

## **Introduction & Literature Review**

Consumers were already increasing in their interest in local food (Feldmann & Hamm, 2015), but the COVID-19 pandemic accelerated this trend (Schmidt et al., 2020). Because the pandemic caused constraints on the food supply chain and social distancing protocols discouraged people from shopping in person, an online presence for direct-to-consumer (DTC) agricultural producers became more important than ever (Katare et al., 2021). This study looked specifically at DTC digital media marketing and online communications used by agricultural producers in New York, which has the second-highest DTC sales nationally (National Agricultural Statistics Service [NASS], 2015).

### **Direct-to-Consumer Marketing**

DTC marketing is when producers sell agricultural products to the consumers without intermediaries (United States Department of Agriculture [USDA], 2016). Examples of this include farmers' markets, community-supported agriculture (CSAs) or farm stands (USDA, 2016). Selling directly to consumers allows producers to foster personal connections with consumers and improve the economic viability of their operation by capturing a larger percentage of sales that would have otherwise gone to middlemen in the supply chain (Adam et al., 2016). DTC sales increased by 32% from 2002 to 2007 and the number of DTC operations increased by 17% but plateaued before the onset of the pandemic increased interest (Thilmany et al., 2020). Proximity and access to urban areas makes it easier for producers to transport food products in those locations (Detre et al., 2011). As the home of the largest U.S. city, New York is a prime location for direct agricultural sales. New York ranked second in DTC sales in 2015, with \$237,000,000 in sales, behind only California (NASS, 2017).

### **Impact of COVID-19**

In March 2020, as the COVID-19 pandemic quickly spread across the U.S., hotels, restaurants, schools, and other institutions closed, which created a drastic shift in demand of food products and revealed flaws in the U.S. food supply chain (Bartik et al., 2020; Weersink et al., 2020). The food supply chain was impacted by workers getting sick, lack of available processors, and congestion in the supply chain (Aday & Aday, 2020). Consumers also changed how they were purchasing food, with a 360% increase in online food sales (Bakalis et al., 2020; Thilmany et al., 2020). Many farms and ranches that were selling their products directly to consumers prior to the pandemic increased their use of social media platforms and online communication to promote products (Goldy et al., 2020).

### **Social Media & Digital Marketing**

Approximately 70% of the global population (Kepios, 2022) and 93% of the U.S. population use the internet (Pew Research Center, 2021). While Facebook is the most widely used site, other sites, such as Instagram, Snapchat, and TikTok also have significant user bases (Pew Research Center, 2021; Rosner et al., 2019). With the rapid evolution of the internet and social media, consumers are more dependent on the internet for information than ever before, and social media has become an integral part of marketing for all business operations (White et

al., 2014).

Social media allows businesses to have two-way interactions with consumers (Olanrewaju et al., 2020; Rutasert et al., 2013; Varner, 2018; White, 2014), and it provides businesses with a platform for storytelling and content marketing with few barriers to entry (Pulizzi, 2012). In today's social media landscape, brands of any size can connect with customers (Pulizzi, 2012). Digital marketing is vital to businesses because they are a more cost-effective means to reach a large audience than traditional marketing methods, which is particularly beneficial for smaller brands (Alexander, n.d.). Building relationships with consumers is particularly important because the limited exposure that would likely come from traditional advertising might not be effective enough to drive purchasing decisions (Abrams & Soukup, 2017). While digital marketing was already growing, the COVID-19 pandemic forced marketers to adapt even faster as consumers transitioned to increased online shopping (Abramovich, 2021), but for agricultural operations in rural areas, reliable internet access could be a limiting factor for engaging in online DTC marketing (Low & Vogel, 2011; Whitacre et al., 2014).

Social media, especially Facebook, can be an extremely useful tool to assist agricultural producers in marketing their products (Balkrishna & Deshmukh, 2017). Although Facebook can be an asset to the marketing efforts of agricultural producers (Abrams & Sackmann, 2014), they are often inactive or underutilizing social media (Bowman et al., 2020; King & Settle, 2020). When small agricultural operations are marketing directly to consumers, the social media presence is often managed by the farmer themselves or an employee who also works in the field, rather than an individual hired specifically to manage the online communication, which means implementation may not be occurring as effectively as possible (Abrams & Sackmann, 2014), and discrepancies have been noted between producers' perceived importance of specific communication and marketing tasks and their ability to accomplish those tasks, indicating a need for professional development (Meyers et al., 2015). Meyers et al. (2015) found producers thought websites were more important compared to Facebook, but Miller et al. (2023) found agritourism producers in Oklahoma were more consistently using Facebook than other marketing options, which could be reflective of changing preferences over time.

A primary motivating factor for agricultural producers using social media is financial gain (Abrams & Sackman, 2014), though some agricultural operators may be hesitant to sell through social media outlets (Stebner et al., 2017). Digital media allow producers to promote their products and share information about agricultural topics with consumers who otherwise could not or would not have face-to-face interactions with agriculturalists (Varner, 2018). Many DTC producers have taken advantage of the public's increase in social media use to connect with current customers and to reach new customers (Adams & Salois, 2010). While agricultural producers are using social media for marketing purposes, social media can also be used to communicate about agricultural issues (Graybill-Leonard et al., 2011; Langusch et al., 2023; White et al., 2014). Social media allows businesses to connect with consumers by building shared interests and values (Li et al., 2021).

Consumers are increasingly interested in and concerned about food production, including transparency, animal welfare, traceability, and environmental impact of food (Feldmann & Hamm, 2015; Grunert et al., 2018). DTC's connection to local food is particularly beneficial because consumers perceive local foods as safer and express a higher level of trust in local food producers and products because they are easier to trace back to their sources (Feldmann & Hamm, 2015). There is also an increased interest in local food production because of

environmental sustainability and principles of social justice to rebuild the link between producers and consumers (Aprile et al., 2016). While interest in local food may be high, defining local can be complicated because definitions can vary (Gorham et al., 2015).

There has been a significant amount of research exploring consumer preferences and perceptions of local food and DTC marketing strategies, but there is a lack of research focusing on producers' marketing and communications efforts (Abrams & Sackmann, 2014; Park et al., 2014), and there is a need for social media marketing guidance (Li et al., 2021; Olanrewaju et al., 2020). There are resources available to help producers establish an online presence, but the resources are inconsistent (Pratt, 2018), and any recommendations made need to account for the individual needs and goals of operations (Bowman et al., 2020). This research helps address the adoption of effective social media and online marketing practices by DTC producers, particularly after the COVID-19 pandemic disrupted the food supply chain and increased consumers' interest in direct purchasing of agricultural products and producers' use of online sales and marketing (Aday & Aday, 2020; Bakalis et al., 2020; Bartik et al., 2020; Goldy et al., 2020; Thilmany et al., 2020; Weersink et al., 2020).

### **Theoretical Framework**

Diffusion can be defined as “the process in which an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 2003, p. 5). The innovation in the case of this research project is the adoption of social media and online communication by agricultural producers to promote DTC marketing for agricultural operations in Upstate New York. Diffusion is a special type of communication because the messages being communicated are new ideas or innovations, which contributes to some degree of uncertainty surrounding diffusion (Rogers, 2003). The internet has impacted how innovations are diffused, including increasing rate of adoption, particularly with the advent of social media (Koçak et al., 2013; Rogers, 2003). Potential adopters of an innovation progress through five stages: knowledge, persuasion, implementation, and confirmation.

Not all individuals adopt innovations at the same time. Compared to their counterparts, early adopters tend to have more wealth, education, connection to outside sources of information, and favorable disposition to change (Rogers, 2003). Abrams and Sackmann (2014) found financial and social capital increased likelihood of adoption of online communication practices, and Telg and Barnes (2012) found younger producers were more likely to engage in online communications.

A variety of factors can affect rate of adoption. One set is the perceived attributes of the innovation, including relative advantage (i.e., how is this better than the current option used?), compatibility (i.e., how does this fit with the adopter and their needs?), complexity (i.e., how easy or difficult is the innovation to adopt and use?), trialability (i.e., can the innovation be tried out temporarily?), and observability (i.e., can the adopter see others using the innovation?; Rogers, 2003). White et al. (2014) found that relative advantage affected agriculturalists' adoption of social media for communicating about agriculture. Social media allows producers to interact with each other online (Varner, 2018), which allows for observability of digital media marketing and online communication efforts.

The people that adopters interact with can affect adoption. Most notably this includes change agents and other members of their social system, especially opinion leaders (Rogers, 2003). Change agents (e.g., Cooperative Extension educators) try to encourage adoption, and

they are more successful when they are perceived as credible by adopters and their efforts align with adopters' needs (Rogers, 2003). Opinion leaders, who are influential members of a social system, can encourage or stymie adoption (Rogers, 2003). Examples include affecting adoption of the national animal identification system (Veil, 2010), fertilizer use (Seeger & Wilson, 2019), and organic farming (Hall & Rhoades, 2010).

### **Purpose & Research Questions**

The purpose of this study was to explore perceptions of use and training needs related to the adoption of online communication and digital marketing efforts by DTC agricultural businesses in Upstate New York. The following research questions framed this study:

RQ1: How are direct-to-consumer agricultural businesses in Upstate New York adopting and using social media and online communication to promote their business?

RQ2: What support are these businesses looking for to improve their social media and online presence?

### **Methods**

To understand New York DTC producers' perceptions and experiences, qualitative interviews were conducted. Qualitative research is an "approach to inquiry that begins with assumptions, worldviews, possibly a theoretical lens, and seeks to understand the context or settings of the participants," (Creswell, 2007, p. 51). The qualitative interviews allowed for rich data and a deeper understanding of each participants' perceptions and perspective regarding their use of social media and online communication (Flick, 2009).

The population for this study included agricultural producers over the age of 18 who sell directly to consumers, as well as personnel responsible for maintaining an operation's social media, website, or other online communication efforts in Upstate New York. Purposive sampling was used to select agricultural businesses from across Upstate New York to ensure they represented a variety of areas and commodities in the region (Creswell, 2007). For this study, Upstate New York was defined as all counties in New York outside of the New York metropolitan area. Operations were selected from a variety of locations and agricultural industries. Table 1 provides a description of participants. After 10 interviews were completed, data saturation, which means no new information was being gathered from participants, was reached and no further interviews were conducted (Guest et al., 2006).

**Table 1***Description of Participants*

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Pseudonym	Description of Participant & DTC Operation
Amy	Western New York, beef, turkey, chicken, and duck producer, selling DTC since 2020, approximately 30-mile sales radius
Charlotte	Finger Lake Region, winery, employee responsible for social media, selling DTC since 2000s, sales radius is nationwide
Ella	Central New York, apple and produce producer, selling DTC since 1940s, approximately 20-mile sales radius
Emma	Central New York, organic beef, pork, lamb, and garlic producer, selling DTC since 2016, sales radius 50 miles or less
Joe	Central New York, honey, mead, and somel producer, selling DTC since 2019, approximately 160-mile sales radius
Lily	Northern New York, maple producer, selling DTC since 2015, sales radius is nationwide
Mia	Central New York, turkey producer, selling DTC since 1980s, sales radius across New York State
Noah	Western New York, chicken, goat, lamb, and beef producer, selling DTC since 2015, 300+ mile sales radius
Sofia	Western New York, produce producer, selling DTC since 2018, approximately 30-mile sales radius
Steve	Southern New York, dairy farmer bottling milk on farm and selling DTC since 2018, 30–35-mile sales radius

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The interview guide was developed after reviewing literature on online communication use in agriculture (e.g., Abrams & Sackman, 2014), DTC marketing (Park et al., 2014), consumer food preferences (e.g., Aprile et al., 2016), digital marketing (e.g., Rutasert et al., 2013), and marketing trends in general (e.g., Feldmann & Hamm, 2016). Questions were asked in conversational language (Brinkmann & Kvale, 2018), and the follow-up questions explored further information in a manner that flowed naturally (Flick, 2018). This research was for a master's thesis. The interview guide was reviewed by the lead author's committee: Quisto Settle, who served as the committee chair; Linnea Harvey, who served as committee member; and Dwayne Cartmell who served as committee member. All three committee members have expertise and experience in digital media and conducting qualitative research. All interviews

were conducted via Zoom, which is a video-conferencing program, due to geographic and pandemic limitations between December 21, 2021, and January 28, 2022. Interviews were automatically transcribed by Zoom before being reviewed for accuracy by the lead author. Participants were assigned pseudonyms for confidentiality.

Glaser's Constant Comparative Method (Glaser, 1965) and thematic analysis (Braun & Clark, 2006) were used in the data analysis of this study. Data was broken down into incidents and coded using categories (Glaser & Strauss, 1967). Thematic analysis was used to reveal themes or patterns within the data (Braun & Clark, 2006). Semantic codes (i.e., expressed verbally) and latent codes (i.e., underlying meanings) were then applied to the data (Flick, 2018). Semantic codes are more descriptive, coming directly from the participants' words, while the latent codes are more analytical involving a deeper analysis to make connections within and between interviews (Gibbs, 2018). The codes were used to sort, label, and compare data (Flick, 2018). MAXQDA, a coding management software, was used to organize and efficiently code each interview. MAXQDA and other coding management software programs aid transparency and organization of files, but they do not conduct analysis for researchers (Trochim, n.d.).

Trustworthiness of this study was guided by Lincoln and Guba's (1985) criteria: credibility, transferability, dependability, and confirmability. Credibility refers to the confidence or believability of the results (Lincoln & Guba, 1985; Trochim, n.d.). The following were used to address credibility: data triangulation was addressed by assessing a variety of data sources by conducting interviews across the state and across a variety of production types (Flick, 2009); the interview guide was reviewed by a graduate committee consisting of faculty with expertise in online communication and qualitative research (Kallio et al., 2016); a practice interview was completed using the interview guide (Kallio et al., 2016); and a member check was conducted by sending participants a copy of the cleaned-up transcripts (Creswell, 2018). "Transferability refers to the degree to which the results of qualitative research can be generalized or transferred to other contexts or settings" (Trochim, n.d., para. 5), which was addressed by providing a detailed account of the methodology and protocols of this study for future researchers to determine how applicable this study is (Lincoln & Guba, 1985). Dependability refers to the consistency and repeatability of the study's results (Lincoln & Guba, 1985), and this was addressed through the process of auditing and creating a document trail of the research process, which was then reviewed by a graduate student researcher external to this project (Flick, 2009). Confirmability refers to the degree in which the results from the study can be confirmed by others and are not the result of the researcher's bias, which was accomplished with the aforementioned audit and was aided by using MAXQDA to increase transparency (Trochim, n.d.).

## **Researcher Subjectivity**

Katerina Weingarten was born and raised in New York and received an undergraduate degree in agricultural business management from State University of New York at Cobleskill and a master's degree in agricultural communications from Oklahoma State University. Weingarten was born and raised in a small town in Upstate New York surrounded by agriculture. Weingarten began raising and showing dairy goats as a 4-H project in 2009 when she was 11 years-old and has remained involved in agriculture since then. Weingarten does not have a direct affiliation with DTC agricultural businesses. She has learned of the difficulties and struggles these operations are facing with promoting their business and products online, and this inspired her to explore their current use of social media and online communication in order to gain a

better understanding of what support is needed for this industry. Quisto Settle grew up in Texas and completed an undergraduate degree in animal science before getting agricultural communications graduate degrees. Settle has lived in a variety of agricultural regions giving him exposure to a variety of types of operations, and his research has includes marketing-related communications. Settle does not have any direct affiliation with DTC agricultural businesses. Linnea Harvey grew up in Wisconsin and received an undergraduate degree in animal science and master's degree in agricultural communications. Harvey worked in meat science and reproductive physiology side in college, which gave insight into the road food takes to get from farm to plate. Harvey does not have a direct affiliation with DTC agricultural businesses. Harvey conducted a similar study in 2020 on DTC marketing in the Oklahoma beef industry during COVID-19 (Langusch et al., 2023). Dwayne Cartmell grew up in Oklahoma and received three degrees focusing on agricultural communications and one degree focusing on agricultural economics. Cartmell has worked with DTC agricultural businesses through a course offered in the agricultural communications program at Oklahoma State University. Cartmell has also offered training to DTC businesses related to marketing and communications, including the use of digital and online media tools. Cartmell has served as a graduate committee chair for master's students working on DTC marketing and communications effort as well. Cartmell does not have a direct affiliation with DTC agricultural businesses.

## Findings

### **RQ1: How are agricultural direct-to-consumer businesses in Upstate New York adopting and using social media and online communication?**

#### ***Facebook is the most popular platform***

When participants were asked about the specific platforms used for the business, multiple participants said they had both Instagram and Facebook accounts, but Facebook tended to be more popular and was used more consistently by businesses, including having larger followings and more interactions from consumers compared to Instagram and other platforms. When asked about how she used social media platforms, Lily said,

We tend to use Facebook more often than Instagram, just because it works. I guess it's a more practical way to reach our target, our target market. Our audience is more families rather than maybe your younger Gen Z's and millennials that are using Instagram.

Steve also used Facebook more often than Instagram: "My... clientele I believe is mainly on Facebook. My sister has an Instagram and made one [a business page] and posts some pictures on there. We don't use it as often as Facebook."

While many participants had also had Instagram, many did not. When asked if she had an Instagram account, Emma said "Not really. I haven't ventured into that." Mia said, "As far as social media, I only have a Facebook account. I don't have all the others. Perhaps I should, but I don't."

While Facebook tended to be the primary channel used by small businesses, there were also challenges associated with using Facebook as a platform for advertising. Charlotte said:

I have found in the 10 years that I have been doing this aspect of the business that it's

getting more and more challenging to market online, and you would think it's getting less and less challenging, but it's not. I find it, it's getting more and more you have to pay to play much more than you had to years back.

Mia saw other benefits to using Facebook outside of her intentional marketing efforts on the platform, especially in light of supply chain issues:

Where I found a benefit to Facebook and I got some last year, but I really saw a difference this year, and I think it had a lot to do with the greater turkey market in that it was hard to find turkeys in stores. So, the number of people in different groups, whether their community groups or just on their personal pages going "Where do I get a turkey?" and the number of people that would tag us. Current customers tagging us, as well as just people in the community that knew we had turkeys so, again, that's your word of mouth, so it's not just what I'm putting out there; it's what other people are saying for me.

### ***Businesses currently have a website or plan to in the future***

Many participants had a website for their business, were in the process of creating a website, or intended to have a website in the future. Many participants also expressed interest in using an e-commerce platform to sell their products directly to consumers. The participants using their websites as a sales avenue saw a significant amount of sales through their e-commerce platform and found it to be a very successful sales avenue. Since launching a website to sell DTC in 2020, Lily saw a rise in sales across the country:

The website was really helpful in just the logistics of getting the product out the door, because before we would, let's say make a sale on Facebook, but you had to have that conversation with the consumer, which was nice, but a lot of consumers just want to go on a website, click what they want, you put in your card information and be done with the sale. They don't want to sit there and have a conversation with the owner of the business that's going to take five or ten minutes to figure out shipping and your address, and this and that.

Charlotte, an employee responsible for managing a winery's marketing and social media, reached a large market by using a website to sell directly to consumers. Originally, the website did not receive many orders, but after Charlotte set up a wine subscription program, sales increased:

Our first [wine club] shipment went out in January of 2018. . . . Our goal was to get 50 members the first year, because we're a small family-owned winery, right. I sent out 76 shipments for the very first shipment. . . . So now four years later, we're just over 900 members.

Sofia was considering using the website as an e-commerce platform:

I sort of thought about, haven't done it yet, maybe making it an e-[commerce] website where they can actually order stuff, but I'm sort of waiting until I got a few more items in the market before I started doing that.

The website for Ella's produce operation was an informational website, and she said the website was outsourced and was managed by someone outside the business, which presented some challenges for keeping it up to date:

We used to do, we had an in-house bakery, so we used to do apple pies and donuts and that was all on the website and then people, we stopped doing them, people were like, "well you're still advertising on your website." So stuff like that you have to keep up with, it has now been taken down, but yeah.

A couple of participants did not currently have a website and were not actively working on launching a website, but they were interested in having a website in the future. Steve said,

Facebook is great. It just seems like . . . everything's always moving. You put another post up, the next one gets squashed down. . . . Having a website that we can say "Hey, if you want to know what we're doing this year, here's a calendar," and whatever else. . . . That's a lot more permanent information to me, rather than promotion.

### ***Finding time to focus on online communication is a challenge***

When asked about social media and online communication use, many participants said they struggled to find time to focus on social media and online communication due to the nature of owning an agricultural business. Amy said, "I'm not to that point yet in the business . . . where I have the time to sit down on the computer to do that. I'd love to. But yeah, it's a lot of time." While Emma used social media for her business, she did not have a website due to lack of comfort with web design and lack of time to learn:

I don't want to pay someone to do it because I feel like that would be an expense we don't really need on the farm. So, I guess that's part of the reason why I haven't done it yet, because I just know, not to blame them, but with young kids, I just don't have much time to just sit and work on something like that.

Even those who engaged in the activities mentioned time as a constraint for being able to more fully engage. Joe was responsible for managing the business's Facebook and Instagram accounts but said he did not have time to figure out some of the features:

There's things that I don't know, such as Reels and Story. I play with those once in a while to try to figure them out. . . . I don't have enough time to be doing that, so if somebody can teach me how to do that, and then I was more confident with it, then it would be easier.

When asked about how comfortable she is managing social media and a website for the business, Lily said she felt pretty comfortable but struggled with balancing promotional roles with production roles: "The only issue I really have with I guess doing that is just the time that I can devote to it because, of course, the dairy farm is my main job."

While time was an issue for many, a couple of participants mentioned how important it was to make time for unique opportunities. Charlotte explained she did not always have time to

dedicate to social media or online communication, but she noted she made an effort to always take advantage of opportunities she encounters:

We had a guy that randomly reached out to us. . . . He does a show on local news. . . . He reached out and said “Hey, I think I’ll come down and do a thing about your cabins” and I said “Okay, cool.” It didn’t cost us a cent. It was seen. It was fed to over a million households by the time it was said and done. Never cost us a cent. So a lot of times, other marketing directors that I talked to here, or other winery owners are like “Oh yeah, I heard from that guy too, we don’t have time for that stuff.” We make time.

### ***Using social media to educate consumers and for marketing***

When asked about social media use, many participants said social media was often used to educate consumers about their industry or products. While most participants said they used their social media for educational purposes, many also noted they used their social media to market their business or products. Some participants also found their educational content and marketing content sometimes blend together, and their educational content can sometimes contribute to their marketing.

Emma said she did not do much advertising because she did not need to: “We’re selling pretty much everything that we’re raising.” When asked whether she used her social media for educational or marketing purposes she said,

Definitely more education, I don’t really push like our products and such... Like in the summertime when we start mowing, I’ll like take a little video of like my husband mowing and you know, just be like “Oh, we’re starting our first cut.” . . . Like during lambing season, I’ll post pictures of the lambs being in the jugs with their moms and kind of what’s going on, what we’re doing.

Noah said,

I would like it to be more marketing, but right now with like, how we’re just starting to get into it, I’m just more or less wanting to educate people on how it’s not bad, and what we’re doing is good for society.

Some participants mentioned doing marketing and educational posts but changing which they did depending on the time of the year. Lily said,

During our big sales. . . our social media is used more for marketing versus like during sugaring season, it’s used more for educational purposes. . . . I’m learning . . . as people are learning about what’s going on and how we’re making the product, that, in turn, is generating sales for us.

Mia said,

I do definitely [try] to share more than I sell, but I probably sell more than I realize, especially towards the fall, but I definitely try to use it as an education. I think that’s probably even more important than the sales because sales will come if people feel

connected to you, they understand what you're producing, they understand what your, how you're producing, they feel confident in what you're doing.

Charlotte said she promoted more than she would prefer because of time constraints, but educational posts were easier to do certain times of the year:

There are times of the year that it's easy to do educational social media posts. For instance, we harvested our ice wine last week, and that's something that people don't know a lot about. . . . It was five degrees outside in the vineyard, but I was out there, and buzzing in for a 30-second live video on and off throughout the morning. Those things are more my goal, to do that education or inspirational, motivational things, because the bottom line is that the people are still going to buy the ice wine when it comes out because they watched the video about it.

When asked whether she used social media for education or marketing, Ella was the only participant to answer "Marketing, hundred percent." Ella was also the only participant who stated she has used social media for hiring purposes: "I did utilize [Facebook] for the last two seasons for employment."

***Online communication is valuable to the success and growth of the business***

Most participants believed their use of social media had contributed to the current success they were experiencing and believed social media will be valuable to the growth of their business in the future. Many participants also noted they found social media to be one of the most effective ways to connect with customers. Mia said,

We've tried print advertising, and we don't get the same response as we do with social media. . . . We've never paid for any social media ads or even done any ads. It's just simply been on our page, so we haven't even ventured in the world of ads and all the other things social media could do for us.

Noah believed his social media and website would be vital to his business in the future, especially as he was growing the business and attempting to reach a larger audience:

Especially with COVID, people not wanting to get out, so they surf the web, and they might come across our website and just be willing to try homegrown products versus going to a store and something like that, shopping local. But I think that'll definitely be our main source of reaching out to people.

Lily also believed social media and her other online communication efforts would be valuable for the businesses continued growth. She said, "I think it's a good easy way for us to connect with consumers, especially as we're trying to grow our business in areas outside of New York State, and it's been really handy in that." Joe said, "When somebody hears about us, what's [the] first thing they do, what do they do? You will check us out on Instagram or Facebook and our website, and so I think you need to have that presence there." Sofia also believed online communication and social media in particular were an important piece of her success and would continue to be in the future:

I have a daughter who's 11, is all about the phone. . . . I don't think she's ever picked up a paper, so she's all about the phone. Reading articles on the phone, looking at Facebook, looking at Instagram, all of that kind of stuff. So I believe, especially now and going into the future, probably Facebook and the social media side is more than even the website, to be honest.

While most participants agreed social media, websites, and an online presence played an important role in their success and would continue to in the future, Emma disagreed. When asked if she believed her social media use contributed to her success, she said,

I feel like it's more the people that do like [the Facebook page] are people that know us already. . . . I don't think a ton of people find us and then are our customers, at least I don't notice, that.

## **RQ2: What support are these businesses looking for to improve their social media and online presence?**

### ***Minimal training, experience, and education related to marketing, social media, and online communication***

When asked about any previous training, education, or experience prior to taking on the management of social media, a website, or other online communication methods, many participants said they had little to none. Mia said she had attended a few workshops focused on marketing with some social media incorporated: "Yeah, social media has been incorporated into a couple like, marketing courses or marketing workshops, I wouldn't even call them courses, but workshops that I've done through Cooperative Extension." Charlotte said she had access to a few commodity-specific organizations that provided trainings:

We're a member of all of those organizations. . . . I could sit in a webinar every single day if I wanted to, and they're all free, and they're good. Many of them are very good. Some of them are paid, and . . . when I want to, I'll say, "Hey, can I have 100 bucks and go to this webinar?"

Emma had also attended a workshop briefly covering social media, but she did not have any further experience. When asked if she has any education or training in marketing or social media, she said "No. Through the New York Beef Producers a couple years ago at the conference, they did a workshop on it, but aside from that, no." Noah did not have previous experience or education, but he planned to participate in a course in the future with a well-known influencer who specializes in teaching DTC producers how to market their meat products and reach a large audience through social media: "So, I signed up for one of the Five Marys courses [an online training website for agricultural marketing], so that'll be my first step to like, just learning a little bit about entrepreneurship and how to reach out to people."

Formal training for participants was limited. Steve mentioned taking a marketing class, but only Lily mentioned a full degree related to marketing:

I have a bachelor's degree in agricultural business, and as part of that degree, I took numerous marketing classes, and when marketing classes were available, those were kind

of the first options that I chose, and actually through this degree, I had realized that in terms of agricultural business, I kind of gravitated towards the marketing side of things.

### ***Interested in educational materials or programs***

While many participants had no previous education or training, many participants expressed an interest in educational materials or courses to learn more about how online communication and social media can support their business goals. Despite interest, some participants indicated there were some problems with the current offerings.

When asked about interest in trainings and educational materials, Steve said, “If you’re going to look at it from a competitive business standpoint just from a personal standpoint, yeah, I mean this is my business. I want to do everything that I can to make it thrive.” Lily also believed it was important to continue to learn, especially as a business owner:

I guess you get so set in your ways of like how you have been using social media that sometimes you don't think outside of the box of like “Okay, I already have it, but now like how can I use it?”, so I think more classes and workshops like that, I think there’s always something to be learned.

Sofia also had the business’s best interest in mind and believed it was important for business owners to remain up to date on a variety of topics to stay relevant and grow. Sofia said she was always reading and believes educational materials specifically for businesses like hers would be beneficial. She said, “I’m always reading and interested to hear what others have to say about how to grow a business. I mean, I’ve obviously got my own views, but I am always looking to improve that as well.” Emma was interested in educational support and preferred in-person training:

I like things in person a lot. . . . If there was a course where I could go and they could like either step by step tell me how to do it or help me do it, or like a document so I could do it at home at night sometime after the kids are asleep, like with exactly what X, Y, and Z I need to do, I guess those two would be my preference.

Mia and Amy both agreed educational materials and courses would be beneficial to their business, but they believed there were problems with the current courses offered. Amy said she had just received an email about an upcoming course hosted on Zoom, but as a dairy farmer, the timing of the course was not ideal: “They’re putting on one of these courses. . . . I looked into it, but there again, the timeframe they’re Zooming in, I’m not going to be here.” Mia believed there were many courses offered that were not adequately promoted:

I just heard about [a training] . . . that was happening last night [that] I had no clue was out there, so I think there’s organizations out there doing those programs, but I don’t think those programs are being promoted as well as it could be.

Mia also wondered which courses were truly beneficial to farmers:

You know, who’s teaching just from the book and who’s teaching, this is what has really worked, and these are New York farms that have done what you want to do, and this is

what really worked for them. . . . So I think any training course for farmers . . . [needs] to be very specific and prove to us that it works and make it very simple.

While many participants agreed they would be interested in educational materials, Ella felt she would probably not be interested and would be more likely to hire a social media manager:

We're . . . in the lifestyle of like, we want it done, . . . and we're all busy right? . . . I would just . . . hire somebody, especially farmers. My dad would never try to attempt to post a darn thing.

### ***Interested in support managing social media or online communications***

Many participants expressed their interest in hiring outside support to manage or assist with social media, a website, or other online communication efforts for the business. Due to the time intensive nature of the agricultural industry, many participants believed they would benefit from this support. Noah said,

I would definitely like to bring in someone, whether it's for [social media management] or I'd like to open up like a farm stand eventually, so like maybe they could do something with the farm stand and the social media side of things, just because it is hard, working and trying to care for the animals while taking pictures and remembering to post it and trying to get other work done.

Lily also saw the benefit of outside support for online communication efforts: "In terms of the ability to just have more . . . posts and more stories yeah. Absolutely, and I think, just like someone that could do that full-time. I could definitely see the benefits from it." Ella was much more interested in hiring someone to manage social media and a website for the business than learning herself, especially because the business has a storefront about two hours from where she lives. When asked about her interest in hiring someone, she said, "I definitely think if you brought someone on full time, . . . they could maybe physically be there more, right, than myself being two hours away and kind of get more up-to-date, day-of stuff." Joe said he was currently in the process of applying to a local grant-funded program matching digital strategy professionals, content creators, and other professionals with local businesses that was coordinated by a private economic development organization. When asked more about whether he believed his operation would benefit from assistance or support managing the business's social media, Joe said,

Everything I've done through our social media is kind of trial and error, what I think is right, and it would be nice to have someone either confirm that or say "no you really should be doing this." So, a professional, that would definitely help us a lot.

For some participants, they believed they could see their operation growing to a size in the future that would warrant hiring outside support to manage their online presence, though they could currently handle the responsibility. Sofia owned multiple businesses and has seen the benefit of hiring someone to focus on managing social media and online communication for the business, but she believed her DTC agricultural business needed to grow more before hiring a similar role:

We're just starting to grow, . . . so I'm kind of in that spot with the farm where we're growing the business, and it's grown every year since we purchased it, and I don't know that I'm at the point where I'm comfortable from a financial perspective to bring somebody on quite yet.

Steve said, "I think that for the time, for right now, we can handle it ourselves." However, he did see the business growing to a size that would warrant hiring someone to manage social media and online communication efforts. Mia had similar feelings about hiring support: "I mean one less thing on my plate, so that I can focus on other things. . . . I could see us getting to the point, and we are looking to grow this year." Emma was not as confident in the benefits of hiring support for online communication: "You have to pay someone to do it, and I don't know if the cost would outweigh the benefits."

### **Conclusions & Discussion**

Participants had Facebook and Instagram for their operations, but they were using Facebook more often, and tended to see more engagement and a larger following on Facebook, which indicates relative advantage was an important attribute for the participants of the study (Rogers, 2003). These results align with Facebook and Instagram being the most widely adopted social media sites in the U.S., after YouTube (Pew Research Center, 2021), as well as the Miller et al. (2023) results for Facebook's popularity among agricultural producers.

Participants either had a website or had plans to launch one, which aligns with increasing trends of online food purchasing, especially since the start of the COVID-19 pandemic (Bakalis et al., 2020; Thilmany et al., 2020). Participants tended to use their online presence for sales and educating the public, which aligns with past recommendations for using social media to foster connections with members of the public (Allen et al., 2010; Varner, 2018).

The participants believed digital marketing has contributed to their businesses' success because they were able to see financial benefit from incorporating digital marketing in their business strategies (Li et al., 2021; Olanrewaju et al., 2020; Rogers, 2003). Time and financial resources were the most prevalent barriers to adoption of digital media marketing and online communication strategies because participants were often running their own social media and had not reached a point where they could hire someone else to manage their social media. Lack of financial resources is a common limiting factor for adopting innovations (Rogers, 2003).

While social media does provide agriculturalists with a platform to market their businesses at no cost, many participants mentioned they wished they knew more about how they should be using the platform to market their business and products, which aligns with past statements about the need for consistent training and resources available for digital marketing (Li et al., 2021; Meyers et al., 2015; Olanrewaju et al., 2020; Pratt, 2018; White et al., 2014) and an overall need for change agents who can help promote more effective adoption (Rogers, 2003). While participants were interested in trainings, those producers who have engaged in trainings were sometimes critical of practical application of information and when trainings are offered, which indicates the needs of the participants were not being met (Bowman et al., 2020; Rogers, 2003). It is worth noting that not all participants had the same preferences, so a mixture of options is probably needed to meet all producers' needs.

Like past research, many participants were running their own social media (Abrams & Sackmann, 2014), but they were interested in hiring someone to manage their online presence if

finances allowed. It is worth noting that past research has found that agricultural operations' Facebook pages are inactive or underused (Bowman et al., 2020; King & Settle, 2020), and the results of this study indicate this could be the results of stress, and the burden of maintaining an agricultural operation is limiting at least some agriculturalists' ability to engage in digital media marketing and online communication (Truchot & Andela, 2018).

### **Recommendations**

The results of this study indicate DTC producers in Upstate New York were interested in educational trainings and resources, but current offerings need to be improved to meet producers' needs, and there were also barriers limiting adoption of digital media marketing and online communication. Communications professionals interested in supporting DTC agricultural businesses should take into consideration the stressful and time-demanding nature of the industry (Truchot & Andela, 2018), especially when developing educational courses or materials for producers who manage their social media instead of hiring externally (Abrams & Sackman, 2014). There is no one-size-fits-all model of training and education: Some producers preferred interactive sessions that would be synchronous, while other producers would preferred asynchronous online options to better fit their schedules. Those seeking to support DTC operations should develop materials that can be engaged with in a variety of ways to ensure they are casting as broad of a net as possible.

In terms of content, participants in the study mentioned concerns about the practicality of current educational offerings, especially from academic sources. For both educational materials and courses, communications professionals should aim to show producers how the information has been successfully applied by other agricultural producers, which aids observability (Rogers, 2003). It may also be beneficial to foster online groups and/or point producers toward existing groups where producers in a region can ask questions and share successful digital media strategies to improve observability of the innovation (Rogers, 2003). This could help reduce the complexity of adopting the innovation (Rogers, 2003).

While Facebook is the most widely used social media site in the U.S. and was the used the most and was positively perceived by participants in the study, the social media landscape has a lot of variety, especially in terms of strengths and weaknesses of different platforms (i.e., relative advantage) and who is using those platforms (Pew Research Center, 2021; Rosner et al., 2019). Change agents supporting online marketing of DTC businesses should continue to promote a variety of options to support targeting of different audiences and because which online options are used the most changes over time. With social media being free to use and being in a very public sphere, trialability and observability of the innovation are high (Rogers, 2003).

If possible, future research should be conducted in person. While there were not any significant challenges in this project, many participants do not use Zoom regularly and may have been more comfortable with an in-person interview (Brinkmann & Kyale, 2018). Future research to further understand DTC producer perceptions, use, and challenges related to social media and online communication would be valuable. Other research methods, for example a content analysis or focus group, could be conducted to gain additional information about producer perceptions, use, and challenges with social media and online communication. Studying DTC producers in other regions and who grow different products would also be beneficial for understanding social media and online communication practices. While broadband access was not mentioned by this study's participants, it is still an area of concern for online DTC

implementation (Low & Vogel, 2011; Whitacre et al., 2014) and should be assessed as a potential barrier, particularly in more rural states.

## References

- Abramovich, G. (2021). 5 e-commerce trends for 2021: What we learned from the 2020 holiday season. *Adobe Experience Cloud Blog*. <https://business.adobe.com/blog/the-latest/e-commerce-2021-what-we-learned-from-2020-holiday-season>
- Abrams, K. M., & Sackmann, A. (2014). Are alternative farmers yielding success with online marketing and communication tools for their social capital and business viability? *Journal of Applied Communications*, 98(3). <https://doi.org/10.4148/1051-0834.1085>
- Abrams, K. M., & Soukup, C. (2017). Matching local food messages to consumer motivators: An experiment comparing the effects of differently framed messages. *Journal of Applied Communications*, 101(4). <https://doi.org/10.4148/1051-0834.1297>
- Adam, B. D., Holcomb, R., Buser, M., Mayfield, B., Thomas, J., O'Bryan, C. A., Crandall, P., Knipe, D., Knipe, R., & Ricke, S. C. (2016). Enhancing food safety, product quality, and value-added in food supply chains using whole-chain traceability. *International Food and Agribusiness Management Review*, 19(A).
- Adams, D. C., & Salois, M. J. (2010). Local versus organic: A turn in consumer preferences and willingness-to-pay. *Renewable Agriculture and Food Systems*, 25(4), 331-341. <https://doi.org/10.1017/s1742170510000219>
- Aday, S., & Aday, M. S. (2020). Impact of COVID-19 on the food supply chain. *Food Quality and Safety*, 4(4), 167-180. <https://doi.org/10.1093/fqsafe/fyaa024>
- Alexander, L. *The Who, What, Why, & How of Digital Marketing*. Hubspot. <https://blog.hubspot.com/marketing/what-is-digital-marketing>
- Allen, K., Abrams, K., Meyers, C., & Shultz, A. (2010). A little birdie told me about agriculture: Best practices and future uses of Twitter in agricultural communications. *Journal of Applied Communications*, 94(3). <https://doi.org/10.4148/1051-0834.1189>
- Aprile, M. C., Caputo, V., & Nayga, R. M. (2016). Consumers' preferences and attitudes toward local food products. *Journal of Food Products Marketing*, 22(1), 19-42. <https://doi.org/10.1080/10454446.2014.949990>
- Bakalis, S., Valdramidis, V. P., Argyropoulos, D., Ahrne, L., Chen, J., Cullen, P. J., Cummins, E., Datta, A. K., Emmanouilidis, C., Foster, T., Fryer, P. J., Gouseti, O., Hospido, A., Knoerzer, K., Lebail, A., Marangoni, A. G., Rao, P., Schlüter, O. K., Taoukis, P., Xanthakis, E., & Van Impe, J. F. M. (2020). Perspectives from CO+RE: How COVID-19 changed our food systems and food security paradigms. *Current Research in Food Science*, 3, 166-172. <https://doi.org/10.1016/j.crfs.2020.05.003>

- Balkrishna, B. B., & Deshmukh, A. A. (2017). A study on role of social media in agriculture marketing and its scope. *Global Journal of Management and Business Research*, 17(1), 33-36. <https://journalofbusiness.org/index.php/GJMBR/article/view/2245>
- Bartik, A., Bertrand, M., Cullen, Z., Glaeser, E., Luca, M., & Stanton, C. (2020). The impact of COVID-19 on small business outcomes and expectations. *The Proceedings of the National Academy of Sciences*, 117(30). <https://doi.org/10.1073/pnas.2006991117>
- Bowman, B., Settle, Q., Tomas, S., & Riggs, A. (2020). Facebook activity of Oklahoma agritourism Facebook pages. *Journal of Applied Communications*, 104(2). <https://doi.org/10.4148/1051-0834.2296>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research In Psychology*, 3(2), 77-101. <https://doi.org/10.1191/1478088706qp063oa>
- Brinkmann, S., & Kvale, S. (2018). *Doing interviews* (2nd ed.). SAGE Publications Inc.
- Creswell, J. W. (2007). *Qualitative inquiry and research design choosing among five approaches* (2<sup>nd</sup> ed.). SAGE Publications, Inc.
- Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design choosing among five approaches* (4th ed.). SAGE Publications, Inc.
- Detre, J. D., Mark, T. B., Mishra, A. K., & Adhikari, A. (2011). Linkage between direct marketing and farm income: A double-hurdle approach. *Agribusiness*, 27(1), 19-33. <https://doi.org/10.1002/agr.20248>
- Feldmann, C., & Hamm, U. (2015). Consumers' perceptions and preferences for local food: A review. *Food Quality and Preference*, 40, 152-164. <https://doi.org/10.1016/j.foodqual.2014.09.014>
- Flick, U. (2009). *An introduction to qualitative research* (4th ed.). SAGE Publications, Inc.
- Flick, U. (2018). *Designing qualitative research* (2nd ed.). SAGE Publications Inc.
- Gibbs, G. R. (2018). *Analyzing qualitative data*. SAGE Publications, Inc.
- Glaser, B. (1965). The constant comparative method of qualitative analysis. *Social Problems*, 12(4), 436-445. <https://doi.org/10.2307/798843>
- Glaser, B., & Strauss, A. (1967). *The discovery of grounded theory*. Aldine.
- Goldy, R., McGarry, J., & Tritten, B. (2020). How food purchasing changed in 2020 - Did we get it right? <https://www.canr.msu.edu/news/how-might-covid-19-change-food-purchases-this-summer>

- Gorham, L. M., Rumble, J. N., & Holt, J. (2015). The impact of local: Exploring availability and location on food buying decisions. *Journal of Applied Communications*, 99(2), 30-43. <https://doi.org/10.4148/1051-0834.1046>
- Govindasamy, R., Hossain, F., & Adelaja, A. (1999). Income of farmers who use direct marketing. *Agricultural and Resource Economics Review* 28(1), 76–83. <https://doi.org/10.22004/ag.econ.31493>
- Graybill-Leonard, M., Meyers, C., Doerfert, D., & Irlbeck, E. (2011). Using Facebook as a communication tool in agricultural-related social movements. *Journal of Applied Communications*, 95(3). <https://doi.org/10.4148/1051-0834.1164>
- Grunert, K. G., Sonntag, W. I., Glanz-Chanos, V., & Forum, S. (2018). Consumer interest in environmental impact, safety, health and animal welfare aspects of modern pig production: Results of a cross-national choice experiment. *Meat Science*, 137, 123-129. <https://doi.org/10.1016/j.meatsci.2017.11.022>
- Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? *Field Methods*, 18(1), 59-82. <https://doi.org/10.1177/1525822X05279903>
- Hall, K., & Rhoades, E. (2010). Influence of subjective norms and communication preferences on grain farmers' attitudes toward organic and non-organic farming. *Journal of Applied Communications*, 94(3). <https://doi.org/https://doi.org/10.4148/1051-0834.1192>
- Kallio, H., Pietilä, A., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: developing a framework for a qualitative semi-structured interview guide. *Journal of Advanced Nursing*, 72(12), 2954-2965. <https://doi.org/10.1111/jan.13031>
- Katare, B., Marshall, M. I., & Valdivia, C. B. (2021). Bend or break? Small business survival and strategies during the COVID-19 shock. *International Journal of Disaster Risk Reduction*, 61, 102332. <https://doi.org/10.1016/j.ijdrr.2021.102332>
- Kepios. (2022). *Global Social Media Stats*. Data Reportal. <https://datareportal.com/social-media-users>
- King, A. E. H., & Settle, Q. (2020). Examining the social properties of Oklahoma agricultural Facebook pages: A quantitative content analysis. *Journal of Applied Communications*, 104(4). <https://doi.org/10.4148/1051-0834.2347>
- Koçak, N. G., Kaya, S., & Erol, E. (2013). Social media from the perspective of diffusion of innovation approach. *The Macrotheme Review*, 2(3), 22-29.
- Langusch, L., Cartmell, D., Settle, Q. (2023) The Steaks Are High: COVID-19's Impact on Direct-To-Consumer Marketing in the Oklahoma Beef Industry. *Journal of Applied Communications*, 1(107). <https://doi.org/10.4148/1051-0834.2457>

- Li, F., Larimo, J., & Leonidou, L. C. (2021). Social media marketing strategy: definition, conceptualization, taxonomy, validation, and future agenda. *Journal of the Academy of Marketing Science*, 49(1), 51-70. <https://doi.org/10.1007/s11747-020-00733-3>
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage
- Low, S.A., & S. Vogel. (2011). *Direct and intermediated marketing of local foods in the United States*. U.S. Department of Agriculture, Economic Research Service (ERR). Economic Research Report No. 128. [https://www.ers.usda.gov/webdocs/publications/44924/8276\\_err128\\_2\\_.pdf?v=0](https://www.ers.usda.gov/webdocs/publications/44924/8276_err128_2_.pdf?v=0)
- Meyers, C., Shaw, K., Irlbeck, E., Doerfert, D., Abrams, K., & Morgan, C. (2015). Identifying agriculturists' online communication tool training needs. *Journal of Applied Communications*, 99(3), 6-20. <https://doi.org/10.4148/1051-0834.1052>
- Miller, K., Settle, Q., King, A. E. H., & Kisling, B. (2023). How agritourism operators make marketing and promotion decisions. *Journal of Human Sciences and Extension*, 11(1), <https://doi.org/10.55533/2325-5226.1377>
- National Agricultural Statistics Service. (2017). *Census of agriculture state profile - New York*. United States Department of Agriculture. [https://www.nass.usda.gov/Statistics\\_by\\_State/New\\_York/index.php](https://www.nass.usda.gov/Statistics_by_State/New_York/index.php)
- Olanrewaju, A.-S. T., Hossain, M. A., Whiteside, N., & Mercieca, P. (2020). Social media and entrepreneurship research: A literature review. *International Journal of Information Management*, 50, 90-110. <https://doi.org/10.1016/j.ijinfomgt.2019.05.011>
- Park, T., Mishra, A. K., & Wozniak, S. J. (2014). Do farm operators benefit from direct-to-consumer marketing strategies? *The Journal of the International Association of Agricultural Economists*, 45(2), 213-224. <https://doi.org/10.1111/agec.12042>
- Pew Research Center (2021). *Internet/Broadband fact sheet*. <https://www.pewresearch.org/internet/fact-sheet/internet-broadband/>
- Pratt, S. (2018, January). More farms embrace social media focus. *The Western Producer*. <https://www.producer.com/>
- Pulizzi, J. (2012). The rise of storytelling as the new marketing. *Publishing Research Quarterly*, 28(2), 116-123. <https://doi.org/10.1007/s12109-012-9264-5>
- Rogers, E. M. (2003). *Diffusions of innovations* (5th ed.). Free Press
- Rutsaert, P., Pieniak, Z., Regan, Á., McConnon, Á., Kuttischreuter, M., Lores, M., & Verbeke, W. (2014). Social media as a useful tool in food risk and benefit communication? A strategic orientation approach. *Food Policy*, 46, 84-93. <https://doi.org/10.1016/j.foodpol.2014.02.003>

- Schmidt, C., Goetz, S., Rucker, S., & Tian, Z. (2020). Google searches reveal changing consumer food sourcing in the COVID-19 pandemic. *Journal of Agriculture, Food Systems, and Community Development*, 1-8. <https://doi.org/10.5304/jafscd.2020.093.032>
- Seeger, H., & Wilson, R. S. (2019). Diffusion of innovations and public communication campaigns: An Examination of the 4R nutrient stewardship program. *Journal of Applied Communications*, 103(2). <https://doi.org/10.4148/1051-0834.2234>
- Stebner, S., Baker, L. M., Hanawa, H., & Boyer, C. R. (2017). Marketing with more: An in-depth look at relationship marketing with new media in the green industry. *Journal of Applied Communications*, 101(2), 7-18. <https://doi.org/10.4148/1051-0834.1001>
- Telg, R., & Barnes, C. (2012). Communication preferences of Florida Farm Bureau Young Farmers & Ranchers. *Journal of Applied Communications*, 96(2). <https://doi.org/10.4148/1051-0834.1155>
- Thilmany, D., Canales, E., Low, S. A., & Boys, K. (2020). Local Food Supply Chain Dynamics and Resilience during COVID-19. *Applied Economic Perspectives and Policy*, 43(1), 86-104. <https://doi.org/10.1002/aapp.13121>
- Trochim, W. M. K. (n.d.). Qualitative validity. In *Research methods knowledge base*. <https://conjointly.com/kb/qualitative-validity/>
- Truchot, D., & Andela, M. (2018). Burnout and hopelessness among farmers: The Farmers Stressors Inventory. *Social Psychiatry and Psychiatric Epidemiology*, 53, 859-867. <https://doi.org/10.1007/s00127-018-1528-8>
- United States Department of Agriculture. (2016). *Direct Farm Sales of Food*. [https://www.nass.usda.gov/Publications/Highlights/2016/LocalFoodsMarketingPractices\\_Highlights.pdf](https://www.nass.usda.gov/Publications/Highlights/2016/LocalFoodsMarketingPractices_Highlights.pdf)
- Varner, J. (2018). *Agriculture and social media* (Information Sheet 1946). Mississippi State University. <https://extension.msstate.edu/sites/default/files/publications/information-sheets/is1946.pdf>
- Veil, S. R. (2010). Identifying adoption barriers in organizational rhetoric: A response to the strategic plan for the National Animal Identification System. *Journal of Applied Communications*, 94(1), 33-48. <https://doi.org/10.4148/1051-0834.1185>
- Weersink, A., von Massow, M., Bannon, N., Ifft, J., Maples, J., McEwan, K., & Wood, K. (2021). COVID-19 and the agri-food system in the United States and Canada. *Agricultural Systems*, 188, 103039. <https://doi.org/10.1016/j.agsy.2020.103039>
- Whitacre, B. E., Gallardo, R., & Strover, S. (2014). Broadband's contribution to economic growth in rural areas. *Telecommunications Policy*, 38(11), 1011-1023. <https://doi.org/10.1016/j.telpol.2014.05.005>

White, D., Meyers, C., Doerfert, D., & Irlbeck, E. (2014). Exploring agriculturalists' use of social media for agricultural marketing. *Journal of Applied Communications*, 98(4).  
<https://doi.org/10.4148/1051-0834.1094>