

Extension Education

Minority-Owned Agricultural Businesses and Challenges with the Paycheck Protection Program: Seeking Ways to Reach Farmers

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Abstract

The Paycheck Protection Program (PPP) was a source of relief to agricultural producers during COVID-19, but it did not reach all farmers equally. Areas with a higher population of female and African American producers had lower PPP approval rates due to lack of knowledge about eligibility and the application process. Through in-person interviews with Extension specialists and farmers, we identified the communication strategy used to inform minority farmers about the PPP. Lending institutions, associations, and government agents were part of disseminating information on the PPP. Information was shared via word of mouth, emails, phone calls, social media, and online meetings. We find that these communication methods were not as effective as they could have been in reaching minority farmers. We provide recommendations to increase the efficiency of the communication methods used in reaching minority farmers: (1) building a connection with farmers prior to using online resources; (2) using personalized communications; and (3) seeking partnerships to leverage their social capital.

1 Introduction

Access to information, financial capital, and other tangible/intangible resources play an important role in creating a resilient farm business. Barriers to accessing such resources can result in significant impacts on running a farm business, as witnessed through the decline in the numbers of farms within certain minority-owned agricultural production groups (Brown, Dagher, and McDowell 1992). Among the barriers to access resources are a lack of knowledge about eligibility and the application process. The additional challenges faced by minority farmers in accessing financial capital have garnered significant discussions on providing additional resources for these groups, reflected in the Farm Service Agency's programs for minority and women farmers and ranchers. Yet, how to improve access to government programs for these groups, especially in a time of great economic turmoil, remains a question.

The COVID-19 pandemic was an economic turmoil that led to great challenges for small businesses. The U.S. government introduced the Paycheck Protection Program (PPP) to help small businesses withstand the economic crisis caused by the pandemic. In 2020 and 2021, the U.S. Small Business Administration (SBA) distributed almost \$12 million forgivable loans through the PPP. Loans could be used toward expenses such as payroll, rent, mortgage interest, utilities, and worker protection costs related to COVID-19. Agriculture was among the industries contemplated in the program. Although it was a low-cost and effective program for those who applied and received the loan, many eligible farmers and ranchers did not apply for the PPP. Regions and states with a higher population of female and African American producers had lower PPP approval rates.

Studies document that small businesses owned by ethnic minorities were more vulnerable to the pandemic (Fairlie 2020). Beyond the economic turmoil, studies have shown that minority farmers and ranchers had greater difficulties with the PPP loans. Demko and Sant'Anna (2023) showed that non-white-

, Hispanic-, and female-owned small businesses received smaller PPP loans than their business counterparts of the same size. In addition, female-owned businesses in rural counties received smaller PPP loans per employee than female-owned businesses in urban counties. African American agricultural producers living in rural counties or belonging to low- to moderate-income groups received lesser amounts of PPP loans (Sant'Anna, Kim, and Demko 2022). Such hardships put an additional burden on minority farmers who already suffer from lower production value, net cash farm income, government payments, assets, and debts compared to other U.S. farms (Collins et al. 2022).

The main purpose of this manuscript is to identify the ways used to communicate with female and African American farmers about government programs that they are eligible for, particularly programs that are not specifically for agriculture. How can we increase minority farmer participation in programs not specifically designed for them? We attempt to answer this question by analyzing responses from one-on-one interviews with Extension agents and farmers. We identify the current communication methods and provide recommendations for how to communicate with minority farmers for future consideration. Specifically, we are focusing on how the Extensions communicate with female and African American farmers.

Interviews conducted with Extension agents, specialists, and minority farmers suggest that information providers relied heavily on online platforms and social media for information dissemination. We argue that such approaches ignored the challenges of internet access in rural communities, the lack of internet literacy among aging farmers and certain minority groups, as well as the mistrust in government programs. We believe that these are possible explanations for the low participation rate of agricultural producers in the PPP. This paper is split into five sections: (1) the introduction of the topic; (2) an overview of minority farmers participation in the PPP; (3) an explanation of interview procedures and a discussion of interview findings on information channels; (4) recommendations for communicating information to minority farmers about broadly targeted government programs; and (5) recommendations on disseminating information for these groups in the future.

2 Minority Farmers and Their Participation in the PPP

The term “minority farmers” has various interpretations among institutions servicing farmers. The U.S. Department of Agriculture (USDA) uses the term to describe socially disadvantaged farmers and ranchers. This includes farmers who are African American, American Indian, Alaska Native, Hispanic or Latino, and Asian or Pacific Islander. Other government entities such as the Farm Service Agency include women under the definition of historically underserved farmers. In this paper, we focus on female and African American farmers. For female farmers, we examine women of all races.

Past Agricultural Census data reveals that while the share of women in agriculture has increased, that of African American farmers has declined. Although the number of African American farmers greatly increased between 2007 and 2012, the 2017 Ag Census shows that the number of African American principal operators decreased in 2017, representing 1.4 percent of the farming population. The number of U.S. women-operated farms has been growing. When counting principal and secondary farm operators, the number of female farmers reached 1 million in 2007 or 30 percent of all U.S. farmers (Hoppe and Korb 2013). Even though these groups represent smaller shares among principal producers in the United States, they could have benefitted from participation in the PPP.

The PPP had two rounds in 2020 and 2021. The SBA provided loan forgiveness to businesses that spent at least 60 percent of the loan on payroll expenses (Autor et al. 2022). Rules of eligibility changed between these two rounds, changing the distribution of loans according to business size. The SBA provided official guidance on how to quantify the maximum amount of a PPP loan for different types of businesses, including for self-employed farmers (U.S. Small Business Administration 2020a). In 2020, small businesses with less than 500 employees per branch or location could qualify for a loan. In 2021, only businesses with less than 300 employees could apply. Furthermore, these businesses had to show

financial losses due to COVID-19 restrictions. As a result, the PPP reached smaller farms in 2021. In total, farmers received more than 600,000 loans or \$17 billion through the PPP (Demko et al. 2021). The average loan size was \$19,000 in 2021 compared to \$58,000 in 2020 (Demko, Sant'Anna, and Liang 2021). Although these numbers may seem large, the total amount of PPP loans distributed among farmers was less than what could have been achieved (U.S. Small Business Administration 2020b; Giri et al. 2021).

Small businesses could apply for a PPP loan through SBA-approved lending institutions including deposit-taking banks, credit unions, Farm Credit Associations, Fintechs, Community Development Financial Institutions, and so on. Although the SBA provided an application form for the PPP loan to the applicants, every lender required different information from them. Lending institutions that processed the PPP applications received revenue fees paid by the U.S. Treasury in exchange. Financial support to the recipient came from the federal government, removing any risk faced by approved institutions and motivating them to reach out to eligible small businesses. Among farmers, 55 percent of approved loans covered payroll only (Demko et al. 2021), even though there were other allowable expenses (e.g., rent).

Table 1 provides the number of PPP recipients by minority status with North American Industry Classification System (NAICS) Code 11 "Agriculture, Forestry, Fishing, and Hunting" and compares to the 2017 Ag Census. We observe that 27,312 PPP recipients were female, equivalent to 12.5 percent of those who answered their gender as either male or female. This percentage is significantly lower than that of female primary operators reported in the 2017 Ag Census, which was 29 percent. Among African American recipients, we notice a closer share of PPP recipients relative to the share of African American primary producers. A total of 4,613 PPP recipients were African American, representing ~3 percent of those who answered their race, higher than 1.4 percent of the 2017 Ag Census. Overall, the number and the share of minority farmers in the PPP data suggest that the rate of participation (or receiving the loan) was lower for the female and higher for the African American producers compared to the population represented by the most recent census. However, it must be noted that many PPP recipients did not disclose their demographic information, so the interpretation of the results needs caution (Atkins, Cook, and Seamans 2021; Sant'Anna et al. 2022).

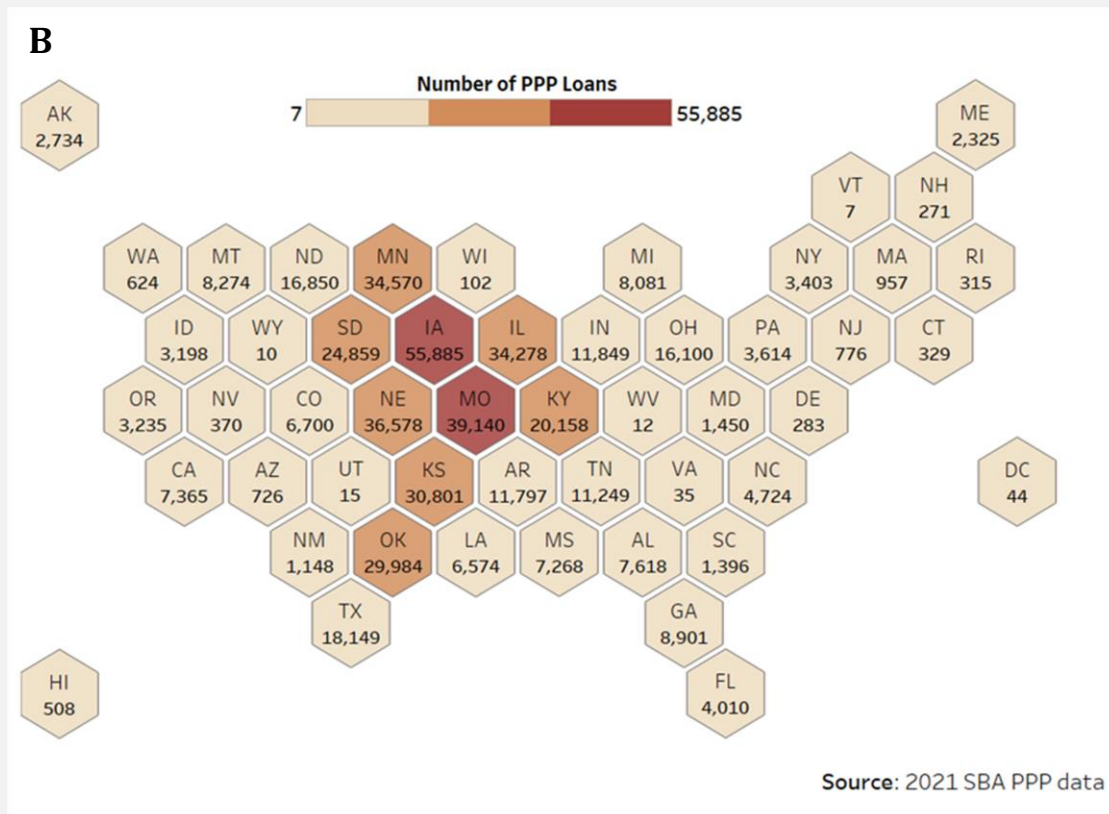
Table 1: Number and Shares of PPP Recipients and Primary Operators by Minority Status

	PPP Recipient (%)	2017 Ag Census Primary Operator (%)
Female-owned	27,312 (12.46%)	798,500 (29.14%)
African American-owned	4,613 (2.99%)	38,447 (1.40%)
African American-owned, Female	1,105 (0.7%)	8,746 (0.3%)

Note: Percentages in brackets represent the share of PPP recipients or primary operators that are African American or Female over the total.

This low participation could be linked to the fact that farmers had less familiarity with SBA. At the federal level, producers are used to participating in programs administered by the USDA and Natural Resources Conservation Service (NRCS), not by the SBA. In fact, Giri et al. (2021) finds that the participation rate in the Coronavirus Food Assistance Program, a program administered by the USDA, had a higher participation rate than that of the PPP. Also, as shown in Figure 1.A and 1.B, a strikingly low number of PPP participation in certain states, even after considering the number of farms and ranches, questions the effectiveness of information flow to farmers at the local level.

Low approval rates could have come from the lack of information about the PPP. Demko and Sant'Anna (2023) find that small business applicants had to fill out multiple application forms with different lenders to increase their chances of acceptance. Approval was especially difficult for businesses requesting smaller loans, and many businesses believed themselves to be ineligible (Demko and Sant'Anna 2023). Given the different nature of agribusinesses, we believe a look at the reasons why



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minority farmers applied or did not apply to the PPP is warranted. Could it also be linked to communication issues?

3 Interview Procedures and Findings

To gain insights on actual challenges and experiences concerning information dissemination about PPP loans, we interviewed a total of 10 Extension specialists and farmers in Mississippi and West Virginia during Spring 2023. The interviews were IRB-approved and are registered under the project IRB-23-577. Interviews were conducted in Mississippi because it has the highest percentage of African American farmers in the nation. The participation rates of Mississippian farmers in the PPP were 7.7 percent in 2020 and 20.8 percent in 2021, numbers that are close to the national average. Interviews were also conducted in West Virginia because it had a remarkably low participation rate in the PPP in both years, 11 producers in 2020 and 12 in 2021.

The interviewees included agricultural economics Extension specialists, community development specialists, minority farmers who received the loan, and those who did not receive the loan. Respondents were interviewed either in person, online, or over the phone. Farmers and Extension agents were contacted via email and in person at conferences targeted at farmers and other stakeholders. Respondents were asked to answer up to 12 questions. Separate interview questions were set up for (1) Extension agents, (2) PPP recipients, and (3) PPP non-recipients (including those that applied and were denied, and those that did not apply). Interview questions are shown in the Appendix. Two major topics of the questions were (1) individual experience with the PPP information assessment and application process and (2) experience with other general information dissemination. Based on the flow of the interview, additional questions were asked. Farmers who participated in the interviews were characterized by the Ag Census as small farms.

Interviewees allowed us to identify different channels involved in disseminating PPP loan information to farmers (Figure 2). These channels were lending institutions (e.g., banks), associations (e.g., chamber of commerce), and agents (e.g., University Extension and SBA agents). Information was disseminated through various media: word of mouth, emails, phone calls, social media (e.g., Facebook, internet), and online meetings. As discussed previously, multiple analyses from the literature reveal that PPP approval among minority farmers was lower than it could have been. As such, the overall effectiveness of these outlets needs to be reviewed. In the rest of this section, we discuss the communication methods used and why we believe they were not as effective as they could have been.

Communication about the PPP from the SBA to farmers came in different formats. SBA had a dedicated section on its website with detailed information about the PPP loans, rules of the program, eligibility criteria and requirements, application forms, and updates. Beyond website posts or conducting live sessions, it also relied on other institutions to spread information on the program, including third parties such as news and social media, University Extension services, and lending institutions.

During COVID-19, many states mandated a lockdown, and meeting in person was strongly discouraged. As such, the number of in-person meetings normally hosted by the local government, Extension, and cooperative was limited or was moved online—a huge disadvantage for farmers and others, who value in-person meetings and the interaction with their peers and Extension agents. “I love the Extension agencies. I learn a lot at the workshops,” mentioned one woman farmer. Yet, dissemination of information about the PPP occurred mostly online through government platforms and social media. Indeed, one of the interviewed Extension specialists who dealt with PPP information dissemination recognized that heavy reliance on online platforms without giving in-person training and workshops played a role in the low participation numbers.

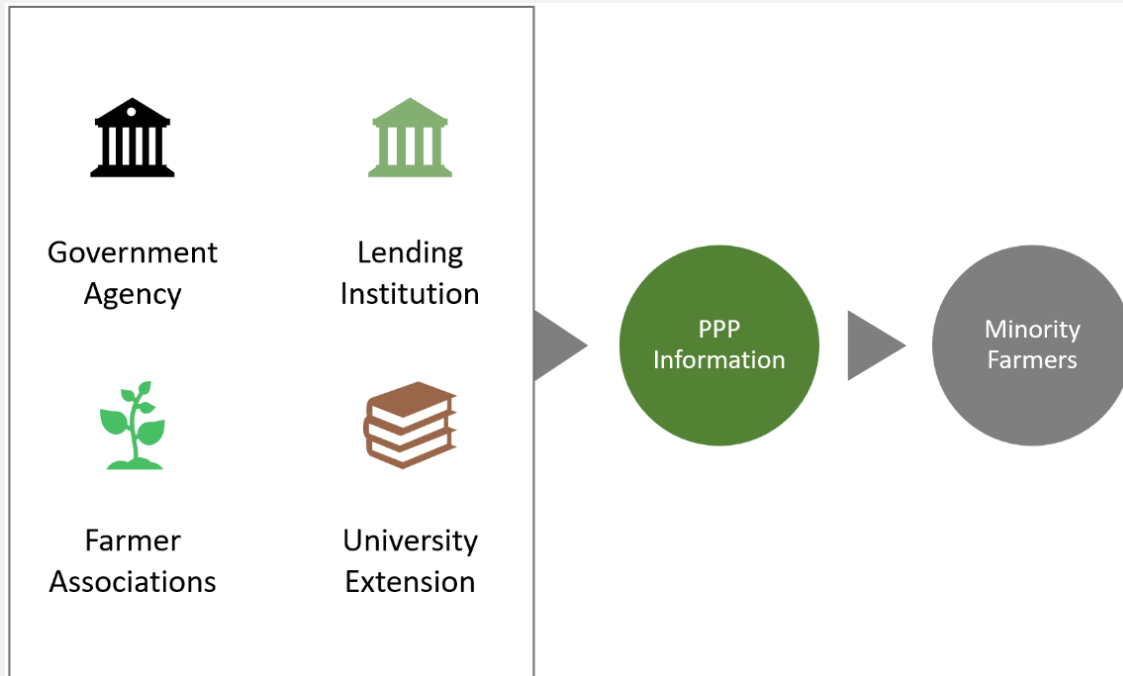


Figure 2: Information Channels About the PPP to Minority Farmers

Focusing only on online platforms to disseminate information on a government program can be problematic, especially for rural agricultural producers. Many farmers may not have access to reliable internet, as one interviewee stated. Rural counties are more likely to have low-quality internet access compared to urban counties, as documented by the Federal Communications Commission (2020). The 2017 Ag Census shows that only 60 percent of African American farmers have access to the internet, compared to 76 percent of white farmers. Unreliable internet access means that a farmer may need to fill out the same form multiple times due to flaky internet connections. Thus, agricultural producers, including minorities in rural counties, faced greater challenges in accessing information only available online.

Another factor that may limit the use of online platforms is the aging agricultural producer (64.5 percent of principal producers are at least 55 years or older) that grew up without using the internet or a smartphone and may not be as fluent with it as younger business owners. On average, the age of female principal producers is just below 59, while for African Americans it is 60 (U.S. Department of Agriculture, National Agricultural Statistics Service 2019). In fact, one interviewee shared that she prefers to fill out application forms on paper instead of online. Yet, applications for the PPP had to be done online.

The preference for filling out applications on paper instead of online does not mean that online communications are inefficient. For instance, female producers pay attention to information on social media and emails; however, they give greater value to the communication when they know who it is coming from. One woman farmer interviewed mentioned how she did not trust social media content and will pay more attention to emails that come from Extension agents and agriculture department personnel she already knows. This was not always the case for the PPP because Extension agents were not well versed in it. It was a new program, from which they did not receive much training or information to advise farmers.

PPP information was also advertised using social media such as Facebook and Twitter. While these can work very effectively with some business owners, it does not work well with everyone. An African American farmer commented that many African American farmers in the local agricultural

cooperative did not sign up for the PPP due to the mistrust over the information available online through social media platforms such as Twitter. In particular, they mistrusted the information that the PPP loans offered extremely low interest rates (1 percent). As such, information dissemination about the PPP to farmers was challenging. It was a new government program administered by the SBA instead of the USDA, which farmers were normally familiar with. Farms are unlikely to have participated in any of the SBA programs before the beginning of the pandemic.

Information on the PPP via online platforms would have been more efficient if they were personalized and coming from people they knew. This was challenging because Extension agents were not well versed in the PPP as they are with other programs specifically designed for farmers. There was limited information targeting agricultural producers, especially at the beginning of the first round. Many agricultural Extension specialists were not aware of the PPP loans or had a hard time keeping up with its changing rules, showing the disconnect between the valuable information outlet and the government agency. “There were no training or canned materials as there are with USDA programs,” said one of the Extension agents interviewed.

Farmers also indicated they heard about the PPP through their association or a lending institution. These agents communicated via email or phone. A female agribusiness owner said that she heard about the PPP from a non-bank (e.g., a Fintech) and from the local chamber of commerce she is part of. Lending institutions were motivated to inform their clients about the PPP because they earned fees based on the loan amount. One interviewee mentioned that he first heard of PPP loans and eligibility from his banker. However, this meant that, at times, banks would only reach out to those businesses that were eligible to apply for higher loan amounts. A respondent said that she never heard anything about the PPP from her bank but rather from her employee that had ties to another lending institution.

Lack of transparency and misinformation were some of the challenges with PPP information dissemination because even its name could also be misleading. Just hearing the name was enough for some farmers to lose interest in it, believing themselves to be ineligible. One female farmer interviewee shared, “I did not know that I was eligible for PPP.” Another interviewee stated lack of a paycheck as one of the main reasons they did not apply. After all, they did not hire other workers or pay themselves from the farm revenues. One business owner mentioned, “My goal was not to get into SBA lens unless something dire is going on.”

Interviews conducted identified three reasons for low PPP approvals by minority farmers: (1) a lack of training of Extension agents and material for dissemination on the PPP; (2) heavy reliance on online platforms for both advertisement and application; and (3) a lack of transparency and misinformation. In the next section, we provide recommendations on how to better inform minority farmers on government programs that do not specifically target minority farmers.

4 Recommendations for Communicating with Minority Farmers About Broadly Targeted Government Programs

In the previous section, we discussed the different outlets used by the SBA to disseminate information, including online platforms and third parties such as University Extension and lending institutions. The communication channels used could have been more efficient in reaching minority farmers. In this section, we focus on recommendations that would help improve the effectiveness of the communication strategies used.

4.1 Do Not Overlook the Importance of Building Relationships with Minority Farmers

Online platforms for information dissemination are more effective when you build a connection with the audience you are trying to reach. How can agents connect with minority farmers and gain their trust?

Extension and government agents rely on workshops, seminars, conferences, and grower group meetings to meet and get to know their audience. This is a great avenue to build a relationship with farmers because they value in-person meetings. One downside is that the participation rate by minority agricultural producers of local agricultural Extension- and government agency-sponsored meetings is lower than desired. One of the agricultural economics Extension specialists recalled that most of the local meetings they attended targeted row crop producers with an extremely low number of African American participation. A reason for the low participation from minority farmers is that they are more likely to be small-scale (Schmidt, Goetz, and Tian 2021) rather than row crop producers (Table 2 and 3). As such, they are less likely to attend local meetings where large-scale commodity producers are the focus. Female and African American farmers are concentrated in cattle and other crops, but not grains. While sessions focused on cattle could also reach these groups of farmers, it becomes harder to reach those involved in other crops when most sessions focus on grain producers. Row crop production represents a significantly smaller portion of female and African American producers compared to white and male producers.

Table 2: Number and Shares of PPP Recipients and Primary Operators by Gender

Specialty (NAICS)	PPP Data		2017 Ag Census	
	Female	Male	Male	Female
Oilseed and grain (1111)	44.95%	33.38%	17.27%	8.86%
Vegetables	1.38%	3.11%	2.15%	2.57%
Fruit and tree (1113)	1.54%	2.98%	4.66%	5.49%
Greenhouse (1114)	1.11%	3.34%	2.12%	2.75%
Other crop (1119)	7.57%	11.90%	21.91%	21.81%
Cattle (1121)	38.23%	38.89%	35.20%	31.77%
Hog (1122)	1.87%	1.60%	1.19%	1.04%
Poultry (1123)	2.38%	2.88%	2.16%	2.58%
Sheep (1124)	0.53%	1.25%	3.95%	6.85%
Aquaculture (1125)	0.45%	0.68%	9.40%	16.28%

Source: SBA PPP Data, 2017 Census of Agriculture

Table 3: Number and Shares of PPP Recipients and Primary Operators by Race

Specialty (NAICS)	PPP Data		2017 Ag Census	
	White	African American	White	African American
Oilseed and grain (1111)	44.47%	12.26%	16.42%	7.09%
Vegetables	0.95%	4.35%	2.03%	6.62%
Fruit and tree (1113)	1.21%	2.72%	4.55%	2.73%
Greenhouse (1114)	0.94%	5.50%	2.21%	1.22%
Other crop (1119)	6.67%	57.51%	22.71%	17.66%
Cattle (1121)	40.48%	12.75%	33.65%	50.12%
Hog (1122)	1.75%	0.63%	1.14%	1.24%
Poultry (1123)	2.48%	1.99%	2.15%	1.25%
Sheep (1124)	0.69%	0.49%	4.26%	3.82%
Aquaculture (1125)	0.36%	1.81%	10.89%	8.23%

Source: SBA PPP Data, 2017 Census of Agriculture

Female producer participation at local meetings is also low, with time constraint being a major factor. Our interview responses suggest that female farmers face extra time challenges, as they juggle household and family responsibilities with farm activities and, often, an off-farm job. Not having childcare options and long travel distances to the meetings factor into the women's ability to attend Extension events. Although attending online events can reduce travel distance, access to quality internet may become a barrier to participating. Hybrid meetings with recordings offer flexibility and provide more opportunities for all participants to absorb the information.

As such, the best way to build relationships with minority farmers is to organize seminars or meetings that target small-scale farms or productions where minority farmers are heavily engaged. Homogeneous group learning sessions can enhance the learning experience because a participant may feel more connected (Powell et al. 2019). Barbercheck et al. (2009) finds that a significant percentage of female producers preferred to attend educational events specifically designed for them. Conversations with Extension agents also revealed that female producers feel more comfortable engaging in groups predominantly female, such as women in agriculture conferences, women in ag associations, and Annie's Project. This suggests that the race, gender, and ethnicity of the information provider also matter. Homogeneous characteristics between the information provider and the receiver are found to be key factors in guaranteeing the receiver's increased engagement and acceptance of information (Kulik and Holbrook 2000; Beck, Behr, and Madestam 2018). A homogeneous group setting also helps build a personal connection between the informer and the receiver. The interviews suggest that the producers are more likely to apply for a government program if they receive a personalized notification from an Extension agent or other agency that they trust and have had contact with before.

4.2 Use of Online Communications Is More Effective When Personalized

The recent trend of switching from a physical workplace to an online setting has reshaped how people interact and work. This trend has changed communication strategies in the agricultural sector, which has seen an intensity in the use of the internet to communicate and apply for government programs. The interviewed Extension agents, regardless of their institutions, were found to reach out to both female and African American farmers using a variety of methods, including (1) social media (e.g., Facebook, YouTube, or Instagram), (2) email and snail mail, (3) phone, (4) radio and television, (5) podcasts, and (6) seminars and workshops (Figure 3). Extension agents reported conducting podcasts on YouTube, setting up Facebook pages for certain farm groups, and advertising on the radio and tv channels when unique events occur.

The use of social media and the information available from trustworthy institutions could be helpful in reaching out to minority farmers, especially the female producers and those who cannot participate in in-person or real-time events. Our recommendation is not to avoid this type of communication but to make sure that it is personalized and comes from a person that the farmer knows and trusts. For those who prefer a more personalized means of communication, the use of data management software, list serves, and canned information as suggested by Extension agents is helpful in personalizing material and emails.

Once a bond between the informer and producer is formed, online platforms become more effective. Since women producers can be reached via social media (e.g., Facebook or Instagram), partnering with influencers to disseminate information on government programs may be an option. Influencers have a large following, allowing them to quickly spread the word about upcoming conferences, workshops, or government programs. Agents could use influencers to advertise about consultation booths at libraries to help female producers apply for government programs.

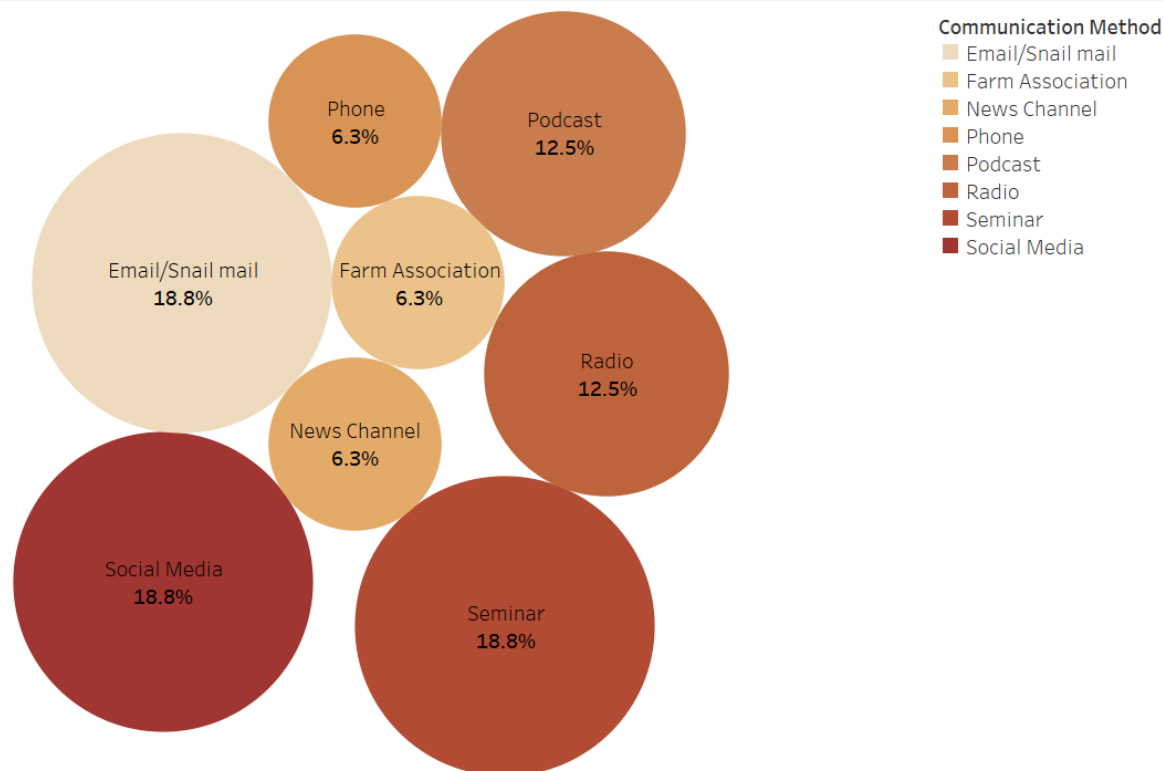


Figure 3: Common Methods of Communication Cited by Extension Agents

One female producer interviewed mentioned how she appreciates being able to work on a printed application form for a government program with the help of NRCS. Right now, she does this over the phone, and the NRCS agent then sends her copy of the application by mail, which she then corrects and approves prior to having the NRCS agent send it off. Having a booth in the library would allow the producer to get help with an expert agent and use the library computers and internet to send off the application on the same day.

Other forms of communication can be used to reach out to farmers without internet access. For farmers without internet access, creating a call tree during the conferences could be a means to quickly reach a larger sample of farmers when a new program is out. This leverages the networks created in events, such as Annie's Project. The calling tree could potentially be turned into a texting tree if needed.

4.3 Seek Partnerships to Leverage Social Capital

Partnering with organizations specifically affiliated with the minority producers can help spread the information. For approaching African American agricultural producers, collaboration with local minority cooperatives could be considered. During the interview process, it was found that a local minority cooperative identified more names of African American producers from the PPP list than the local Extension service could. This was an indication that ethnic minority producers were more affiliated with the race-specific cooperative than general Extension services.

Beyond collaborating with agriculture-specific groups, Prins and Ewert (2002) suggest partnering with faith-based institutions to leverage their social capital. This indeed was the case for an African American farmer interviewee, who mentioned that he was informed about the PPP within his church organization. Thus, working with the local church could be helpful for information dissemination for certain ethnic minority groups. According to Burlig and Stevens (2024), church is a channel where information dissemination among farmers occurs, separated from agricultural Extension services. For

female farmers, setting up consulting and information booths in libraries could be a way to reach them during the time they take their children to the library. Libraries make a great place to inform female farmers about new seminars or programs and to aid with program applications. In rural areas, libraries are an important source of materials for homeschooling, and they also provide activities for children and families as well as having internet available. Hancks (2012) finds that libraries play a successful role in community economic development, allowing the community to develop relationships with local agencies.

5 Concluding Remarks

During COVID-19, the U.S. government instituted the PPP to help small businesses by providing them with a forgivable loan to help them meet their business expenses. In this study, analysis of the program shows that female and African American agricultural producers did not participate as much as possible, despite the extremely low cost of the program. We believe that the low participation rate is, in part, due to a lack of efficiency in communicating about the program to minority farmers. Hence in this study, we identify the ways used to communicate with female and African American farmers about government programs, such as the PPP, that are not specifically designed for agricultural producers.

We report on how the PPP was communicated to farmers and how it was received by minority farmers. Our interviews highlight the challenges in reaching women and African American farmers: (1) cancellation of in-person meetings because of health concerns meant that PPP information had to be disseminated through other means (i.e., online); (2) misinformation from past government programs and lack of training of Extension agents on the program meant that eligible applicants did not think they could apply for PPP loans; (3) heavy reliance on online platforms without personalizing the information to the receiver or without it coming from providers who the receivers knew; and (4) a lack of information for farmers with limited internet access and without a lender relationship. Communication methods used were more effective in reaching businesses that would have requested larger loans. Once weaknesses and challenges were identified, we sought recommendations on how to increase online platform efficiency and reach minority farmers.

Even though information on the PPP was available online, interviewed farmers were not interested in applying because they thought they may not be eligible, given the name of the program. In some cases, there was distrust in the information provided because they did not know the informer. Specifically, the African American farmer interviewed expressed this concern. This distrust possibly stems from past incidences where African American farmers received different treatment by government agencies and faced systemic discrimination and mistrust toward government programs in general (Ferguson 1998; Gilbert, Sharp, and Felin 2002; Coppess 2021; Russell, Hossfeld, and Mendez 2021; Mishra, Short, and Dodson 2024). Thus, it is important to gain trust and build a connection with the minority farmers one is trying to reach. This can be facilitated by partnering with local associations and groups in which they are active. We also encourage the local government agents and University Extensions to collaborate with other groups that have a strong affiliation with minority producers, including churches and libraries. Furthermore, it is important to organize meetings that target small farms, where minority farmers are more predominant. An Extension agricultural economist who specialized in specialty crops (e.g., fruits and vegetables), stated that the Extension meetings that she attended had a diverse group of producers, including female and ethnic minorities. Such observation was unique, not shared by many other Extension agents and specialists who tend to work in row crop production. This allows Extension and government agents, lenders, and association members to build a relationship with the farmer beforehand and later use online platforms to communicate on the latest programs.

Yet, relying heavily on online platforms for information dissemination when targeting minority agricultural producers, as done by the PPP, needs consideration. Rural communities are less likely to have broadband access. Other means of communication should have also been used. Offering advice over the phone, helping farmers fill out the forms, and mailing forms for confirmation, would increase participation in these types of programs. Also, setting up a help desk at the local library or church to help with applications could have increased PPP participation by minority farmers. Further suggestions identified were building a phone

tree and using influencers. Our study focused on the role of Extension and identifying often-overlooked outlets of Extension services in reaching out to minority farmers. From the policy-makers' point of view, this should represent only a fraction of information channels that need to be evaluated because the University Extension services reflect only a part of all possible information outlets. To reach out to minority agricultural producers, it is essential for these government agencies to evaluate other delivery methods and identify ways to make improvements.

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Appendix

Interview Questions for Farmers

- What made you apply for the PPP? In which years did you apply? (This can lead to a discussion on why they applied one year and not the other.)
- Did you receive help with the application? If so, who helped you? How did they help you?
- How did you get the information about the PPP?
- What difficulties/challenges, if any, did you face when applying for the PPP? Do you feel that the PPP was accessible?
- Did you apply for/receive PPP loan forgiveness?
- Do you have any other comments related to your experience and application of the PPP loan and forgiveness that you would like to share?
- How would you rank these institutions in terms of trustworthiness?
University Extension, Cooperatives, Local Banks, Farm Credit, Government Institutions
- Which of the following institutions is your major source of information on new programs?
University Extension, Cooperatives, Local Banks, Farm Credit, Government Institutions
- Did you have to fill out multiple applications until having it approved? Can you tell us which institutions you used?
- Do you have any financial accounts opened in lending institutions? Did you have a previous relationship with the lender? (e.g., account, took out a loan, etc.)
- How did you feel about the process of applying for the loan and interacting with the lending institution?
- Have you participated in any other government-sponsored programs before?
- How would you prefer to receive information about new government programs such as the PPP? (e.g., cooperatives/association meetings, Extension agents, university professors, government agents, social media, etc.)

Interview Questions for Extension Personnels

- What channels do you use to reach farmers?
- Do these changes according to farmer's race or gender (minority farmers)?
- What would you say about the challenges facing minority farmers?
- Are there any barriers that minority farmers in the area commonly face when trying to access resources or services?
- Did your Extension office provide help to farmers with the PPP application? If so, how did you help?
- What were the barriers in reaching minority farmers with information about the Paycheck Protection Program (PPP)?
- Can you provide recommendations on how to reach minorities in the rollout of programs that are not specific for farmers?
- Any other comments or suggestions or experiences that you have had and would like to share regarding communicating with minority farmers specially about PPP?

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