

Introduction

Agriculture is an important contributor to the economy of the United States (U.S.), providing food, fiber, fuel, and employment for millions while accounting for 5.5% of the gross domestic product (GDP) and employing 10.9% of the workforce (USDA, 2024). The U.S. is also a global agricultural trade leader, exporting over \$164 billion and importing about \$141 billion worth of agricultural products in 2020 (Young, 2023). Despite its economic significance, the sector faces several challenges that impact its sustainability, profitability, and competitiveness. These challenges include climate change, trade disputes, labor shortages, environmental regulations, changing consumer preferences, technological innovations, and social justice (Sanders et al., 2022; Young, 2023). This study focused on the specific case of Ohio, a key agricultural state characterized by a rich agricultural production.

Ohio is an agriculturally diverse state, with grains, poultry and eggs, hogs, dairy products, and beef cattle representing its top five commodities based on the percentage of total agricultural sales (Census of Agriculture, 2017). Agriculture is key to the state's economy, with the food and fiber industry employing some 14% of the state's workforce (Sonnenberg, 2022). Despite the industry's importance to Ohio (DeMartini, 2017), agriculture is often the subject of controversy and confusion. Political conflicts have arisen over concerns ranging from animal welfare oversight (Donaldson, 2019; Nichols, 2009) to climate change (Antosch, 2023) to water quality (Ames et al., 2019; Krouse, 2023) to environmental regulations (Pew Research Center, 2015). Part of the Lake Erie watershed, Ohio faces challenges of agricultural and wastewater runoff, challenges which have been highlighted by environmental disasters like the East Palestine, Ohio train derailment in 2023 (Pilet, 2023). The COVID-19 pandemic also laid bare many problems with Ohioan's food supply chain, including food availability, food safety and security, and the well-being of essential workers in the food system (Inwood et al., 2022; King et al., 2017).

In recent years, farmland preservation and affordability have also emerged as challenges for producers, with agricultural land being sold or leased for development and energy generation (Christian, 2023; Williams, 2023). Agricultural issues are topics that attract attention in the public domain and have implications for the agricultural sector and society at large (Park & Jennings, 2015). These issues are influenced by various factors from the political, social, and internal domains, such as environmental laws, market concentration, consumer demand, globalization, and risk aversion (Archer et al., 2008). The persistence of agricultural issues presents the need to understand their relative importance and residents' perception, as these issues can influence public discourse and policymaking.

Previous studies have examined public perceptions of agricultural issues in general (Park & Jennings, 2015), or in specific contexts such as agroecology (Weißhuhn et al., 2018) or in terms of sustainability aspect (Prost et al., 2023). Most studies have outlined major issues in agriculture, including those related to food production, animal health and livestock production, climate change, environmental concerns, infrastructure, and challenges in the formulation and implementation of government policies (Clayton, 2021; Koh et al., 2019; Mase et al., 2017; Roesch-McNally, 2018). The pattern of these issues is consistent in Ohio as well (Lendel et al., 2022; Roesch-McNally, 2018). However, there is a dearth of research concerning a deeper understanding of the relative importance and perceptions of these highlighted agricultural issues in Ohio. The balance of perceptions with knowledge is important for effectively communicating required messages and prompting behavioral changes (Lambright et al., 1996). Hence, understanding public perceptions on agricultural issues provides insight into the public's stance

on these matters, enabling concerned authorities to develop targeted interventions on the areas that require attention. Thus, the study contributes to the existing literature by identifying the salient agricultural issues and understanding prevailing perceptions of those issues among Ohio residents. Ultimately, the study offers valuable insights for policymakers, educators, researchers, and stakeholders in the agricultural and environmental sectors.

Theoretical Framework

Agenda setting theory was applied to guide this study. The theory posits that media shapes public views by drawing attention to topics, determining which subjects are essential, and ultimately influencing the public agenda (McCombs & Shaw, 1972). While the media, especially the mass media, is not always successful in telling us what to think, it is extremely good at defining what we should think about (Cohen, 1963; McCombs & Shaw, 1972). The media shapes the public agenda by identifying specific issues and deciding which ones are significant enough to be addressed (McCombs, 1997).

Agenda setting theory operates on a multi-level structure (Ghanem et al., 2009; Guo et al., 2012). The media prioritizes issues according to public importance at the first level, which is determined by how much attention an issue receives (Buturoiu et al., 2023). The second level focuses on characteristics used by the media to highlight a subject (Guo & McCombs, 2016). The third level posits that the news media not only influences the salience of individual issues in the public agenda but also shapes how the public perceives relationships among these issues (Guo et al., 2012).

This theory, applied across diverse social science disciplines (McCombs & Shaw, 1972), underscores the media's influential role in shaping public perceptions by setting the public agenda. Iyengar and Kinder (1987) demonstrated television news' impact on public views of national problems. Moreover, Weaver (2007) introduced the concepts of topic and attribute salience, emphasizing the importance of specific content details rather than just the extent of coverage. Additionally, McCombs (1997) highlighted the news media's role in shaping the public agenda, while Kioussis and McCombs (2004) reinforced the link between increased media attention and strengthened audience attitudes.

Wanta (2023) highlighted agenda setting, indicating news media coverage serves as a salience cue, signaling the importance of specific issues to the public. The theory has been applied in agricultural communication studies as well. For instance, Kubitz et al. (2013) investigated international agricultural journalists' perceptions of global and domestic agricultural issues to understand how their views impact their own information-gathering and coverage. Leal et al. (2015) then used the theory to analyze media influence on public perceptions of water issues in Florida, finding that media coverage of existing events about state's water supply influenced public opinions on water related issues.

A recent study by Khanya (2024) explored the relationship between public perceptions on climate change and how these issues are framed in the media, revealing a significant association between public attitudes and media coverage. The finding also highlighted that media portrayal of risk related information associated with climate change contributed to feelings of vulnerability and disengagement among public. In related study, Danner et al. (2022) investigated the influence of news media coverage on public opinion about organic foods related topics. They found that the way organic food related contents were highlighted on news media coverage influenced public responses.

In this study, we interpret the interdependence between media and the public as a dynamic relationship wherein the media's influence on public perceptions of issues necessitates identifying the issues most important to Ohio residents. We employed agenda setting theory for two purposes. First, the theory is used to identify the issues most prominent in media agenda, which were then administered to participants for ranking based on their perceived importance. Second, we applied the theory in discussion of findings, connecting the salience of these issues in the media with participants' perceptions, further illustrating how media prominence may influence public importance.

Purpose and Objectives

In line with the proposition that news portrayal shapes public attitudes, beliefs, and understanding of issues (McCombs, 1997), this study aims to explore the salience of agricultural issues among Ohio residents and their perceptions on those issues. Identifying important issues and exploring perceptions provides an understanding of public attitudes and beliefs, which can guide tailoring of communication strategies and policy decisions to address the prevailing issues in the state. The following research objectives guided this study:

- 1) Identify the most important agricultural issues to Ohio residents.
- 2) Describe the perceptions of agricultural issues among Ohio residents.

Methods

A quantitative survey instrument was developed after an environmental scan was conducted on selected source websites to determine agricultural issues discussed between June 1, 2022, and June 1, 2023. Since the media coverage provides a salience cue (Wanta, 2023), the researcher used the search feature on each website to identify the agricultural issues featured by each source using the terms "agriculture," "agricultural," "farm," "farming," "farmer," and "food." The eight sources included in the environmental scan included the website of three major Ohio newspapers, the *Wall Street Journal*, the *New York Times*, Ohio Farm Bureau, U.S. Farmers and Ranchers Alliance, and Pew Research Center. These sources were selected to identify issues being communicated from a state, national, and organizational level. While social media are widely used by individuals worldwide every day for informational purposes, websites were selected for analysis due to their ability to present larger amounts and more complete summaries of information compared to social media. Websites of the sources listed above were also selected to more effectively search for specific terms and topics as defined in the codebook.

The three major Ohio newspapers selected for analysis were the *Columbus Dispatch*, *Cincinnati Enquirer*, and *Cleveland Plain Dealer*. These newspapers were selected to represent Ohio's three largest cities (U.S. Census Bureau, 2023) and variety in location. These newspapers are also the most widely circulated in Ohio (Agility PR Solutions, 2022). The *Wall Street Journal* and *New York Times* were selected to capture how issues were communicated from a national level due to their high circulation rates as well (Kiely, 2024). Websites for the Ohio Farm Bureau and U.S. Farmers and Ranchers' Alliance were selected due to their statuses as general agricultural advocacy organizations at the state and national level, respectively. Finally, the Pew Research Center was selected for analysis given its emphasis on the study of a variety of topics and issues (Pew Research Center, 2024).

Each researcher scanned two to three articles and made note of agricultural-related issues included in each article. Researcher reviewed their respective lists of issues to identify higher-

level themes using in vivo coding techniques (Saldaña, 2013). From this analysis, five broad categories of issues emerged: food production, climate change, animals and livestock, governmental policy, and environment. Researcher reviewed relevant literature to list sub-issues within each of the issue categories. The number of sub-issues included within food production, climate change, animals and livestock, government policy, and environmental issues were 11, 12, 8, 13, and 11 respectively. Using these issue categories and sub-issues, the researchers created the survey instrument to determine Ohio residents' perceptions of agricultural issues identified via the environmental scan. The survey instrument included an examination of issue importance, perceptions toward the issue, and issue cycle placement for each issue, with issue importance and perceptions being the focus of this manuscript.

To ensure the instrument's reliability, a pilot test was conducted before data collection began with Qualtrics panelists. The pilot test yielded 65 responses and took place on November 17-18, 2023. Both issue importance and issue perception constructs demonstrated internal consistency, with Cronbach's alpha values within acceptable range. The constructs for importance had Cronbach's alpha values ranging from .86 to .94. Food issues importance construct had an alpha of .86, climate change issue importance .94, animal and livestock issue importance .90, government policy issue importance .94, and environmental issue importance scored .93. The perception constructs also showed acceptable reliability, with Cronbach's alpha values ranging from .71 to .94: food perceptions scored .72, climate change perceptions .90, animal and livestock perceptions .71, government policy perceptions .94, and environmental issue perceptions .77. The instrument was reviewed by a panel of experts to ensure validity and approval to conduct the study was granted by The Ohio State University, Institutional Review Board. Data for the study were collected between November 21, 2023, and December 8, 2023.

Participants

The population of interest for this study comprised Ohio residents aged 18 years or older. The survey instrument was administered through Qualtrics Research Services, a third-party company, that was responsible for recruiting study participants to match the quotas at a cost of \$7.11 per response to meet the necessary demographic criteria. Quotas were established to achieve a sample reflective of Ohio residents in terms of gender (49% male, 51% female) age (28% age 18-34, 32% age 35-54, and 40% age 55 +), and race (77% White, 12% Black / African descent, 4% Hispanic / Latino, 2% Asian or Pacific Islander, 1% other). To maintain data integrity, partial responses were not recorded and a total of 515 responses were included in data analysis.

Procedure

Participants were presented with information about the study and required to grant consent to participate before starting the survey. To meet the established quotas, participants were asked to indicate their gender, age, ethnicity, and race. Those who met these screening requirements proceeded to the remainder of the survey and were asked to share their perspectives on issues they believed Ohio agriculture faced.

Measures

Issues Importance

Overall issue importance was measured using a rank-order question, which prompted participants to sort issue areas (food production, climate change, animals and livestock, governmental policy, and environment) from most pressing to least pressing. The prompt for this measure was “When thinking of Ohio agriculture, which of the following areas are the most pressing? Please rank your choices by dragging and dropping. The areas at the top should be the issue you feel is most pressing, while the area at the bottom is the issue you feel is the least pressing.”

After ranking the overall issues, participants ranked specific sub-issues within each of the issue categories. The responses for sub-issues within five issue categories consisted of 5-point Likert-type items with responses ranging from 1 = *not important* to 5 = *very important*. We presented the grand mean for each issue by averaging the means of respective sub-issues (Eck & Smith, 2024). We interpreted them using a common Likert scale interpretation technique establishing real limits, where we considered the mean value of 1-1.5 as *not important*, 1.5-2.5 as *slightly important*, 2.5-3.5 as *moderately important*, 3.5-4.5 as *important*, and 4.5-5 as *very important*.

Issues Perceptions

Five-point semantic-differential scales were employed to assess participants’ perceptions of each issue category, with extreme ends presented (e.g., too expensive (1), 2, 3, 4, reasonably priced (5)). In terms of determining the real limits for the perception of agricultural issues (Objective 2), mean values less than 3 were interpreted as leaning toward the characteristics of end 1, while values 3 and more were considered to lean toward the characteristics of end 5. The extreme ends on both sides of semantic-differential scales were presented as bipolar options in the results section. A mean value equal to or very close to 3 was construed as displaying a neutral stance between the extreme ends.

Data Analysis

Data were exported from Qualtrics to SPSS Version 29 for analysis. Descriptive statistics were used to address both research objectives. Additionally, the ranking of the five-issue categories was assessed using the forced ranking index formula. This method has been employed to rank several issues as well as tools in agricultural extension and communication (Timilsina & Nepali, 2022). The formula for calculating the index value to rank the agricultural issues from highest to lowest order is given below.

$$IV = \sum_{1}^{i} S_i f_i / N$$

Where, IV = Index value for issues

S_i = Scale value of i^{th} rank (scale values were adopted from Timilsina and Nepali (2022) as 1, 0.8, 0.6, 0.4, and 0.2 for the first, second, third, fourth, and fifth ranks, respectively).

f_i = Frequency of i^{th} rank

N = Total number of participants

Results

Objective 1: Identify the Most Important Agricultural Issues to Ohio Residents

Objective 1 sought to identify the most important agricultural issues for Ohio residents. In this section, we analyzed the data to determine the perceived importance of each of the five issue categories assessing specific concerns about food production, climate change, animal and livestock production, government policy, and environment.

Table 1 provides the results of ranking of five agricultural issues. The most important among five was “environment” related issue ($IV = 0.66$). This indicates awareness and emphasis on environmental considerations in the context of agriculture. The “food production” issue followed closely ($IV = 0.65$), indicating a nearly equivalent level of importance. This implies the perceived importance of “food production” issues including concerns about safety, quality, availability, and sustainability among participants. “Climate change” ($IV = 0.57$), “animals and livestock” ($IV = 0.57$), and “government policy” ($IV = 0.54$) were ranked as the third, fourth, and fifth important issues respectively. Even though index values (IV) ranked the issues from most to least important, the range (0.54 to 0.66) indicate that the issues were close in their importance.

Table 1
Ranking of Agricultural Issues in Ohio

Rank	Issue	Index Value (IV)
1	Environment	0.66
2	Food production	0.65
3	Climate change	0.57
4	Animals and livestock	0.57
5	Government policy	0.54

Table 2 presents the perceived importance of environmental sub-issues among participants in Ohio. All the listed eleven sub-issues were deemed important, with “protecting the water supply” ($M = 4.32$, $SD = 0.94$) as the most important followed by “water quality” in general ($M = 4.27$, $SD = 0.96$) and “water supply” ($M = 4.27$, $SD = 0.97$). Overall, environmental issue was perceived as an important issue by Ohio residents ($M = 3.98$, $SD = 1.06$).

Table 2
Perceived Importance of Environmental Sub-Issues in Ohio

Issue	M	SD
Protecting the water supply	4.32	0.94
Water quality in general	4.27	0.96
Water supply	4.27	0.97
Water management	4.16	0.95
Water quality of Lake Erie	4.11	1.02
Environmental protection	4.00	1.12
Invasive pests and species	3.86	1.07
Harmful algal blooms	3.79	1.08
East Palestine train derailment effects	3.73	1.18
Fracking under state land	3.63	1.17
Fracking in general	3.57	1.16
Overall	3.98	1.06

Table 3 presents the perceived importance of food production sub-issues among Ohio residents. Among eleven sub-issues considered under food production issues for the study, “food safety” was perceived as the most important ($M = 4.50$, $SD = 0.83$), followed by “food prices” ($M = 4.43$, $SD = 0.88$). In contrast, participants perceived the sub-issue, “lab-grown meat” as the least important ($M = 2.77$, $SD = 1.47$). Overall, food production was perceived as an important issue in Ohio ($M = 3.78$, $SD = 1.10$).

Table 3
Perceived Importance of Food Production Sub-Issues in Ohio

Issue	<i>M</i>	<i>SD</i>
Food safety	4.50	0.83
Food prices	4.43	0.88
Food availability	4.39	0.90
Food security	4.22	0.97
Local food	4.00	0.97
Food waste	3.94	1.05
Food labels	3.83	1.08
Food deserts	3.26	1.28
Organic food	3.21	1.29
Bioengineered food (GMO, gene-edited)	3.02	1.36
Lab grown meat	2.77	1.47
Overall	3.78	1.10

Table 4 depicts the perceived importance of climate change-related sub-issues among participants. “Conserving public lands” ($M = 3.84$, $SD = 1.15$) and “forest management” ($M = 3.84$, $SD = 1.06$) were perceived as the most important sub-issues, followed by “extreme weather” ($M = 3.74$, $SD = 1.21$) and crop “resistant to heat and drought” ($M = 3.74$, $SD = 1.12$). The Ohio residents perceived “cattle emission” as a moderately important climate change sub-issue ($M = 3.07$, $SD = 1.36$). Overall, climate change issue was perceived as important by Ohio residents ($M = 3.56$, $SD = 1.23$).

Table 4
Perceived Importance of Climate Change Sub-Issues in Ohio

Issue	<i>M</i>	<i>SD</i>
Conserving public lands	3.84	1.15
Forest management	3.84	1.06
Extreme weather (i.e., drought, flooding, tornadoes, heat, etc.)	3.74	1.21
Crops resistant to heat and drought	3.74	1.12
Natural disasters	3.71	1.20
Renewable energy sources (i.e., biofuels, solar, and fossil fuels)	3.66	1.29
Climate resiliency strategies	3.61	1.28
Climate smart crops	3.55	1.30
Carbon capture	3.51	1.18
Carbon-neutral livestock	3.29	1.30
Cattle emissions	3.19	1.30
Overall	3.56	1.23

Table 5 shows perceived importance of animal and livestock related sub-issues among the participants. “Animal cruelty” was perceived as the most important ($M = 4.20$, $SD = 1.05$) of all. While all the other sub-issues were considered important, sub-issue related to “exotic animals” were considered moderately important by the participants ($M = 3.20$, $SD = 1.34$). The overall mean value indicates that animal and livestock issues were important to Ohio residents ($M = 3.80$, $SD = 1.13$).

Table 5
Perceived Importance of Animal and Livestock -Related Sub-Issues in Ohio

Issue	<i>M</i>	<i>SD</i>
Animal cruelty	4.10	1.05
Animal diseases outbreaks	4.01	1.08
Animal welfare	3.97	1.023
Zoonotic diseases (diseases that can be transferred from animals to humans)	3.94	1.12
Animal rights	3.75	1.17
Invasive animal species	3.73	1.15
Large-scale livestock production	3.66	1.13
Exotic animals	3.20	1.34
Overall	3.80	1.13

Table 6 provides the perceived importance of agriculture related government and policy sub-issues among the participants. Out of the listed thirteen sub-issues, “eminent domain” ($M = 3.44$, $SD = 1.11$) and “diversity, equity, and inclusion in agriculture” ($M = 3.34$, $SD = 1.33$) were perceived as moderately important, whereas all other eleven sub-issues were considered important. “Farmland preservation” stood out as the most important of all sub-issues ($M = 4.03$, $SD = 1.01$). Overall, agriculture related government and policy issues were perceived as important by Ohio residents ($M = 3.72$, $SD = 1.09$).

Table 6
Perceived Importance of Agriculture-Related Government and Policy Sub-Issues in Ohio

Issue	<i>M</i>	<i>SD</i>
Farmland preservation	4.03	1.01
Land prices	3.94	1.03
Chemical regulations	3.89	1.11
Rural economy	3.87	1.03
Commodity prices	3.83	1.02
Agricultural workforce	3.79	0.98
Government support and farm subsidies	3.72	1.08
Trade and tariffs	3.66	1.05
Farm bill	3.64	1.06
Immigration	3.63	1.25
Rural broadband	3.52	1.16
Eminent domain	3.44	1.11
Diversity, equity, and inclusion in agriculture	3.34	1.33
Overall	3.72	1.09

Objective 2: Describe the Perceptions of Agricultural Issues Among Ohio Residents

In this section, we explored how Ohio residents perceive each of the five identified issues in agriculture. In Figure 1, participants perceived that certain environmental issues are controllable to some extent by enforcing radical change in human behavior ($M = 3.24$, $SD = 1.18$). Their perceptions were neutral on average regarding whether these issues were addressed by government policies ($M = 3.09$, $SD = 1.14$) and were somewhat easy to address through technological solutions ($M = 3.14$, $SD = 1.02$). The participants perceived that these issues were threatening to nature ($M = 2.64$, $SD = 1.21$) and societal in nature ($M = 3.41$, $SD = 1.17$).

Figure 1

Perceptions of Environmental Issues in Ohio

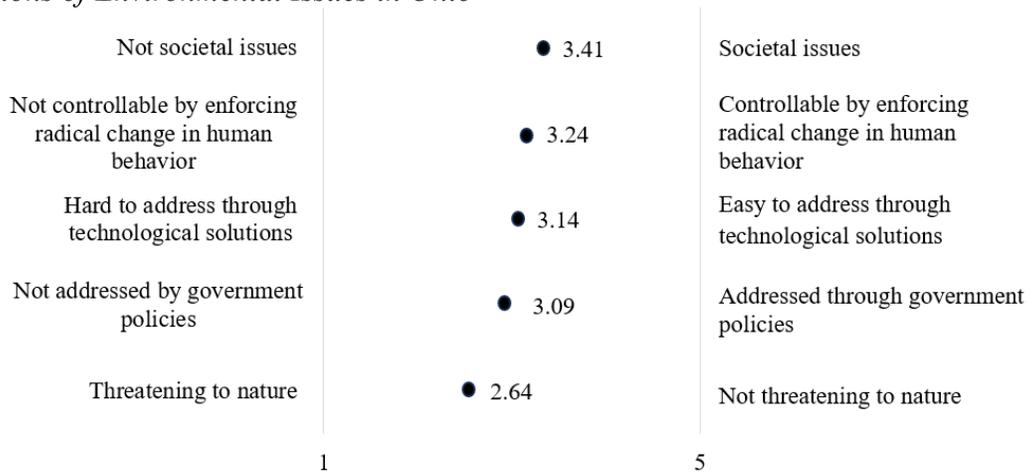


Figure 2 presents perceptions of the food available to Ohio residents based on provided items. Participants considered the available food is safe ($M = 3.7$, $SD = 1.06$). On the aspect of cost, participants on average, considered food to be expensive ($M = 2.38$, $SD = 1.25$). In addition, participants provided moderate ratings in terms of perceived quality ($M = 3.35$, $SD = 1.04$) and healthiness ($M = 3.32$, $SD = 1.10$). Participants were neutral on average about whether the food was shipped or produced in the state ($M = 3.00$, $SD = 1.09$).

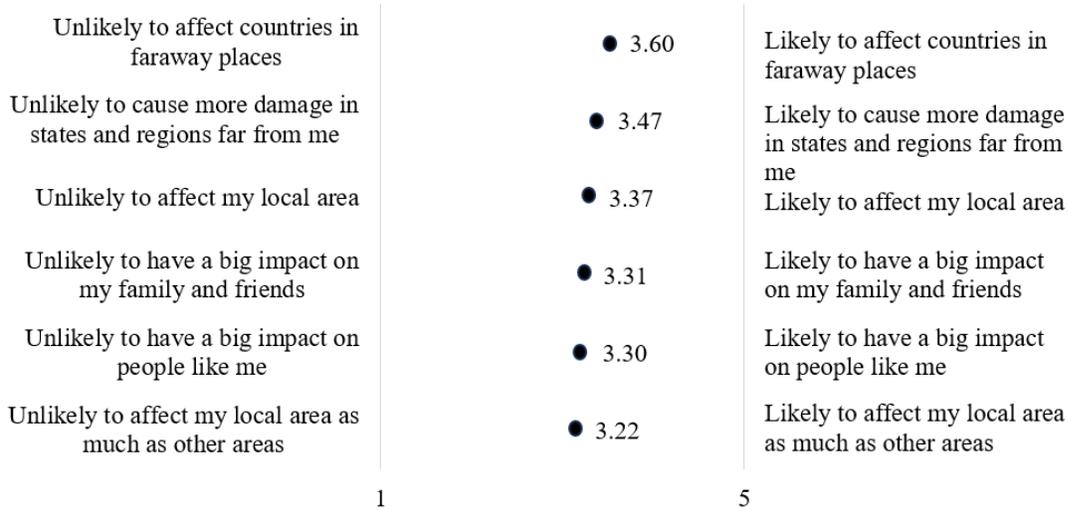
Figure 2

Perceptions of Food Available to Consumers in Ohio



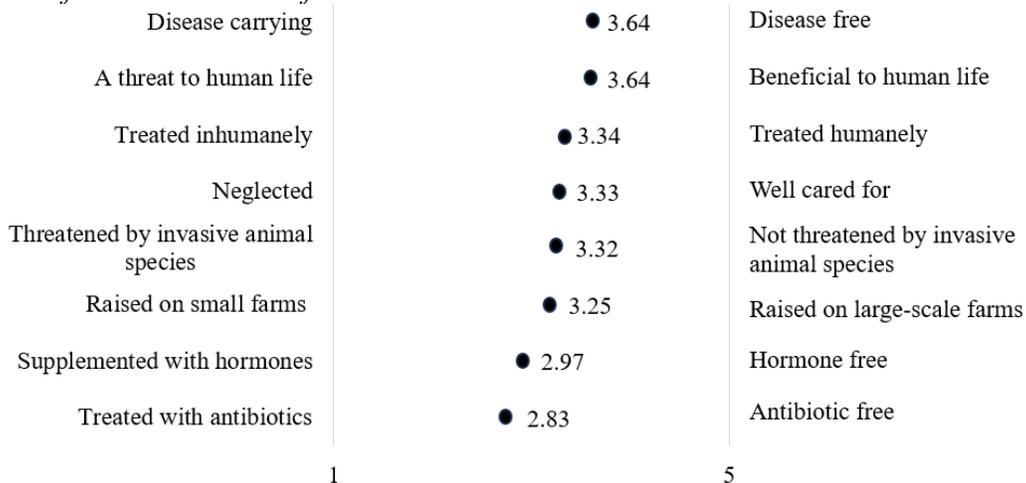
Figure 3 presents the perceptions of climate change impacts among Ohio residents. The mean values indicated a consistent pattern of moderate response across most statements. Participants expressed a likelihood of climate change affecting countries in faraway places ($M = 3.60$, $SD = 1.27$), their local area ($M = 3.37$, $SD = 1.35$), causing damage in states and distant regions ($M = 3.47$, $SD = 1.25$), and concerning the impact on their local area compared to other areas ($M = 3.22$, $SD = 1.31$).

Figure 3
Perceptions of Climate Change Impacts and Effects in Ohio



Regarding the treatment of livestock raised for food in Ohio (Figure 4), participants perceived that livestock are treated somewhat humanely ($M = 3.34$, $SD = 1.18$) and are moderately well cared for ($M = 3.33$, $SD = 1.16$). The participants on average perceived that livestock was fairly disease free ($M = 3.64$, $SD = 1.05$) but not free of antibiotics treatment ($M = 2.83$, $SD = 1.11$) and hormone supplements ($M = 2.97$, $SD = 1.14$). On average, participants perceived that livestock were raised in moderate sized farms ($M = 3.32$, $SD = 1.10$) and were beneficial to human life ($M = 2.36$, $SD = 1.19$).

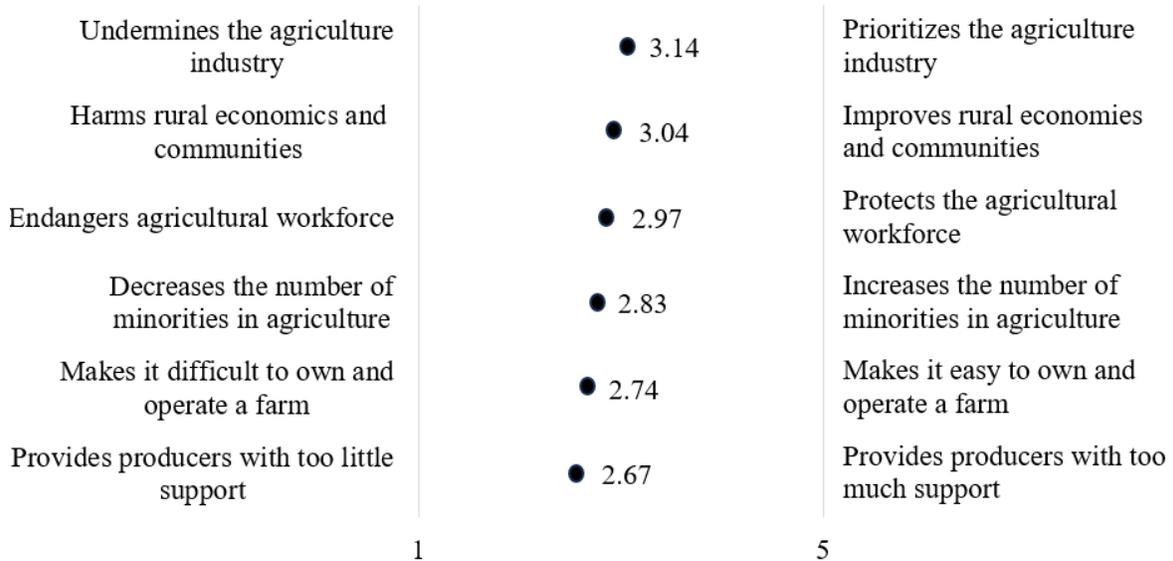
Figure 4
Perceptions of Livestock Raised for Food in Ohio



The results for agriculture-related government policy (Figure 5) indicated a moderate perception among participants regarding the prioritization of the agriculture industry ($M = 3.14$, $SD = 1.14$). Conversely, participants perceived that the government provides producers with little support ($M = 2.67$, $SD = 1.04$). The participants perceived that government policies make it difficult to own and operate farm ($M = 2.74$, $SD = 1.12$) and tended to decrease in the number of minorities in agriculture ($M = 2.83$, $SD = 0.99$).

Figure 5

Perceptions of Government Policy Regarding Agricultural sector in Ohio



Discussion

As noted above, agenda setting theory posits that media encourage audiences to assign importance to certain issues based on their appearance and prominence in news reports, broadcasts, and digital media controlled by media outlets (Buturoiu et al., 2023). This theoretical framework suggests that the issues most frequently covered by the media are more likely to be perceived as important by the public, shaping the collective consciousness around these issues. All the issues investigated in this study were identified as part of the selected media agenda between 2022 and 2023, and the finding that all five issue areas on average, were considered at least somewhat important by the surveyed Ohio residents support this key tenet of agenda setting. While this study is limited to the sources selected for analysis, we believe valuable insights have been gained.

The finding that environmental issues, specifically those related to protecting the water supply, provide a cogent example of media prominence leading to perceived public importance. Despite its relatively lower mean score among environmental issues, the February 2023 train derailment in East Palestine Ohio, may have contributed to the participants' focus on the broader water supply issues that were viewed as more important by providing a specific example of a crisis that can emerge when water quality is threatened (Pilet, 2023). Annual coverage of algal blooms in Lake Erie (Ames et al., 2017; Krouse, 2023) could play a similar role in keeping environmental issues top of mind for Ohio residents.

The residents of Ohio considered food production issues as the second most important, indicating a multifaceted concern comprising food quality, availability, and sustainability. While analyzing perceived importance of food production sub-issues, food safety took precedence followed by food prices. Inwood et al.'s (2022) report on the impacts of COVID-19 on the Ohio food system highlights the systemic failures that led to commodity price increases, food shortages, and concerns about safety during the pandemic. These concerns about the food supply chain may have been fresh in the minds of participants. The East Palestine train derailment also raised concerns about the safety of the food supply chain and the risks of toxic chemicals contaminating local crops and water (Pilet, 2023).

Climate change was perceived as the third-most salient agricultural issue by participants. The impact of climate change on Ohio's agriculture is notable, evidenced by a 1.5-degree rise in average annual temperatures and a nine-day extension in the growing season over recent decades, disrupting crop production cycles and degrading soil and water resources (Antosch, 2023). Within the climate change issues, conserving public lands and forest management were perceived as important issues. Ohio residents exhibit a high level of environmental consciousness and are concerned about protecting public residents' lands and maintaining forests. However, they found climate-change solutions specific to agriculture, such as drought-resistant crops, and carbon capture, relatively less important than issues related to the public good. Leal et al. (2015) found a similar focus on public spaces in their study of Florida residents, wherein accessible recreation spaces like beaches were ranked high in participants' agenda. Given these public priorities, balanced and scientific media framing of agricultural and environmental issues is utmost, as threat-dominated coverage can lead to feeling of helplessness among public (Khanya, 2024).

Despite the potential emotional nature of many of the issues in the area, the animals and livestock-related issues ranked fourth in importance among participants. Most of the sub-issues in the category were considered important, with the highest importance given to animal cruelty and animal disease outbreaks. This suggests that a broader societal interest in animal welfare and animal health exists in Ohio. However, since Ohio enacted and implemented both livestock care standards and animal cruelty laws (Nichols, 2009), livestock mistreatment constitutes a violation of both (Donaldson, 2019), and this ranking may indicate that participants feel that these issues have been dealt with via past legislation and current enforcement and are no longer prominent in media coverage.

Government and policy related to agriculture ranked last among the five issues. Among the sub-issues in this category, farmland preservation was perceived as the most important. This indicates that Ohio residents are aware of the importance of preserving their farmland from shifting to non-agricultural uses, such as residential and corporate development and alternative energy. News media coverage of farmland being leased to solar companies (Christian, 2023) or sold to international corporations like Intel for manufacturing (Williams, 2023) was widespread in the year prior to our data collection, potentially contributing to the prominence of farmland preservation among participants.

To address Objective 2, we analyzed, participants' perceptions about the issues facing Ohio agriculture. Given Ohio's conservative political climate (Gaines, 2022), the reported perception of participants that radical change in human behavior can control certain environmental issues was somewhat surprising. However, this finding supports the Pew Research Center's (2015) report on Ohioans' views on environmental regulation, in which 53% of participants indicated that stricter environmental laws and regulations would be worth the potential economic costs.

Many of the issues that generated strong feelings among participants dealt with ethical or humane treatment of others, whether animal or human. For example, participants expressed that livestock are inadequately cared for while being raised for food and that the government's support provided to producers is inadequate. The issue areas of animals and livestock and government policy, while less important to participants, appear to be perceived in ways that emphasize a need to care or protect, lending support to Guo and McCombs's (2016) notion of second-level agenda setting and indicating that media may be covering these topics using more emotional language and imagery.

Recommendations for Practice and Research

Overall, the study provides an understanding and priorities of the agricultural issues in Ohio, and we suggest targeted interventions that can be implemented to foster sustainable practices, enhance food safety, enhance climate change awareness, and promote animal welfare. Given that environmental issues, especially water quality, ranked as the most important, and residents are well-informed about the importance of protecting water supplies, we recommended developing targeted and collaborative programs with stakeholders including government, educational institutions, and media. Simultaneously, implementing climate change-related campaigns through partnerships with educational institutions and media to disseminate evidence-based information on the severity and potential mitigation strategies is crucial.

Additionally, working closely with farmers, animal welfare groups, and policymakers to implement initiatives emphasizing ethical practices and enforcing standards is essential. Recognizing the importance of farmland preservation, policies should be strengthened to strike a balance between economic needs and environmental conservation, working in collaboration with farming communities. To further engage the community, launching programs that facilitate discussion on the highlighted issues including food safety, water quality, animal welfare and climate change is recommended. This approach aims to foster an informed decision-making process that leads to advocacy for policies that sustain agriculture.

We recognize that our study has some limitations, which we would address in future iterations of this statewide survey. First, our ability to connect our findings to agenda setting theory would be improved by measuring the volume and valence of media coverage of the identified issues. This would allow us to more firmly establish the media agenda at the time of our data collection and to strengthen our comparisons to the public's perceptions of the issues. Second, our study is limited to the agricultural issues highlighted by the selected media agenda between 2022 and 2023. Future research could compare issues that are identified as a part of media agenda versus those which are not to better understand the influence of media on public perception. Further research should explore each issue separately for understanding of their causes, effects, and other dimensions. For example, framing theory, an offshoot of agenda setting could be employed to study coverage of issues like animal welfare and government interventions. Moreover, conducting research by positioning these issues in the issue cycle will help formulate and implement issue-based interventions.

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