	0	0	0	0
230	0	0	0	0	0	0	0	0	0	0	0	0	0	0
231	0	0	0	0	0	0	0	0	0	0	0	0	0	0
232	0	0	0	0	0	0	0	0	1	0	0	0	0	0
233	0	0	0	0	0	0	0	0	1	0	0	0	0	0
234	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	0	0	0	0	0	0	0	0	0	0	0	0	0	0
236	0	0	0	0	0	0	0	0	0	0	1	0	0	0
237	0	0	0	0	0	0	0	0	0	0	0	0	0	0
238	0	0	0	0	0	0	0	0	0	0	0	0	0	0
239	0	0	0	0	0	0	0	0	0	0	0	0	0	0
240	0	0	0	0	0	0	0	0	0	0	1	0	0	0
241	0	0	0	0	0	0	0	0	0	0	0	0	0	0
242	0	0	0	0	0	0	0	0	0	0	0	0	0	0
243	0	0	0	0	0	0	0	0	0	0	0	0	0	0
244	0	0	0	0	0	0	0	0	0	0	0	0	0	0
245	0	0	0	0	0	0	0	0	1	0	0	0	0	0
246	0	0	0	0	0	0	0	0	0	0	0	0	0	0
247	0	0	0	0	0	0	0	0	0	0	0	0	0	0
248	0	0	0	0	0	0	0	0	0	0	1	0	0	0
249	0	0	0	0	0	0	0	0	0	0	0	0	0	0
250	0	0	0	0	0	0	0	0	0	0	0	0	1	0
251	0	0	0	0	0	0	0	0	1	0	0	0	0	0
252	0	0	0	0	0	0	0	0	0	0	0	0	0	0
253	0	0	0	0	0	0	0	0	0	0	0	0	0	0
254	0	0	0	0	0	0	0	0	0	0	0	0	0	0
255	0	0	0	0	0	0	0	0	0	0	1	0	0	0
256	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	0	0	0	0	0	0	0	0	0	0	0	0	0	0
258	0	0	0	0	0	0	0	0	0	0	0	0	0	0
259	0	0	0	0	0	0	0	0	0	0	0	0	0	0
260	0	0	0	0	0	0	0	0	0	0	0	0	0	0
261	0	0	0	0	0	0	0	0	0	0	0	0	0	0
262	0	0	0	0	0	0	0	0	0	0	0	0	0	0
263	0	0	0	0	0	0	0	0	0	0	0	0	0	0
264	0	0	0	0	0	0	0	0	0	0	0	0	0	0
265	0	0	0	0	0	0	0	0	0	0	0	0	0	0
266	0	0	0	0	0	0	0	0	1	0	0	0	0	0
267	0	0	0	0	0	0	0	0	0	0	0	0	0	0
268	0	0	0	0	0	0	0	0	1	0	0	0	0	0
269	0	0	0	0	0	0	0	0	1	0	0	0	0	0
270	0	0	0	0	0	0	0	0	0	0	0	0	0	0

271	0	0	0	0	0	0	0	0	0	0	1	0	0	0
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273	0	0	0	0	0	0	1	0	0	0	0	0	0	0
274	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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276	0	0	0	0	0	0	0	0	0	0	0	0	0	0
277	0	0	0	0	0	0	0	0	0	0	1	0	0	0
278	0	0	0	0	0	0	0	0	1	0	0	0	0	0
279	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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286	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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288	0	0	0	0	0	0	0	0	0	0	0	0	0	0
289	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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292	0	0	0	0	0	0	0	0	1	0	0	0	0	0
293	0	0	0	0	0	0	0	0	0	0	0	0	0	0
294	0	0	0	0	0	0	0	0	0	0	0	0	0	0
295	0	0	0	0	0	0	0	0	0	0	0	0	0	0
296	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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299	0	0	0	0	0	0	0	0	0	0	0	0	0	0
300	0	0	0	0	0	0	0	1	0	0	0	0	0	0
301	0	0	0	0	0	0	0	0	0	0	0	0	0	0
302	0	0	0	0	0	0	0	0	0	0	0	0	0	0
303	0	0	0	0	0	0	0	0	0	0	0	0	0	0
304	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	0	0	0	0	0	0	0	0	0	1	0	0	0	0
306	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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311	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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315	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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319	0	0	0	0	0	0	0	0	1	0	0	0	0	0
320	0	0	0	0	0	0	1	0	0	0	0	0	0	0
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322	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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324	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	0	0	0	0	0	0	0	0	1	0	0	0	0	0
328	0	0	0	0	0	0	0	0	0	0	0	0	0	0
329	0	0	0	0	0	0	0	0	0	0	0	0	0	0
330	0	0	0	0	0	0	0	0	1	0	0	0	0	0
331	0	0	0	0	0	0	0	0	1	0	0	0	0	0
332	0	0	0	0	0	0	0	1	0	0	0	0	0	0
333	0	0	0	0	0	0	0	0	0	0	0	0	0	0
334	0	0	0	0	0	0	0	0	0	0	0	0	0	0
335	0	0	0	0	0	0	0	0	0	0	0	0	0	0
336	0	0	0	0	0	0	0	0	0	0	0	0	0	0
337	0	0	0	0	0	0	0	0	0	0	0	0	0	0
338	0	0	0	0	0	0	0	0	0	0	0	0	0	0
339	0	0	0	0	0	0	0	0	0	0	0	0	0	0
340	0	0	0	0	0	0	0	0	0	0	0	0	0	0
341	0	0	0	0	0	0	0	0	0	0	1	0	0	0
342	0	0	0	0	0	0	0	0	0	0	0	0	0	0
343	0	0	0	0	0	0	0	0	0	0	1	0	0	0
344	0	0	0	0	0	0	0	0	0	0	0	0	0	0
345	0	0	0	0	0	0	0	0	0	0	0	0	0	0
346	0	0	0	0	0	0	0	0	0	0	0	0	0	0
347	0	0	0	0	0	0	0	0	0	0	0	0	0	0
348	0	0	0	0	0	0	0	0	0	0	0	0	0	0
349	0	0	0	0	0	0	0	0	0	0	0	0	1	0
350	0	0	0	0	0	0	0	0	0	0	0	0	1	0
351	0	0	0	0	0	0	0	0	0	0	0	0	1	0
352	0	0	0	0	0	0	0	0	1	0	0	0	0	0
353	0	0	0	0	0	0	0	0	0	0	1	0	0	0
354	0	0	0	0	0	0	0	0	0	0	0	0	0	0
355	0	0	0	0	0	0	0	0	0	0	0	0	0	0
356	0	0	1	0	0	0	0	0	0	0	0	0	0	0
357	0	0	0	0	0	0	0	0	0	0	0	0	0	0
358	0	0	0	0	0	0	0	0	0	0	0	0	0	0
359	0	0	0	0	0	0	0	0	0	0	0	0	0	0
400	0	0	0	0	0	0	0	0	0	0	0	0	0	0
401	0	0	0	0	0	0	0	0	0	0	0	0	0	0
402	0	0	0	0	0	0	0	0	0	0	0	0	0	0
403	0	0	0	0	0	0	0	0	0	0	0	0	0	0
404	0	0	0	0	0	0	0	0	0	0	0	0	0	0
405	0	0	0	0	0	0	0	0	0	0	0	0	0	0
406	0	0	0	0	0	0	0	0	0	0	0	0	0	0
407	0	0	0	0	0	0	0	0	0	0	0	0	0	0
408	0	0	0	0	0	0	0	0	0	0	0	0	0	0
409	0	0	0	0	0	0	0	0	1	0	0	0	0	0
410	0	0	0	0	0	0	0	0	1	0	0	0	0	0
411	0	0	0	0	0	0	0	0	0	0	0	0	0	0



412	0	0	0	0	0	0	0	0	0	0	0	0	0	0
413	0	0	0	0	0	0	0	0	0	0	0	0	0	0
414	0	0	0	0	0	0	0	0	0	0	0	0	0	0
415	0	0	0	0	0	0	0	0	0	0	0	0	1	0
416	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*Note.* IT = international trade; EC = economics; MS = meeting summary; SP = state programs; UP = university programs; AP = association programs; CP = commercial programs; YP = youth programs; RP = related programs; PO = producer and industry opinions; TE = technology; ST = NAIS structure; AD adoption; TJ = traceability justification; CD = consumer demands.

*Note.* Meeting summary and not related were not included in the table because they were not utilized as secondary frames.

*Note.* A 1 represents the frame assigned to the article.

APPENDIX H  
LIST OF ARTICLES TYPES OF SOURCES

Article	NP	NM	CP	NM	GV	NM	UN	NM	ID	NM	Total	
1	0	0		1	1	1	1	1	1	0	0	3
2	0	0		1	1	0	0	1	1	0	0	2
3	1	1		1	2	0	0	0	0	0	0	2
4	1	3		0	0	0	0	0	0	0	0	1
5	1	1		0	0	1	2	0	0	1	1	3
6	1	1		1	2	0	0	0	0	0	0	2
7	0	0		0	0	1	3	0	0	0	0	1
8	1	2		0	0	0	0	0	0	0	0	1
9	1	1		0	0	0	0	0	0	0	0	1
10	1	1		0	0	1	3	0	0	1	1	3
11	1	1		0	0	0	0	0	0	0	0	1
12	1	2		0	0	0	0	0	0	0	0	1
13	1	1		1	2	0	0	0	0	0	0	2
14	0	0		0	0	0	0	0	0	0	0	0
15	0	0		1	1	0	0	0	0	0	0	1
16	0	0		0	0	1	2	0	0	0	0	1
17	0	0		1	5	1	2	0	0	0	0	2
18	1	2		0	0	0	0	0	0	0	0	1
19	1	1		0	0	0	0	0	0	1	1	2
20	1	1		0	0	0	0	0	0	0	0	1
21	1	1		0	0	0	0	0	0	0	0	1
22	0	0		0	0	0	0	0	0	1	1	1
23	1	1		0	0	0	0	0	0	0	0	1
24	1	1		0	0	1	2	0	0	1	2	3
25	0	0		1	1	0	0	0	0	0	0	1
26	0	0		0	0	1	1	0	0	0	0	1
27	0	0		0	0	0	0	0	0	1	1	1
28	1	1		0	0	0	0	0	0	0	0	1
29	0	0		0	0	0	0	1	1	0	0	1
30	0	0		1	1	0	0	1	1	1	2	3
31	1	1		1	1	0	0	1	1	0	0	3
32	0	0		0	0	1	1	0	0	0	0	1
33	0	0		0	0	0	0	1	2	0	0	1
34	1	2		0	0	0	0	1	1	1	1	3
35	0	0		1	1	0	0	0	0	0	0	1
36	1	3		0	0	0	0	0	0	0	0	1
37	0	0		0	0	1	1	0	0	0	0	1
38	0	0		0	0	1	1	0	0	0	0	1
39	1	1		0	0	1	1	1	1	0	0	3
40	1	1		0	0	1	1	0	0	0	0	2
41	1	1		0	0	0	0	0	0	1	2	2
42	1	3		0	0	1	1	1	1	1	1	4
43	0	0		0	0	0	0	0	0	1	1	1
44	1	2		1	1	1	1	0	0	1	2	4
45	1	1		0	0	0	0	0	0	0	0	1
46	0	0		0	0	1	1	1	1	0	0	2
47	1	1		1	1	0	0	0	0	1	1	3
48	0	0		0	0	1	1	0	0	1	1	2
49	0	0		0	0	0	0	1	1	0	0	1

50	0	0	0	0	1	1	0	0	1	1	2
51	0	0	0	0	0	0	0	0	1	1	1
52	0	0	0	0	0	0	1	1	0	0	1
53	0	0	0	0	1	1	0	0	0	0	1
54	1	3	0	0	0	0	0	0	0	0	1
55	1	1	1	1	0	0	0	0	0	0	2
56	1	1	0	0	0	0	0	0	0	0	1
57	1	4	0	0	0	0	1	1	1	5	3
58	0	0	0	0	1	3	0	0	0	0	1
59	0	0	0	0	1	1	0	0	0	0	1
60	1	1	0	0	0	0	0	0	0	0	1
61	0	0	1	1	0	0	1	1	0	0	2
62	1	2	0	0	0	0	0	0	0	0	1
63	0	0	0	0	1	1	0	0	0	0	1
64	0	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	1	1	0	0	0	0	1
66	0	0	0	0	1	1	0	0	0	0	1
67	0	0	0	0	1	1	0	0	0	0	1
68	1	1	1	2	0	0	0	0	0	0	2
69	1	2	0	0	0	0	0	0	1	2	2
70	1	3	0	0	0	0	0	0	1	2	2
71	0	0	0	0	1	1	0	0	0	0	1
72	1	1	0	0	0	0	0	0	0	0	1
73	1	1	0	0	0	0	0	0	1	1	2
74	0	0	1	3	0	0	0	0	0	0	1
75	0	0	0	0	1	3	0	0	0	0	1
76	0	0	1	1	0	0	1	2	1	1	3
77	1	3	1	1	1	3	1	2	0	0	4
78	1	1	0	0	0	0	0	0	0	0	1
79	0	0	0	0	1	2	0	0	0	0	1
80	0	0	1	1	1	1	1	2	0	0	3
81	1	3	0	0	0	0	0	0	1	2	2
82	1	2	1	1	0	0	0	0	0	0	2
83	1	1	0	0	0	0	0	0	0	0	1
84	0	0	1	2	1	1	1	1	0	0	3
85	1	2	0	0	1	1	0	0	0	0	2
86	0	0	1	4	0	0	0	0	0	0	1
87	0	0	0	0	0	0	1	1	0	0	1
88	0	0	0	0	1	2	0	0	0	0	1
89	1	1	1	3	1	2	0	0	1	1	4
90	0	0	0	0	1	1	0	0	0	0	1
91	1	3	0	0	1	1	0	0	0	0	2
92	0	0	1	2	0	0	0	0	0	0	1
93	0	0	1	3	0	0	0	0	0	0	1
94	1	2	0	0	0	0	1	1	0	0	2
95	0	0	1	4	0	0	0	0	1	1	2
96	0	0	1	1	0	0	1	2	0	0	2
97	1	3	1	5	0	0	1	1	0	0	3
98	1	3	1	1	0	0	0	0	1	2	3
99	1	4	0	0	1	1	0	0	1	1	3

100	1	1	0	0	1	1	0	0	1	2	3
101	0	0	1	1	0	0	1	1	0	0	2
102	1	3	1	1	1	1	0	0	1	1	4
103	1	1	1	3	1	1	1	2	1	1	5
104	1	2	0	0	1	2	0	0	1	2	3
105	1	1	0	0	0	0	0	0	0	0	1
106	0	0	1	3	0	0	0	0	0	0	1
107	1	1	0	0	0	0	0	0	0	0	1
108	0	0	0	0	0	0	1	2	0	0	1
109	0	0	0	0	0	0	0	0	0	0	0
110	0	0	1	2	0	0	1	4	1	1	3
111	1	2	0	0	0	0	0	0	1	1	2
112	1	4	0	0	1	1	0	0	1	1	3
113	1	2	1	1	1	1	0	0	0	0	3
114	1	1	0	0	1	3	0	0	0	0	2
115	1	2	0	0	0	0	0	0	0	0	1
116	1	2	0	0	1	1	1	1	1	1	4
117	0	0	0	0	1	1	1	1	1	2	3
118	0	0	0	0	0	0	1	1	0	0	1
119	1	1	1	1	0	0	0	0	1	2	3
120	0	0	1	3	0	0	0	0	0	0	1
121	1	6	1	2	1	3	0	0	1	6	4
122	0	0	1	1	0	0	0	0	0	0	1
123	0	0	0	0	0	0	1	3	0	0	1
124	0	0	0	0	1	1	0	0	0	0	1
125	1	3	0	0	1	3	0	0	0	0	2
126	0	0	0	0	1	1	0	0	0	0	1
127	0	0	0	0	0	0	0	0	0	0	0
128	1	1	0	0	0	0	0	0	0	0	1
129	0	0	0	0	0	0	0	0	0	0	0
130	1	3	0	0	1	1	0	0	0	0	2
131	0	0	0	0	1	2	0	0	1	2	2
132	0	0	0	0	0	0	0	0	0	0	0
133	0	0	0	0	1	1	0	0	0	0	1
134	0	0	0	0	0	0	0	0	0	0	0
135	1	1	0	0	1	1	0	0	0	0	2
136	1	1	0	0	1	2	0	0	1	3	3
137	1	2	0	0	1	1	0	0	0	0	2
138	1	1	0	0	0	0	0	0	1	1	2
139	0	0	0	0	0	0	1	1	0	0	1
140	0	0	0	0	1	1	0	0	0	0	1
141	1	2	0	0	0	0	0	0	0	0	1
142	1	1	0	0	0	0	0	0	0	0	1
143	1	1	0	0	0	0	0	0	0	0	1
144	0	0	0	0	1	1	0	0	0	0	1
145	0	0	0	0	0	0	0	0	0	0	0
146	0	0	0	0	1	1	0	0	0	0	1
147	0	0	0	0	1	1	0	0	0	0	1
148	0	0	0	0	0	0	0	0	0	0	0
149	0	0	1	1	0	0	0	0	0	0	1

150	1	3	1	1	0	0	0	0	0	0	2
151	0	0	0	0	0	0	1	2	0	0	1
152	1	1	0	0	0	0	0	0	1	1	2
153	1	1	0	0	0	0	0	0	0	0	1
154	0	0	1	2	0	0	0	0	0	0	1
155	1	1	0	0	1	3	0	0	0	0	2
156	0	0	0	0	1	1	0	0	0	0	1
157	1	1	1	2	1	1	0	0	0	0	3
159	1	1	0	0	0	0	0	0	0	0	1
160	0	0	0	0	1	1	0	0	0	0	1
161	1	1	0	0	1	1	0	0	0	0	2
162	0	0	0	0	0	0	0	0	0	0	0
163	0	0	1	1	0	0	0	0	0	0	1
164	0	0	0	0	1	1	0	0	0	0	1
165	0	0	0	0	1	1	0	0	0	0	1
166	1	5	1	1	1	1	0	0	1	5	4
167	0	0	0	0	1	1	0	0	0	0	1
168	1	2	0	0	0	0	0	0	1	1	2
169	0	0	0	0	1	1	0	0	0	0	1
170	1	2	0	0	1	1	0	0	1	1	3
171	0	0	0	0	1	1	0	0	0	0	1
172	1	1	0	0	0	0	0	0	0	0	1
173	1	4	0	0	0	0	0	0	0	0	1
174	1	2	1	1	0	0	0	0	1	1	3
175	1	3	0	0	1	1	1	1	1	2	4
176	1	2	0	0	1	2	0	0	0	0	2
177	1	1	0	0	1	1	0	0	0	0	2
178	1	2	0	0	0	0	0	0	0	0	1
179	0	0	0	0	0	0	0	0	0	0	0
200	0	0	0	0	0	0	0	0	0	0	0
201	0	0	0	0	0	0	1	1	0	0	1
202	0	0	0	0	0	0	0	0	0	0	0
203	0	0	0	0	1	1	0	0	0	0	1
204	0	0	0	0	1	1	0	0	0	0	1
205	0	0	0	0	1	2	0	0	0	0	1
206	0	0	0	0	1	1	0	0	0	0	1
207	0	0	0	0	1	1	0	0	0	0	1
208	1	1	0	0	0	0	0	0	1	1	2
209	0	0	1	1	0	0	0	0	0	0	1
210	1	6	0	0	0	0	0	0	0	0	1
211	1	2	0	0	1	2	0	0	0	0	2
212	0	0	0	0	1	1	0	0	0	0	1
213	0	0	0	0	1	1	0	0	0	0	1
214	0	0	0	0	1	2	0	0	0	0	1
215	0	0	0	0	1	1	0	0	0	0	1
216	0	0	1	2	0	0	0	0	0	0	1
217	0	0	1	1	0	0	0	0	0	0	1
218	0	0	0	0	1	1	0	0	0	0	1
219	0	0	0	0	1	2	0	0	0	0	1
220	1	1	0	0	0	0	0	0	1	1	2

221	0	0	0	0	1	1	0	0	0	0	1
222	1	2	1	1	0	0	0	0	0	0	2
223	0	0	0	0	0	0	0	0	0	0	0
224	1	1	0	0	1	1	0	0	0	0	2
225	0	0	1	2	0	0	0	0	0	0	1
226	0	0	0	0	1	1	0	0	0	0	1
227	1	4	0	0	0	0	0	0	0	0	1
228	0	0	0	0	1	1	0	0	0	0	1
229	0	0	0	0	1	1	0	0	0	0	1
230	0	0	0	0	1	5	0	0	0	0	1
231	1	1	0	0	0	0	0	0	0	0	1
232	0	0	0	0	1	1	0	0	0	0	1
233	1	2	0	0	0	0	0	0	1	1	2
234	0	0	1	2	0	0	0	0	0	0	1
235	0	0	0	0	1	1	0	0	0	0	1
236	0	0	0	0	1	1	0	0	0	0	1
237	1	1	0	0	0	0	0	0	0	0	1
238	1	2	0	0	0	0	0	0	0	0	1
239	0	0	1	3	0	0	0	0	0	0	1
240	1	1	0	0	0	0	0	0	0	0	1
241	1	5	0	0	0	0	0	0	0	0	1
242	1	1	0	0	0	0	0	0	0	0	1
243	0	0	0	0	1	1	0	0	0	0	1
244	0	0	0	0	0	0	0	0	0	0	0
245	1	1	0	0	0	0	0	0	0	0	1
246	0	0	0	0	1	1	0	0	0	0	1
247	0	0	0	0	0	0	0	0	0	0	0
248	1	1	0	0	0	0	0	0	0	0	1
249	0	0	0	0	0	0	0	0	0	0	0
250	0	0	0	0	1	1	0	0	0	0	1
251	1	2	0	0	0	0	0	0	1	2	2
252	0	0	1	2	1	1	0	0	0	0	2
253	0	0	1	3	0	0	0	0	0	0	1
254	0	0	1	1	0	0	0	0	0	0	1
255	0	0	1	1	1	2	0	0	0	0	2
256	0	0	1	1	0	0	0	0	0	0	1
257	1	2	0	0	0	0	0	0	0	0	1
258	1	1	0	0	0	0	0	0	0	0	1
259	0	0	0	0	0	0	0	0	0	0	0
260	0	0	0	0	1	2	0	0	0	0	1
261	0	0	0	0	1	1	0	0	0	0	1
262	0	0	0	0	0	0	0	0	0	0	0
263	1	1	0	0	0	0	0	0	0	0	1
264	1	1	0	0	1	1	0	0	0	0	2
265	0	0	1	1	1	3	0	0	0	0	2
266	1	2	0	0	0	0	0	0	1	1	2
267	1	1	0	0	0	0	0	0	0	0	1
268	1	1	0	0	0	0	0	0	0	0	1
269	1	1	0	0	0	0	0	0	0	0	1
270	1	1	0	0	0	0	0	0	0	0	1

271	1	1	0	0	0	0	0	0	1	1	2
272	1	2	0	0	1	1	0	0	0	0	2
273	0	0	0	0	0	0	1	1	0	0	1
274	0	0	0	0	0	0	0	0	0	0	0
275	0	0	0	0	1	3	0	0	0	0	1
276	0	0	1	1	0	0	0	0	0	0	1
277	1	1	0	0	1	2	0	0	0	0	2
278	1	1	0	0	0	0	0	0	0	0	1
279	0	0	0	0	0	0	0	0	0	0	0
280	0	0	1	1	0	0	0	0	0	0	1
281	0	0	0	0	1	1	0	0	0	0	1
282	0	0	0	0	0	0	0	0	1	1	1
283	0	0	0	0	1	1	0	0	0	0	1
284	1	2	0	0	0	0	1	1	0	0	2
285	0	0	0	0	0	0	1	1	0	0	1
286	0	0	1	2	0	0	0	0	0	0	1
287	1	2	1	1	0	0	0	0	1	1	3
288	1	2	1	1	0	0	0	0	0	0	2
289	1	1	0	0	1	1	0	0	0	0	2
290	1	2	1	1	0	0	0	0	1	1	3
292	1	1	0	0	0	0	0	0	0	0	1
293	0	0	0	0	0	0	0	0	0	0	0
294	1	2	1	1	0	0	0	0	1	1	3
295	1	2	0	0	0	0	0	0	1	1	2
296	1	2	0	0	0	0	0	0	0	0	1
297	1	1	0	0	0	0	0	0	0	0	1
298	0	0	1	1	1	1	0	0	0	0	2
299	0	0	0	0	0	0	1	1	0	0	1
300	0	0	0	0	1	2	0	0	0	0	1
301	0	0	0	0	1	1	0	0	0	0	1
302	0	0	0	0	1	1	0	0	0	0	1
303	0	0	0	0	1	3	0	0	1	1	2
304	1	1	0	0	0	0	0	0	1	1	2
305	0	0	1	2	1	2	0	0	0	0	2
306	1	2	0	0	0	0	0	0	0	0	1
307	1	1	0	0	1	2	0	0	1	1	3
308	1	4	0	0	1	1	0	0	0	0	2
309	0	0	0	0	1	2	0	0	0	0	1
310	0	0	0	0	1	1	0	0	0	0	1
311	1	5	0	0	0	0	0	0	0	0	1
312	0	0	0	0	0	0	0	0	0	0	0
313	0	0	1	1	0	0	0	0	0	0	1
314	0	0	0	0	0	0	1	1	0	0	1
315	0	0	0	0	0	0	0	0	0	0	0
316	1	1	0	0	0	0	0	0	0	0	1
317	0	0	0	0	1	1	0	0	0	0	1
318	1	6	0	0	0	0	0	0	1	1	2
319	1	1	0	0	1	1	0	0	0	0	2
320	0	0	0	0	1	1	1	1	0	0	2
321	0	0	0	0	1	3	0	0	0	0	1



322	1	1	0	0	0	0	0	0	0	0	1
323	0	0	0	0	1	1	0	0	0	0	1
324	0	0	0	0	1	2	0	0	0	0	1
325	1	3	0	0	0	0	0	0	0	0	1
326	0	0	0	0	0	0	0	0	0	0	0
327	1	1	1	1	0	0	0	0	0	0	2
328	0	0	1	3	0	0	0	0	0	0	1
329	1	1	0	0	0	0	0	0	0	0	1
330	1	1	0	0	0	0	0	0	0	0	1
331	1	2	0	0	0	0	0	0	0	0	1
332	1	3	0	0	0	0	0	0	0	0	1
333	1	2	0	0	1	1	1	1	0	0	3
334	0	0	0	0	0	0	1	1	0	0	1
335	0	0	0	0	0	0	0	0	0	0	0
336	1	1	0	0	0	0	0	0	1	1	2
337	0	0	0	0	0	0	0	0	0	0	0
338	0	0	0	0	0	0	0	0	0	0	0
339	1	1	0	0	0	0	0	0	1	1	2
340	1	1	0	0	0	0	0	0	1	1	2
341	0	0	0	0	1	1	0	0	0	0	1
342	0	0	0	0	1	2	0	0	0	0	1
343	1	1	0	0	1	1	0	0	1	1	3
344	1	2	0	0	0	0	0	0	0	0	1
345	0	0	1	1	0	0	0	0	0	0	1
346	0	0	0	0	0	0	0	0	0	0	0
347	1	1	0	0	0	0	0	0	0	0	1
348	0	0	0	0	1	1	0	0	0	0	1
349	0	0	0	0	0	0	1	1	0	0	1
350	0	0	0	0	0	0	1	1	0	0	1
351	0	0	0	0	0	0	1	1	0	0	1
352	1	1	0	0	0	0	0	0	0	0	1
353	0	0	0	0	1	2	0	0	0	0	1
354	1	1	0	0	0	0	1	1	0	0	2
355	0	0	0	0	1	1	0	0	0	0	1
356	0	0	0	0	0	0	0	0	0	0	0
357	0	0	0	0	0	0	0	0	1	1	1
358	0	0	0	0	0	0	0	0	1	1	1
359	1	3	0	0	1	1	0	0	0	0	2
400	0	0	0	0	0	0	0	0	0	0	0
401	1	2	0	0	0	0	0	0	0	0	1
402	0	0	0	0	1	2	0	0	0	0	1
403	1	1	0	0	0	0	0	0	0	0	1
404	1	2	0	0	0	0	0	0	0	0	1
405	0	0	0	0	0	0	0	0	0	0	0
406	0	0	0	0	1	1	0	0	0	0	1
407	1	1	0	0	0	0	0	0	0	0	1
408	1	2	0	0	0	0	0	0	0	0	1
409	1	2	0	0	1	2	0	0	1	2	3
410	1	1	0	0	0	0	0	0	0	0	1
411	1	1	0	0	1	2	0	0	0	0	2

412	0	0	0	0	0	0	0	0	0	0	0
413	0	0	0	0	0	0	0	0	0	0	0
414	0	0	0	0	0	0	0	0	0	0	0
415	0	0	0	0	1	1	0	0	0	0	1
416	0	0	0	0	0	0	0	0	0	0	0

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*Note.* NP = non-profit; CP = corporate; GV = government; UN = university; ID = individual; NM = number of times the type of source was cited.

APPENDIX I

LIST OF STATES REQUIRING BRAND INSPECTIONS

*States Requiring a Brand Inspection*

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Arizona

California

Colorado

Idaho

Kansas (required upon request)

Montana

Nebraska

Nevada

New Mexico

North Dakota

Oregon

South Dakota

Utah

Washington

Wyoming

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VITA

CRISTINA GIACOMINI HUGHES

Candidate for the Degree of

Master of Science

Thesis: A FRAMING ANALYSIS OF ANIMAL IDENTIFICATION COVERAGE IN  
SELECTED U.S. AGRICULTURAL NEWSPAPERS

Major Field: AGRICULTURAL COMMUNICATIONS

Biographical:

Education:

Completed the requirements for the Master of Science in Agricultural  
Communications at Oklahoma State University, Stillwater, Oklahoma in July,  
2013.

Completed the requirements for the Bachelor of Science in Animal Science at  
California Polytechnic State University, San Luis Obispo, California in March,  
2010.

Experience:

2012-Present: Oklahoma State Biosystems and Agricultural Engineering Department

2011-2012: Oklahoma State 4-H Extension Office, Adobe Youth Voices Project  
Coordinator

2009-2011: Intern, Inyo and Mono Counties University of California Extension Office

2009-2011: Inyo and Mono Counties Substitute Teacher, Pre-K, K-12 and Special Needs

2009-2010: Teacher's Assistant (English), Cal Poly State University, San Luis Obispo

2008: Summer Intern, California Beef Council

Professional Memberships: Young California Cattlemen's Association: Secretary (2009),  
Publicity Chair (2008), Collegiate President (2008-2009),  
Collegiate Vice President (2008), and Collegiate Publicity  
Chair (2007)  
Alpha Zeta Honorary Agricultural Fraternity