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## Evaluating and Improving Consumer Perceptions of the Agriculture Industry

Katelyn Berndt

*South Dakota State University*

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**Evaluating and Improving Consumer Perceptions  
of the Agriculture Industry**

**Katelyn Berndt**  
Agricultural Communications  
*South Dakota State University*

March 1, 2019

## Abstract

*Consumer perceptions of the agriculture industry are increasingly important as alternative labeling and non-conventional options become more common. Consumers are seeking a more dominant role in the conversation about their food. This study explores how the agriculture industry can respond in a way that improves consumer perceptions and builds trust. The study also seeks to answer the question of whether country of birth or background affects consumer perceptions of agriculture. The research model includes a QuestionPro survey completed by students at South Dakota State University, representing consumers in the Millennial generation who are more likely to respond positively to transparent communication. The survey included 13 questions in a Likert scale design addressing trustworthiness and food safety. Students from each of the 8 colleges within the university, including the graduate school, were invited to participate. This sample group involved students from a variety of majors and backgrounds, including international students. Survey responses (n =159) were analyzed to identify differences based on gender, native country, background (urban/rural non-farm/farm) and college within South Dakota State University. Results showed background affected perceptions of trust in regard to farmers, science, agricultural companies, animal welfare and food safety ( $p < 0.05$ ). Statistical tendencies based on native country were also found ( $P < 0.10$ ) for questions focused on food safety. The study identified video as the method most desired by consumers to increase transparency and recommends that videos of production and practices be utilized to provide consumers a closer glimpse at agriculture. Further studies should focus on determining types of information which will be most effective in engaging and improving consumer's trust of all aspects of agriculture.*

## Introduction

The purpose of this study was to examine the relationship between agricultural producers and consumers.

The objectives of this study were to:

1. Identify obstacles in consumer-producer relationships.
2. Determine if country of birth affects perceptions of the agriculture and food industries.
3. Determine if personal financial stability affects perceptions of food safety.
4. Identify motivators for consumer purchasing decisions.
5. Identify methods to improve consumer-producer communication and engage consumers.

Over the last 50 years, employment and involvement in agriculture has experienced a substantial decline. The average American consumer is at least three generations removed from farming (American Farm Bureau Federation, 2019), and as of 2018 a mere 1.63% of Americans are employed in production agriculture (World Bank, 2018). As consumers become further disconnected from the agricultural industry, their concerns about the industry's practices and ethics have increased. As an industry, agriculture has potential for growth in its ability to reach and develop a positive relationship with consumers. The agriculture industry often does not pursue improved communication as a means of strengthening relationships with consumers. This has led to inconsistencies between consumer perceptions and the reality of agricultural practices (Rumble, Chiarelli, Culbertson, & Irani, 2014). The ideal image that many consumers have of a farm is that of *American Gothic*, reflecting a man in overalls on a small, diversified homestead with a few animals and 40 acres of cropland. In modern agriculture, this is simply not a realistic image.

The Center for Food Integrity (2017) examined consumer behaviors and separated them based on their relationship to truth. The study divided the population into three categories of consumers; the Scientific, the Philosopher, and the Follower. The Scientific consumer, which makes up 6% of the population, bases their opinions solely on scientific fact. They believe that decisions should be grounded in science, but are unable to simplify their ideas and cannot relate to the average consumer. Their influence extends only as far as Philosopher consumers (9% of the population), who in turn will be the influencers for the Followers who make up the largest portion – 39% – of the population. The rest of the population is made up of unquestioning Wishful Thinkers (32%) and self-validating Existentialists (14%). Philosophers take the Scientifics' evidence and simplify it while applying an ethical lens. These consumers are skeptical of science at times and do their best to position themselves on what they feel is the most moral side of issues. Follower consumers trust advice from sources they can relate to and identify with, like the Philosopher. These consumers are seeking peace of mind that they are doing what is right for themselves and their families. The study stated that the values driving peoples' beliefs and decisions are what gives impact to information (Center for Food Integrity, 2017).

The Center for Food Integrity (2016) segmented consumer groups based on how they think about their food choices, as well as identifying the main influencers in the consumer

population. The study discerned that each consumer type has a unique set of motivations and emotions tied to whether they feel satisfied and comfortable with their food choices. The main consumer groups presented in the study are Peak Performers and Providers. These groups serve very similar roles to Philosophers and Followers described in the 2017 Center for Food Integrity study. Like Followers, Providers are seeking assurance that their choices are right for their families. Providers are anxious about food issues because they feel they lack the information or sources to decide what is right or wrong, so they look to Peak Performers and other consumer groups for guidance (Center for Food Integrity, 2016).

Scholars have suggested that individual opinions are magnified and elevated in groups. This event, called group polarization, proposes that the ideas of a group as a whole may be more extreme than those held by individual members (Sia, Tan, & Wei, 2002). As the number of people with an online social media presence increases, the effects of group polarization are heightened. According to a 2002 study by Sia, Tan, & Wei, the lack of visual cues in online interactions lowers social presence and prompts greater group polarization. The internet allows consumers to limit the information they consume and the people they associate with on the basis of shared values and interests. In comparison, exposure to reality provides a range of viewpoints and opinions (Yardi & Boyd, 2010). Sunstein proposed that people rely on the opinions of others to show them what opinions and beliefs they should hold (1999). If an individual is moderately in favor of an idea, they will become more strongly in favor of it after deliberating with others who feel the same.

Group polarization creates difficulty for the agriculture industry in reaching certain consumer groups. Within animal rights organizations, group polarization and a tight grasp to personal opinions creates an inhospitable environment for proponents of animal agriculture. Some members of these groups are willing to risk financial and marital stability for the sake of the movement, as shown by this quote from a 1993 study by Harold A. Herzog.

“I interviewed a nurse who had recently been forced to declare bankruptcy because she and her husband had given almost all of their money to animal protection organizations. She echoed the sentiments of many activists when she said, ‘Becoming involved in the animal rights movement requires a great deal of soul searching. It will change your life – really for the better.’”

“It basically destroyed my marriage of ten years. I got involved in these issues and decided I wanted to commit a large part of my life to it. The controversial nature of the issues caused difficulties with my relations with him... So eventually I had to make a choice.”

This is not to say that animal rights groups and individuals who hold similar beliefs are to be avoided. Herzog noted that while it is difficult, the debate over the use of animals will only be resolved in an environment of “respect, communication, and mutual understanding” (Herzog, 1993).

Agriculturalists should not condemn anti-agriculture consumer groups altogether; however, it may be easier to establish effective communication with other groups. While the most logical solution for the agricultural industry would be to target the main influencers, Philosophers and Peak Performers, their skeptical analysis of science and decision-making based on their own moral compass make it difficult to reach them. The Center for Food Integrity (2016) stated that the opportunity for the food system to participate in consumer conversation lies with Providers, who are simply seeking information and validation for their food choices. By engaging with consumers in a manner that they can identify with, the food and agriculture sectors have a way to become a major influencer for consumer choices.

The Center for Food Integrity proposed that consumer values and the values of the food industry are much more closely aligned than most people believe (2016). The study found that 60% of consumer participants expressed concern for food stability and availability for every person in the U.S., and 69% voiced concerns about keeping healthy food affordable. These topics are a common point of discussion in the agriculture industry, but just over half of consumers believe that the food system is working in a direction to achieve food stability and availability. Furthermore, a disconnect between sources that consumers trust and those they hold accountable for the nutritional quality of the food system was shown. Of 10 primary sources, consumers ranked food companies third in responsibility – just below state regulatory agencies and family – but last in trust, a major gap that shows discontent in the consumer population. The Center for Food Integrity stated that this may cause consumers to reject information or products from these sources or prompt them to urge regulations or laws to ensure trustworthy behavior.

Consumer perceptions outside the United States pose an entirely different issue. It has been suggested that consumers in countries outside of the U.S. have a more positive view of the country's food system due to its advancements in food safety and production that are less common in other countries. Lee (2017) found that East Asian international students pursuing higher education in the U.S. valued convenience above food safety when considering the differences in the U.S. food system. Study participants mentioned that they trust the health inspection grading system in the U.S., but expressed negative attitudes about the prevalence of genetically modified products and hormone usage in livestock. When asked about the quality of food in the U.S. compared to their home country, 38.6% responded neutral on a 5-point Likert scale, while 25% agreed and 20% disagreed. In response to the statement "Food is safer to eat [in the U.S.] than in home country," 34.8% responded neutral, 31.7% agreed and 17% disagreed.

According to the Food Marketing Institute, consumers rely increasingly on government institutions to ensure the safety of food before it becomes available for purchase. In describing food conditions shoppers thought to pose health risks, they found the largest concern was attributed to contamination by bacteria or germs, which 74% of consumers considered a health risk. The second-highest concern was chemical residues at 68%. Additionally, 56% of consumers considered antibiotics and hormones in poultry and livestock to be a health risk, and 45% felt that foods produced by biotechnology or genetic modification were hazardous. The studies showed that 49% of consumers felt that food safety problems were most likely to occur in food processing or manufacturing plants, as opposed to 5% believing the risks were at the farm, 9% in warehouse storage, 5% in transport, 4% at the store, 10% at restaurants, and 7% in the home; 11% of consumers were unsure (Food Marketing Institute, 2017).

Involving consumers directly in the agricultural system and promoting knowledge of common practices may also contribute to a more positive perception of the industry. Papaoikonomou and Ginieis proposed that consumer participation in local food systems causes producers and consumers to work together towards increased environmental health and the preservation of agricultural traditions (2017). Zepeda and Deal (2009) found that most consumers base their perception of local foods on values, beliefs and norms. Conventional shoppers – those who were not generally heavy buyers of organic products – felt that local foods were fresher and better, and that by buying them they were supporting their local culture. While heavy organic food shoppers supported the

same views, they also felt that local foods used less energy and that workers and animals were treated better by local producers. This was reflected by one study participant who knew some of the producers he purchased from and identified himself as a light organic shopper. He said, “I feel that the milk is the same, but I care about the cows enough that I am willing to pay that much more for it.”

The premium price for organic products is also thought to contribute to consumer purchasing decisions. In 2018, the Hartman Group found that 44% of organic consumers earned an annual income between \$35,000 and \$99,000, and 30% earned more than \$100,000. Another 25% earned less than \$35,000 per year (Hartman Group, 2018). However, it has been observed that income level does not always correlate with a preference for organic products, even if they may not be available. Zachary and others (2013) found that environmental factors and the need to make cost-effective choices can lead shoppers to purchase products they believe to be less healthy. Interviews with low-income consumers revealed that the first priority when shopping was to provide enough food for the entire household, making their desired degree of healthy eating “consciously unattainable” (Zachary, et al., 2013).

Background had also previously been shown to increase agricultural literacy. Frick et al. (1995) found that adults living on farms were more knowledgeable about agriculture than those living in a rural non-farm environment, who in turn were more knowledgeable than those living in urban areas. However, recent information on the impact of background or agricultural literacy and its impact on consumer perception and trust is lacking.

Rumble et al. (2014) discovered that research and evidence, agriculture’s primary methods for communicating with consumers, may not be enough to change a person’s perception. This occurrence can be attributed to perception theory, which proposes that emotions play an important role in the perception of images (Barry, 2004). An individual’s perception can be persuaded by the emotional influence in their life, including family interactions and media exposure. Participants were shown seven images from different sectors of agriculture and subsequent discussions among group members were recorded. For almost every image shown, the final consensus was that participants were unsure of the practices depicted in the photos or did not have enough information to understand it. The study concluded that agricultural



communicators should use images that will be easily recognizable and capture a complete story when communicating with the public to avoid this confusion. (Rumble et al., 2014)

Scholars have suggested that increased transparency and agricultural literacy results in a more positive perception of the agricultural industry. Rumble and Irani (2017) reported that consumers gain a more positive attitude toward agriculture with an increase in transparent communication in the industry. Particularly in the Millennial generation, the study found that consumers are more likely to have improved attitudes about agriculture when presented with transparent communication about the industry's practices. The Center for Food Integrity (2016) stated Followers want unambiguous and understandable answers to their questions about food. Increased transparency in agriculture has the potential to give them those answers from a source that producers know and trust – themselves.

### **Methods**

This study used a survey as the instrument tool managed through QuestionPro. The survey consisted of 6 demographic questions and 17 questions related to the study's objectives, with 13 of them in a 5-point Likert scale design with 1 = strongly disagree to 5 = strongly agree. The remaining questions were multiple choice. Demographic questions included age, gender, ethnicity, native country, urban/rural background and primary college at South Dakota State University. Participants were asked to specify their native country if born outside the U.S. and to describe their background by choosing urban/metropolitan (city of >5,000 people), rural non-farm (town of <5,000 people in a primarily rural area), or farm (outside city limits directly producing agricultural products).

The population of this study included 2500 students from South Dakota State University. A random sample of 500 students from each class level (freshman, sophomore, etc.) were sent an invitation to take the survey, totaling 2000 undergraduate participants and 500 graduate participants.

Data were analyzed using the Kruskal-Wallis test to determine significant differences among question responses based on the independent variables of gender, native country, background and primary college. Additional analysis was done using the non-parametric Wilcoxon rank sum test to compare means of questions responses based on each of the independent variables. Significance was determined using p-values adjusted for multiple related comparisons, using the Bonferroni procedure.

## Results

The responses of 159 surveys (0.06% of sample group) were recorded. There were 63 male and 96 female respondents. At 93.8%, study participants mostly identified as white and 94.9% were native to the U.S. Participants' backgrounds in agriculture varied; 35.9% were from an urban/metropolitan background, 27.7% were from a rural non-farm background, and 36.5% were from a farm. The largest percentage of participants were students in the College of Agriculture and Biological Sciences at 38.5%. For the purpose of this study the remaining 7 colleges were combined into one category. Obstacles in the consumer-producer relationship are identified in this study as trustworthiness and consumer expectations.

The majority of the survey questions addressed the trustworthiness of producers, agricultural companies, and food processors. There were no significant differences in the responses based on gender, as shown in Fig. 7. Based on college within South Dakota State University, there are significant differences for all but one of the survey questions. As shown in Fig. 7, students within the College of Agriculture & Biological Sciences gave considerably higher responses for questions 1-10, including the statements "I feel that food companies are trustworthy," "I feel that animal care in the agriculture industry meets my expectations for animal welfare," and "The United States has the safest food supply in the world." Students from the College of Agriculture & Biological Sciences gave significantly lower responses for question 13, "Organically produced foods would be my first choice when purchasing food." The comparison between colleges is the only group that displayed a significant difference for either of the questions related to financial stability. Students within the College of Agriculture & Biological Sciences gave significantly higher responses to question 12, "I am financially stable enough to consider food safety in my food choices." There was no significant difference in any of the groups for question 11, "I am financially stable enough to consider organic and other non-standard labeling options in my food choices."

As shown in Fig. 8, there are significant differences based on urban/rural background for all but two of the survey questions. Participants in the urban/metropolitan background category gave considerably lower responses for the questions 2-10 and question 13, including the statements, "I feel that food companies are trustworthy," "I feel that animal care in the agriculture industry meets my expectations for animal welfare," and "The United States has the

safest food supply in the world.” Participants in this category were also far more likely than those from other backgrounds to prefer organic food options. There was not a significant difference based on urban/rural background for questions 11 and 12, which were the statements “I am financially stable enough to consider organic and other non-standard labeling options in my food choices” and “I am financially stable enough to consider food safety in my food choices.”

For question 7 (I feel that animal care in the agriculture industry meets my expectations for animal welfare) and question 10 (I feel that the United States has the safest food supply in the world) in the comparison between respondents from the U.S. and respondents from other countries, there was a tendency ( $P < .10$ ) for respondents from other countries to have lower scores than respondents from the U.S., as seen in Fig. 7. It is generally recognized that the United States has a well-developed food supply and food safety system. This tendency may have been due to the small sample group of participants native to countries outside the United States. Secondly, there may be less awareness of the food safety protocols in place in the U.S. among those individuals. Animal care and management differ greatly among countries and lack of familiarity with the practices in the United States may have impacted results for this question.

When asked what dictates their food purchasing decisions, 50.3% of participants indicated that they make decisions based primarily on personal preferences or tastes. Food purchasing decisions were impacted by background ( $P < 0.05$ ). Frequency of responses indicate participants from urban/metropolitan or rural non-farm backgrounds were more likely to make food purchasing decisions based on personal preference and health, while those with a farm background chose food based on personal and family preference rather than outside factors. Background also affected ( $P < 0.05$ ) participants’ responses when asked if increased transparency would make farmers appear more trustworthy. Overall, 71 respondents said “yes”, with the urban metro background representing 44% of those responses ( $n=31$ ). 64 participants responded “maybe”; 24 said “no”, with the majority, 63%, replying “no” from a farm background ( $n = 15$ ). However, when asked a similar transparency question about agricultural companies, background did not affect ( $P > 0.05$ ) responses, with total responses being 58% ( $n = 92$ ) “yes”, 35% ( $n = 55$ ) “maybe”, and 8% ( $n = 12$ ) “no”. Respondents from urban/metropolitan or rural non-farm backgrounds were more likely to choose yes or maybe when responding to the question about farmer trustworthiness.

Data shows that there are differences in how people of different backgrounds view farmers and agriculture – it is noteworthy that if farmers were more transparent, consumers, especially those from urban/metropolitan backgrounds, would find them more trustworthy. This is in agreement with research from Rumble and Irani (2016) and the Center for Food Integrity (2017).

The final question in the survey asked participants to rank 1-4 which method of increasing transparency would interest them most; videos of production and practices, farm or company blogs, social media, or news and other media. Videos were the first choice of 40% of respondents, while only 18.1 % chose social media, 21.9% chose blogs, and 20% chose news. Similarly, 39% chose blogs as their last choice, while only 11% chose videos as their last choice. No statistical differences were shown among backgrounds, native country, gender or college in these answers.

## Tables

### 1. Demographics

Age	Number of respondents	Percentage of respondents (%)
Under 18	0	0
18-22	77	66.38
23-27	18	15.52
28-34	7	6.03
35 or older	14	12.07
Total	116	

Fig. 1

### 2. Gender

Gender	Number of respondents	Percentage of respondents (%)
Male	63	39.62
Female	96	60.38
Prefer not to specify	0	0
Total	159	

Fig. 2

### 3. Ethnicity

<b>Ethnicity</b>	<b>Number of respondents</b>	<b>Percentage of respondents (%)</b>
White	150	93.75
Hispanic or Latino	3	1.88
Black or African American	1	0.62
Native American or American Indian	1	0.62
Asian/Pacific Islander	4	2.50
Prefer not to specify	1	0.62
Other	0	0
<b>Total</b>	<b>160</b>	

Fig. 3

#### 4. Native Country

<b>Native Country</b>	<b>Number of respondents</b>	<b>Percentage of respondents (%)</b>
United States	149	94.90
Other	8	5.10
<b>Total</b>	<b>157</b>	

Fig. 4. Other nations specified: Turkey, Philippines, Bangladesh, Brazil, Canada, Mexico, Ghana.

#### 5. Urban/rural background

<b>Background</b>	<b>Number of respondents</b>	<b>Percentage of respondents (%)</b>
Urban/metropolitan	57	35.85
Rural non-farm (town of < 5,000)	44	27.67
Farm	58	36.48
<b>Total</b>	<b>159</b>	

Fig. 5

#### 6. Primary College at South Dakota State University

<b>College</b>	<b>Number of respondents</b>	<b>Percentage of respondents (%)</b>
College of Agriculture & Biological Sciences	60	38.46
College of Arts & Sciences	25	16.03
College of Education & Human Sciences	11	7.05
College of Nursing	19	12.18
College of Pharmacy & Allied Health Professions	9	5.77
College of Engineering	19	12.18
University College	0	0
Graduate School	13	8.33
<b>Total</b>	<b>156</b>	

Fig. 6

## 7. Survey Questions

### I. Significance by gender and college

Question		Gender				College		
		Male	Female	Prefer not to specify	p-value*	College of Ag & Bio	Other	p-value*
		Mean Values				Mean Values		
1	I feel that farmers are trustworthy.	4.19	4.48	N/A	NS	4.57	4.25	0.0162
2	I feel that agricultural science is trustworthy.	4.11	4.35	N/A	NS	4.68	4.03	0.0009
3	I feel that food companies are trustworthy	3.02	3.15	N/A	NS	3.58	2.81	0.0009
4	I feel that large crop-based agricultural companies are trustworthy.	3.24	3.56	N/A	NS	3.78	3.23	0.0144
5	I feel that large livestock-based agricultural companies are trustworthy.	3.35	3.60	N/A	NS	3.95	3.24	0.0009
6	I am confident that the food I buy is safe.	4.06	3.77	N/A	NS	4.42	3.57	0.0009
7	I feel that animal care in the agriculture industry meets my expectations for animal welfare.	3.63	3.65	N/A	NS	4.35	3.21	0.0009
8	I feel that meat processing in the agriculture industry meets my expectations for food safety.	3.92	3.78	N/A	NS	4.44	3.46	0.0009
9	I feel that the use of GMO technology in agriculture meets my expectations for food safety.	4.03	3.93	N/A	NS	4.64	3.59	0.0009
10	The United States has the safest food supply in the world.	3.57	3.59	N/A	NS	4.37	3.13	0.0004
11	I am financially stable enough to consider organic and other non-standard labeling options in my food choices.	3.38	3.31	N/A	NS	3.28	3.90	NS
12	I am financially stable enough to consider food safety in my food choices.	3.85	3.94	N/A	NS	4.18	3.75	0.0232
13	Organically produced foods would be my first choice when purchasing food.	2.59	2.53	N/A	NS	2.05	2.83	0.0004

Fig. 7. Sig. = statistical significance; S = significant (p-value < 0.05); NS = no significance (p-value > 0.10); T = tendency (p-value < 0.10). Likert scale: 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree.

\*Adjusted p-value from Chi Square test.

## II. Significance by native country and background

Question		Country			Background			
		U.S.	Other	p-value*	Urban/ Metro- politan	Rural non- farm	Farm	p-value*
		Mean Values			Mean Values			
1	I feel that farmers are trustworthy.	4.38	4.30	NS	4.25 <sup>a</sup>	4.19 <sup>a</sup>	4.62 <sup>b</sup>	0.009
2	I feel that agricultural science is trustworthy.	4.26	4.30	NS	3.93 <sup>a</sup>	4.26 <sup>ab</sup>	4.59 <sup>b</sup>	0.0009
3	I feel that food companies are trustworthy	3.12	2.80	NS	2.65 <sup>a</sup>	3.30 <sup>b</sup>	3.38 <sup>b</sup>	0.0009
4	I feel that large crop-based agricultural companies are trustworthy.	3.46	3.10	NS	2.97 <sup>a</sup>	3.64 <sup>b</sup>	3.72 <sup>b</sup>	0.0063
5	I feel that large livestock-based agricultural companies are trustworthy.	3.54	3.00	NS	2.96 <sup>a</sup>	3.68 <sup>b</sup>	3.90 <sup>b</sup>	0.0009
6	I am confident that the food I buy is safe.	3.91	3.60	NS	3.37 <sup>a</sup>	4.00 <sup>b</sup>	4.31 <sup>b</sup>	0.0009
7	I feel that animal care in the agriculture industry meets my expectations for animal welfare.	3.71	2.70	0.0864	2.81 <sup>a</sup>	3.77 <sup>b</sup>	4.36 <sup>c</sup>	0.0009
8	I feel that meat processing in the agriculture industry meets my expectations for food safety.	3.90	3.10	NS	3.25 <sup>a</sup>	3.84 <sup>a</sup>	4.40 <sup>b</sup>	0.0009
9	I feel that the use of GMO technology in agriculture meets my expectations for food safety.	4.03	3.20	NS	3.29 <sup>a</sup>	4.07 <sup>b</sup>	4.53 <sup>c</sup>	0.0009
10	The United States has the safest food supply in the world.	3.65	2.80	0.0552	2.91 <sup>a</sup>	3.70 <sup>b</sup>	4.16 <sup>b</sup>	0.0004
11	I am financially stable enough to consider organic and other non-standard labeling options in my food choices.	3.38	2.90	NS	3.21	3.32	3.49	NS
12	I am financially stable enough to consider food safety in my food choices.	3.96	3.20	NS	3.67	3.98	4.09	NS
13	Organically produced foods would be my first choice when purchasing food.	2.50	3.30	NS	3.20 <sup>a</sup>	2.64 <sup>b</sup>	1.86 <sup>b</sup>	0.0004

Fig. 8. Sig. = statistical significance; S = significant (p-value < 0.05); NS = no significance (p-value > 0.10); T = tendency (p-value < 0.10). Likert scale: 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree.

<sup>a, b, c</sup> Means within a row and variable (background or country) with different superscripts are different (P < .05); pairwise multiple comparison performed using Bonferroni procedure.

\* Adjusted p-value from Chi Square test.

**III. Food purchasing decisions**

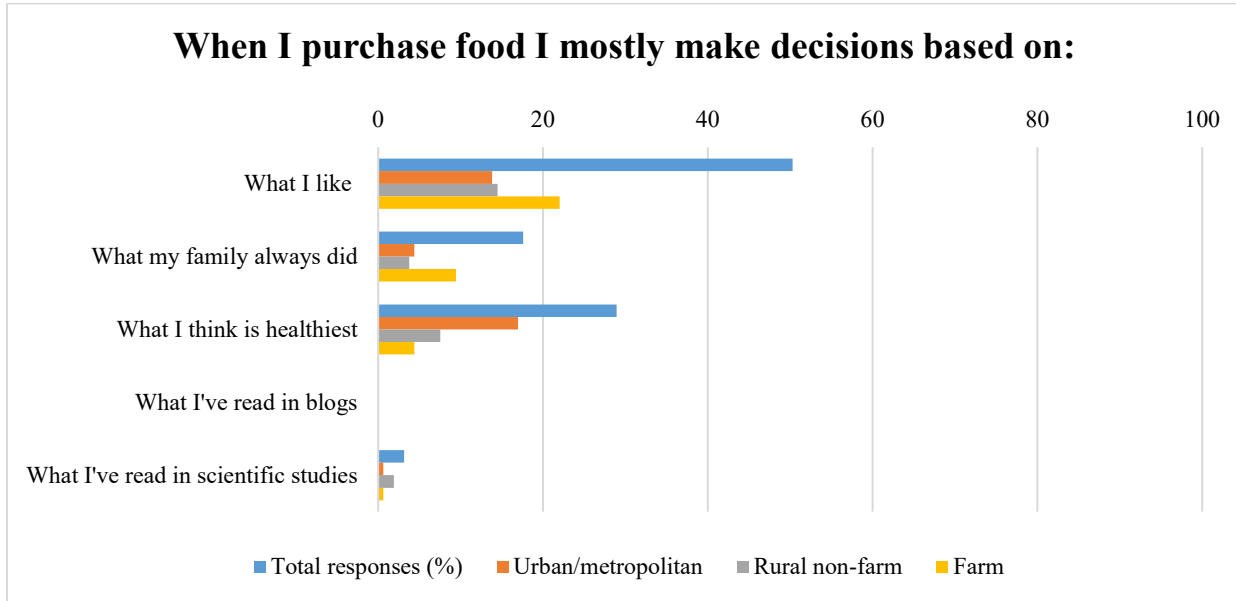


Fig. 9

**IV. Transparency and trustworthiness for farmers and agricultural companies**

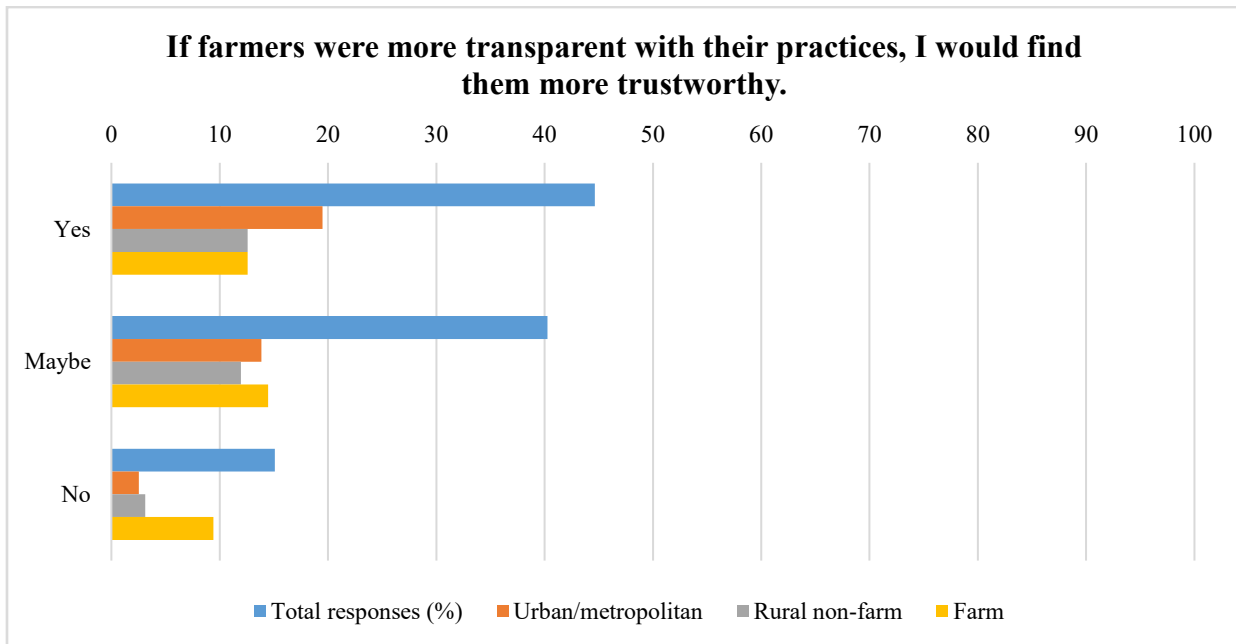


Fig. 10



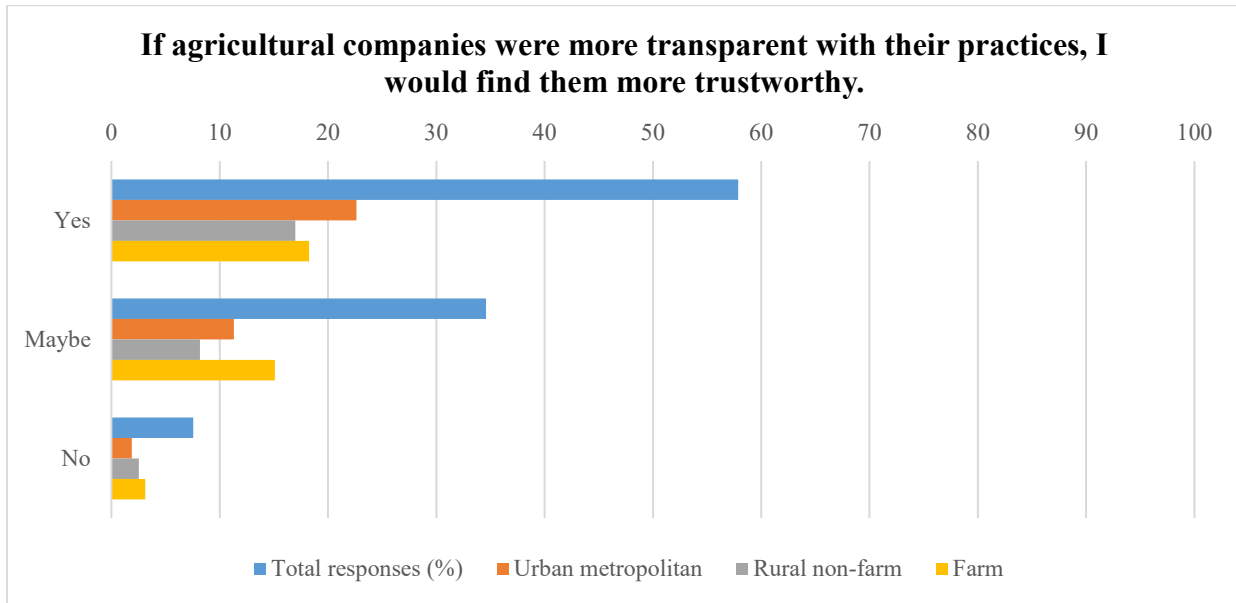


Fig. 11

**V. Methods of increasing transparency**

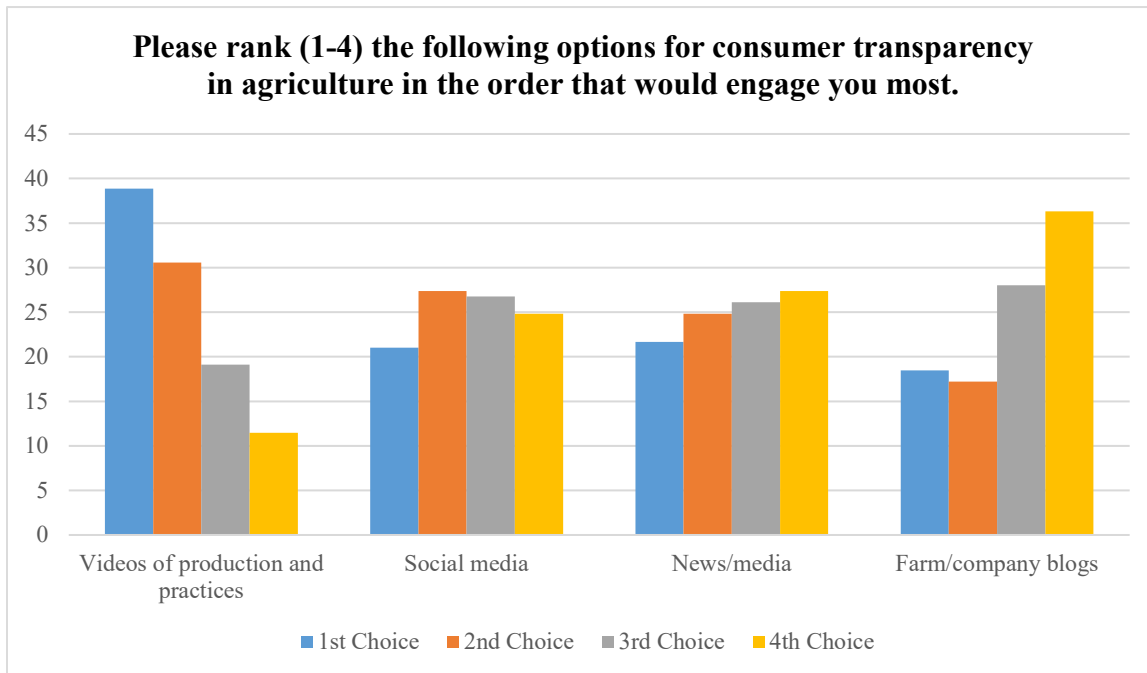


Fig. 12

## **Conclusion and Recommendations**

The overall purpose of this study was to identify the factors affecting consumer perceptions of agriculture and recognize methods to improve the general consumer-producer relationship. The study found that there is a significant difference between the perceptions of consumers from urban/metropolitan, rural non-farm, and farm backgrounds. The agriculture industry's difficulties with communication lie primarily with the urban/metropolitan background group. This group was significantly more likely to express lower trust towards agricultural science and companies, and to question the safety and quality of their food.

In moving forward, the agriculture industry is recommended to pursue communication with urban consumers using videos of production and practices and other media-sharing tactics to increase transparency.

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## Appendix A Survey Questions

Dear SDSU Student,

Katelyn Berndt and Rosie Nold are conducting a research project entitled "Evaluating and Improving Consumer Perceptions of the Agricultural Industry" as part of an undergraduate honors research project at South Dakota State University. You, as an SDSU student, are invited to participate in the study by completing our survey at [questionpro.com](http://questionpro.com).

The purpose of the study is to develop an understanding of consumer perceptions and trust of farmers and agricultural companies and whether there is a difference in perception between consumers born in the U.S. and those born in other countries. The areas we are concerned with are consumer trust, perceptions of food safety and animal welfare, and if perception is affected by country of origin.

We realize that your time is valuable and have attempted to keep the requested information as brief and concise as possible. It will take approximately 15 minutes or less of your time. Your participation in this project is voluntary. You may withdraw from the study at any time without consequence.

There are no known risks to you for participating in this study. There are no direct benefits from participation. There are no costs to you or compensation associated with this study.

When the data and analysis are presented, you will not be linked to the data by your name, title, or any other identifying item. Your confidentiality is only as secure as your equipment; no guarantees can be made regarding the interception of data sent via the Internet. User Internet protocol (IP) addresses will not be collected or stored by the researcher. QuestionPro may collect the IP address that is publicly available on your computer in accordance with applicable laws. More information can be found in Question Pro's Privacy Policy: <https://www.questionpro.com/help/privacy-policy.html>. When the data and analysis are presented, you will not be linked to the data by your name, title, or any other identifying item.

Your consent is implied by the completion of the survey. Please print this letter for your information. If you have any questions, now or later, you may contact us at the email below. Thank you very much for your time and assistance. If you have any questions regarding your rights as a research participant in this study, you may contact the SDSU Research Compliance Coordinator at 605-688-6975, [SDSU.IRB@sdstate.edu](mailto:SDSU.IRB@sdstate.edu).

Please assist us in our study by clicking the Next button below. By clicking 'Next' you affirm that you are 18 years or older.

Age

Gender

- Male
- Female
- Prefer not to specify

Ethnicity (Check all that apply)

- White
- Hispanic or Latino
- Black or African American
- Native American or American Indian
- Asian/Pacific Islander
- Prefer not to specify
- Other (please specify)

**Native Country**

- United States
- Other (please specify)

**Please choose the answer that best describes your background.**

- Urban/metropolitan
- Rural non-farm (town of <5,000)
- Farm

**Primary college at South Dakota State University**

**Please answer the following questions related to your perception of the agricultural industry.**

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I feel that farmers are trustworthy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel that agricultural science is trustworthy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel that food companies are trustworthy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel that large crop-based agricultural companies are trustworthy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel that large livestock-based agricultural companies are trustworthy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident that the food I buy is safe.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel that animal care in the agriculture industry meets my expectations for animal welfare.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel that meat processing in the agriculture industry meets my expectations for food safety.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel that the use of GMO technology in agriculture meets my expectations for food safety.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Please respond to the following statements.**

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The United States has the safest food supply in the world.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am financially stable enough to consider organic and other non-standard labeling options in my food choices.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am financially stable enough to consider food safety in my food choices.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organically produced foods would be my first choice when purchasing food.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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**When I purchase food I mostly make decisions based on**

- What I like
  - What my family always did
  - What I think is healthiest
  - What I've read in blogs
  - What I've read in scientific studies
- 

**If farmers were more transparent with their practices, I would find them more trustworthy.**

- Yes
  - Maybe
  - No
- 

**If agricultural companies were more transparent with their practices, I would find them more trustworthy.**

- Yes
  - Maybe
  - No
- 

**Please rank (1-4) the following options for consumer transparency in agriculture in the order that would engage you most.**

Videos of production and practices

Farm/company blogs

Social media

News/media

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Done