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Communication in a Pandemic: Concerns of Agricultural and Natural Resources Opinion Leaders During Early Stages of the COVID-19 Pandemic

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Abstract

During the early stages of the COVID-19 pandemic (March-April 2020), opinion leaders in agriculture and natural resources (ANR) were asked to participate in a survey about the impacts of the crisis on the ANR industry specifically about their concerns related to communication, economics, level of preparedness, and health during this crisis. Of the 225 ANR leaders who participated, the majority were concerned that members of the public were sharing inaccurate information about COVID-19; others they come into contact with were not taking appropriate measures to avoid contracting COVID-19; about the impact of COVID-19 on the U.S. economy, their state's economy, and the global economy; and other countries' level of preparedness to deal with COVID-19. ANR leaders were consistently the most concerned about items that were outside of their direct sphere of influence. Implications from this work are that ANR leadership programs should incorporate programing to help ANR leaders understand how to be influential during a crisis at a national and international level. For statewide ANR leadership programs, it is recommended to include programming sessions related to identifying and sharing credible information and enabling and inspiring those in their circle of influence to do the same.

Keywords

Crisis communication, diffusion of innovations, survey

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Introduction and Problem Statement

COVID-19 impacted the economy, environment, health, and society as a whole (Sahin et al., 2020). By March 2020, COVID-19 was declared a pandemic and had impacted communities in over 160 countries (World Health Organization [WHO], 2020). The agricultural industry was not spared from the impacts of COVID-19 and faced unique challenges on top of those already common to the industry. Farmers, particularly those that harvest crops, faced a shortage in farm labor as migrant workers were often blocked from traveling or became infected with COVID-19 and needed to quarantine (Duvall, 2020). Agricultural and natural resources (ANR) leaders were faced with the task of making decisions about new policies and practices during an unprecedented public health crisis.

Managing crisis situations and maintaining communications during turbulent times are familiar roles to ANR leaders. A successful agricultural product depends on many different influences including weather, resources, lack of contamination, and safe practices. A break or failure at any level could potentially impact human health and safety (Edgar et al., 2012). Thus, having effective crisis communication is crucial to ANR leaders and is why industry leaders have crisis communication plans with detailed steps to provide a consistent and coordinated message (Sellnow et al., 2019). The COVID-19 crisis provided a unique, compound crisis for ANR leaders. While managing the impacts from nationwide food supply changes, ANR leaders were also tasked to ensure the health and safety of all personnel. The present study seeks to understand these challenges by identifying ANR leaders' concerns about communication, economics, preparedness, and health during the early stages of the COVID-19 pandemic.

Theoretical and Conceptual Framework

The theoretical and conceptual frameworks that guided this study included the diffusion of innovations theory (Rogers, 2003) and the conceptual framework of crisis communication (Coombs, 2007). The diffusion of innovations relies heavily on opinion leaders to either accelerate or decelerate the diffusion process (Valente & Davis, 1999). Opinion leaders have a stronger propensity to change people's minds than media sources in which mass media's messages are consumed by opinion leaders who then filter the media to broader, less interested populations. Essentially, people can move the diffusion of an idea more than anything else (Lazarsfeld et al., 1948).

The diffusion of innovations model was developed to describe how an idea or product gains momentum and popularity within a defined group of individuals (Rogers, 2003). Opinion leaders can act as role models within their communities and can, therefore, be key determinants of others' beliefs, perceptions, and sustained behaviors (Rogers, 3003; Valente & Davis, 1999). Beyond the concept of the opinion leaders' role in the diffusion process, a multitude of scholars have defined the characteristics of opinion leaders (Burt, 1999; Corey, 1971; Rogers, 2003; Rogers & Cartano, 1962; Shah & Scheufele, 2006; Valente & Davis, 1999).

Corey (1971) defined opinion leaders as “trusted and informed people who exist in virtually all groups” (p. 48).

Characteristics unique to opinion leaders are that they (a) are typically more involved in activities relating to their specialty area, (b) are more informed about new developments in their specialty area due in-part to reading more media related to their specialty area, (c) will have similar demographics as non-leaders with the exception of a higher socio-economic status (Corey, 1971; Rogers, 2003), and will disseminate information with the purpose of exerting influence (Sahelices-Pinto & Rodríguez-Santos, 2014). Further, Weimann (1994) indicated opinion leaders interact with many people through a variety of voluntary associations and activities, such as meetings, discussions, and social events.

During a crisis situation, the role of communications and opinion leaders takes an accelerated position. Seeger et al. (2001) noted the significance of open and accurate communication with all stakeholders during a crisis and stressed the importance of a proactive and timely response. This response often involves a three-stage approach that includes precrisis, the crisis event, and postcrisis (Coombs, 2012). It is often at the crisis event, or crisis recognition stage, where managers begin managing the threat. Much of this management entails continually developing and monitoring messages on traditional and social media to ensure their consistency and accuracy (Coombs, 2012). As publics have come to expect constant communication, it is imperative for organizations to keep in constant contact with their stakeholders during a crisis situation to avoid inaccurate information. Failure of organizations to keep in contact could result in publics perceiving organizations as untrustworthy (Ulmer et al., 2011). To avoid a potential break in trust, a pre-developed crisis communication plan should include a system for communicating with target publics that includes all potential interactions between an organization and their stakeholders (Coombs, 2012).

Purpose

This study sought to understand concerns of ANR opinion leaders during the early stages of the COVID-19 pandemic as a way to identify the communication flow of these concerns to the broader population of agriculturalists and inform agricultural communication in future zoonotic disease crises. Leaders within ANR are of particular interest in understanding the opinions and perspectives of the ANR industry members as a whole. Within the ANR sectors, alumni from statewide agricultural leadership programs are considered opinion leaders (Chiarelli et al., 2010; Lamm et al., 2014; Lamm & Lamm, 2019). Due to their opinion leader characteristics, it is expected that alumni from these programs are widely diffusing information to their social and professional networks (Sahelices-Pinto & Rodríguez-Santos, 2014) regarding the impact of COVID-19 on their respective industries. Four objectives guided this study:

1. Describe ANR opinion leaders’ communication concerns related to COVID-19
2. Describe ANR opinion leaders’ economic concerns related to COVID-19
3. Describe ANR opinion leaders’ preparedness concerns related to COVID-19
4. Describe ANR opinion leaders’ health concerns related to COVID-19

Methods

The targeted population for this study was active listerv members of U.S. agriculture and natural resources (ANR) leadership programs. These programs were selected because previous research has indicated ANR leadership programs are comprised of opinion leaders in their communities (Chiarelli et al., 2010; Lamm et al., 2014; Lamm & Lamm, 2019). The directors of each program were contacted and asked to invite their current class members and alumni members to participate in this study. Eight of the 40 U.S. leadership programs agreed to participate, including (a) Arizona Project CENTRL, (b) LEAD Delaware, (c) California Agricultural Leadership Foundation, (d) Wedgworth Leadership Institute for Agriculture and Natural Resources, (e) Leadership Idaho Agriculture, (f) Indiana Agricultural Leadership Program, (g) LEAD New York, and (h) Palmetto Leadership for the Environment, Agriculture and Forestry (LEAF).

Useable responses were collected from 225 of the 3,172 listserv participants for a rate of 14.9%. Respondents were primarily white (*f* = 201; 89.3%) and ranged in age from 20 to 79 years. More respondents fell within the income ranges of $75,000 to $149,999 (*f* = 81; 36%) and $50,000 to $74,999 (*f* = 36; 16%) than any other income bracket, and the majority held at least a four-year college degree (*f* = 195; 86.9%). Respondents represented more than 14 industry sectors, among them animal agriculture (*f* = 32, 14.2%); fruit, vegetable, and specialty crop production (*f* = 32, 14%), public and/or government agency (*f* =27, 12%), and other, non-listed sectors (*f* = 27, 12%).

Data were collected March 16 through April 21, 2020, using an online survey distributed via listserv by program directors. Participating leadership program directors sent an initial announcement of the upcoming study, an invitation to participate that included informed consent and the link to the online survey, and three follow-up reminder emails. An original survey questionnaire, developed by the researchers, was used as the instrument for this study. Four sections of the questionnaire were used for data analyses: (a) health-related concerns about COVID-19; economic-related concerns about COVID-19; (c) preparedness-related concerns about COVID-19; and (d) communication-related concerns about COVID-19. Health concerns were assessed using six items pertaining to concerns about the general health and well-being of respondents and others (e.g. “I am concerned I could die from COVID-19”). Economic concerns were measured using six items reflective of the various economic impacts of COVID-19 (e.g. “I am concerned about the impact of COVID-19 on the U.S. economy”). Preparedness concerns were measured using six items pertaining to different agencies’, self, or others’ level of preparedness to deal with COVID-19 (e.g., “I am concerned about Extensions’ level of preparedness to deal with COVID-19”). Lastly, communication concerns were measured using eight items regarding accuracy of information being shared (e.g. “I am concerned I am not getting accurate information about COVID-19”). Responses for sections were collected using a dichotomous initial response format (1 = yes; 0 = no), followed by a five-point, ordinal branching response option for those who indicated they were concerned about that item (1 = *only slightly concerned;* 5 = *extremely concerned*). An ordinal variable was computed based on the initial response and branching response that ranged from zero (i.e., those who indicated

"no") to five to represent overall degree of concern for each item. Data were analyzed using the SPSS26 statistical software package. Descriptive statistics (e.g., means, standard deviations, frequencies, and percentages) were computed for the objectives of this study.

Limitations within this study are a lack of direct access to the population may have deterred participation in the survey. The sample collected in this study is not representative of all leadership programs across the United States, but is instead reflective of only those from select organizations who participated in and responded to this study. As such, the results should not be generalized beyond the sample acquired. This limitation should be considered when drawing implications and discerning potential use of the data and provided recommendations.

Findings

Objective One: Communication Concerns

The majority of respondents were overall concerned that members of the public are sharing inaccurate information about COVID-19 (*f* = 197; 87.6%) and that the media and news outlets are sharing inaccurate information about COVID-19 (*f* = 177; 78.7%). Relatively fewer respondents were concerned they were personally not getting accurate information about COVID-19 (*f* = 118; 52.4%; see Table 1).

Table 1

Number of Respondents Concerned about Communication-Related Items (N = 225)

	Yes		No	
Concern	*f*	%	*f*	%
I am concerned that members of the public are sharing inaccurate information about COVID-19.	197	87.6	28	12.4
I am concerned that media and news outlets are sharing inaccurate information about COVID-19.	177	78.7	48	21.3
I am concerned members of the general public are not getting accurate information about COVID-19.	172	76.4	53	23.6
I am concerned agricultural/farm laborers are not getting accurate information about COVID-19.	145	64.4	80	35.6
I am concerned my loved ones are not getting accurate information about COVID-19.	128	56.9	97	43.1
I am concerned I am not getting accurate information about COVID-19.	118	52.4	107	47.6

Respondents who indicated they were concerned about a communication-related item indicated greater degrees of concern that members of the public are sharing inaccurate information about COVID-19 (*M* = 4.11; *SD* = .93), that members of the general public are not getting accurate information about COVID-19 (*M* = 4.06; *SD* = .91), and that media and news

outlets are sharing inaccurate information about COVID-19 (*M* = 3.97; *SD* = 1.07) compared to other communication-related items.

Objective Two: Economic Concerns

The majority of respondents were concerned about all economic-related items. Compared to all items, the largest number of respondents were concerned about the impact of COVID-19 on the U.S. economy (*f* = 222, 98.7%), their state's economy (*f* = 220, 97.8%), and the global economy (*f* = 218, 96%; see Table 2).

Table 2

Number of Respondents Concerned About Economic-Related Items

	Yes		No	
Concern	*f*	%	*f*	%
I am concerned about the impact of COVID-19 on the U.S. economy.	222	98.7	3	1.30
I am concerned about the impact of COVID-19 on my state's economy.	220	97.8	5	2.20
I am concerned about the impact of COVID-19 on the global economy.	218	96.0	7	3.1
I am concerned about potential labor shortages in agriculture and natural resources sectors due to COVID-19.	201	89.3	24	10.7
I am concerned about the financial impact of COVID-19 on me personally.	186	82.7	39	17.3
I am concerned about an increased cost of food because of COVID-19.	123	54.7	102	45.3

Respondents who indicated they were concerned about an economic-related item were then asked to indicate how concerned they were about that item. Respondents indicated greater degrees of concern about the impact of COVID-19 on the U.S. economy (*M* = 4.6, *SD* = .67), the impact of COVID-19 on their states' economies (*M* = 4.45, *SD* = .75), and the impact of COVID-19 on the global economy (*M* = 4.38, *SD* = .77) than the other economic-related items.

Objectives Three: Preparedness Concerns

The majority of respondents were concerned with most preparedness items, particularly regarding other countries' level of preparedness to deal with COVID-19 (*f* = 195; 86.7%), hospitals' and health professionals' level of preparedness to deal with COVID-19 (*f* = 192; 85.3%), and the United States' level of preparedness to deal with COVID-19 (*f* = 184; 81.8%; see Table 3). The majority of respondents were not overall concerned about Extension's level of preparedness, nor their own personal level of preparedness to deal with COVID-19 (see Table 3).

Table 3

Number of Respondents Concerned About Preparedness-Related Items

	Yes		No	
Concern	*f*	%	*f*	%
I am concerned about other countries' level of preparedness to deal with COVID-19.	195	86.7	30	13.3
I am concerned about hospitals' and health care professionals' level of preparedness to deal with COVID-19.	192	85.3	33	14.7
I am concerned about the United States' level of preparedness to deal with COVID-19.	184	81.8	41	18.2
I am concerned about my state's level of preparedness to deal with COVID-19.	175	77.8	50	22.2
I am concerned about my local community's level of preparedness to deal with COVID-19.	167	74.2	58	25.8
I am concerned about my loved ones' level of preparedness to deal with COVID-19.	132	58.7	93	41.3
I am concerned about Extension's level of preparedness to deal with COVID-19.	86	38.2	139	61.8
I am concerned about my personal level of preparedness to deal with COVID-19.	77	34.2	148	65.8

Respondents who indicated they were concerned about a preparedness item were then asked to indicate how concerned they were about that item. Respondents indicated greater degrees of concerns about hospitals' and health care professionals' level of preparedness to deal with COVID-19 (M = 4.34, SD = .88), the United States' level of preparedness to deal with COVID-19 (M = 4.24, SD = .87), and other countries' level of preparedness to deal with COVID-19 (M = 4.18, SD = .88) compared to other preparedness concern items.

Objective Four: Health Concerns

The majority of respondents were concerned that others they come into contact with are not taking appropriate measures to avoid contracting COVID-19 (f = 179, 79.6%), that they are personally at risk of contracting COVID-19 (f = 160, 71.1%), and that illegal immigrants and/or non-citizens currently residing in the United States will not seek medical attention if they believe they have contracted COVID-19 (f = 136, 60.4%). Only 18 (8%) respondents were concerned about pets and/or livestock being infected by COVID-19 (see Table 4).

Table 4

General health concerns of ANR respondents (N = 225)

	Yes		No	
Concern	*f*	%	*f*	%
I am concerned others I come into contact with are not taking appropriate measures to avoid contracting COVID-19.	179	79.6	46	20.4
I am concerned I am personally at risk of contracting COVID-19.	160	71.1	65	28.9
I am concerned illegal immigrants and/or non-citizens currently residing in the United States will not seek medical attention if they believe they have contracted COVID-19.	136	60.4	89	39.9
I am concerned that COVID-19 will be used for biological warfare.	68	30.2	157	69.8
I am concerned I could die from COVID-19.	67	29.8	158	70.2
I am concerned about pets and/or livestock being infected by COVID-19.	18	8.0	207	92.0

Respondents who indicated they were concerned about a health-related item were then asked to indicate how concerned they were about that item. Respondents indicated greater degrees of concern that others they come into contact with are not taking appropriate measures to avoid contracting the coronavirus COVID-19, e.g. washing hands, staying at home when sick (M = 3.98, SD = .91), that illegal immigrants and/or non-citizens currently residing in the United States will not seek medical attention if they believe they have contracted COVID-19 (M = 3.82, SD = .97), and that they are personally at risk of contracting COVID-19 (M = 3.48, SD = 1.00) than the other health-related items.

Conclusions, Discussion, and Recommendations

The results of this study indicate ANR leaders were concerned about health, economics, preparedness, and communication early in the COVID-19 pandemic (March/April 2020). This is expected since ANR leaders tend to notice trends and be more aware of issues than others within their communities (Corey, 1971; Rogers, 2003). In health-related and economic-related concerns, ANR leaders' greatest concerns were for those beyond the control of the individual leader. ANR leaders were least concerned for increased food costs, which may speak to them being well-informed of the low cost of food in this country and the stability of American agriculture. When it came to concern for preparedness, again the biggest concerns were for entities further removed from an ANR leader's direct control (e.g., health care professionals, the United States, and other countries). Notably, the majority of respondents were not concerned with their personal level of preparedness, which again is within their control.

For communication concerns, ANR leaders were most concerned about the public sharing and receiving inaccurate information, as well as the media sharing inaccurate information. These concerns are less likely to be within a leader's direct control and may be seemingly outside of their circle of influence. Conversely, they were not as concerned about not receiving accurate information themselves which aligns with previous work by Corey (1971) and Rogers (2003). This finding may be due to the tendency for opinion leaders to be information seekers and connected to multiple sources of information (Weimann, 1994). Perhaps due to the nature of their opinion leader statuses, ANR leaders were seeking information often during the crisis and were able to identify inaccurate information they saw in the media. Moreover, these leaders may have been reaching out to individuals to provide accurate information during the pandemic (Sahelices-Pinto & Rodríguez-Santos, 2014).

The results of this study offer recommendations for practice and for research. We recommend ANR leaders or communicators working with ANR leaders seek to change the availability of reliable communication during a pandemic or future health crises. While ANR leaders may feel like they do not have control over others' information choices, they do have influence over those within their communities (Corey, 1971; Rogers, 2003; Sahelices-Pinto & Rodríguez-Santos, 2014). ANR leaders have the power as opinion leaders to impact communication issues for the greater good. They should embrace their identity as message managers to provide accurate information, even if they are using secondary information. If they speak out when they see inaccurate information and actively seek opportunities to share information that is accurate and credible, they may have the opportunity to increase understanding and reduce the spread of inaccurate information during a pandemic. For statewide agricultural leadership programs, it is recommended to include programming sessions related to identifying credible information and leading during a pandemic. Future research should investigate specifically what information ANR opinion leaders considered inaccurate during the pandemic.

The results from this study could speak to the value of Extension during a pandemic, as ANR leaders were not as concerned about the level of preparedness of Extension to handle COVID-19. Extension and Extension communication specialists specifically could be leaders in communication and preparing for a pandemic. It is recommended Extension take an active role in preparing communities before, during, and in between health crises. ANR leaders and communicators working with these leaders should use their experience in crisis situations and rely on their communication plans to provide accurate information to their stakeholders. Though ANR leaders are not the responsible party in a crisis such as COVID-19, they have the ability to reach out to stakeholders and help provide accurate information.

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