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Advancing wholesale market access: Technical assistance to support Black, Hispanic, and Tribal producers

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Abstract

This pilot study examines the technical assistance (TA) needs of Black, Hispanic, and Tribal agricultural producers seeking to access wholesale markets, and the core competencies required of TA providers working to support these objectives. The study draws upon a literature review, a secondary analysis of TA programs across the U.S., and interviews with 20 TA providers from the Southern, Southeastern, and Midwest/Great Lakes regions. It identifies key challenges that underserved producers face in accessing wholesale markets, factors that determine the adoption of TA resources, and the challenges associated with program delivery by TA providers. To meet these objectives, the study uses reflexive thematic analysis and Latent Dirichlet Allocation. Findings show that regulatory complexity, limited capital, land tenure insecurity, infrastructural deficiencies, and information asymmetry were major barriers for producers in accessing wholesale markets. Skepticism about federal programming, navigating bureaucracy, operational challenges, and cultural factors were reported as

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This article is part of a larger study examining the distinct technical assistance needs of Black Hispanic, and Tribal producers for wholesale market access.

barriers preventing producers from accessing available TA. The overarching theme of structural discrimination and historical distrust of federal agencies further exacerbate these barriers, leading to exclusion from both market opportunities and TA resources. Further, limited capacity, insufficient funding, and cultural barriers affect the TA providers' ability to develop and provide tailored programming to support underserved producers and build long-term relationships. The providers identified cultural competency, technical expertise, and communication skills as critical competencies in working with diverse producers. This research underscores the need for culturally responsive TA models, capacity building of producers, place-based infrastructure and provider investment, greater access to secure land and financial capital, and more inclusive communication channels and grant structures. This study contributes to a growing body of work calling for systemic reforms in agricultural support systems. Future research that is conducted on a larger scale, that includes producer perspectives and examines impacts of policy shifts on TA programming is needed.

Keywords
technical assistance, wholesale markets, capacity building, underserved producers, thematic analysis, topic modeling, agricultural support systems

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Conflict of Interest Disclosure
The authors declare that they have no relevant financial or other interests that could be perceived as influencing the content or interpretation of this paper.

Introduction

Agricultural producers[1] rely on the availability of appropriate technical assistance (TA) and investment in TA to support their operations embedded within complex local, regional, and global agri-food systems (Chesapeake Bay Commission [CBC], 2017; Francke & Briones, 2017; Graziani, 2024; Prokopy et al., 2015). TA providers are trained professionals who play a crucial role in assisting producers with the knowledge, skills, and resources needed for managing production, marketing, and overall operational feasibility. This support can be in the form of training and workshops, grant-writing and loan application assistance, production practices and technology transfer, regulatory compliance assistance, business planning, conservation practices, and networking. These directly contribute to the economic and social well-being of the producers (Dunst et al., 2019; Johnson et al., 2023; Scheyett et al., 2023; Scott et al., 2022, 2024).

The role and importance of TA are further underscored by the growing challenges as well as opportunities in farming and ranching. These include prolonged droughts, flooding, wildfires, animal disease outbreaks, markets, urbanization, or supply chain disruptions (Carney, 2023; Chen et al., 2021; Hayden et al., 2018; Johnson et al., 2023; Oberholtzer et al., 2014; Prokopy et al., 2015; Reynolds, 2011; Wiener et al., 2020). In this study, the providers include those working at federal and state agencies, cooperative extension and land grant universities, and nonprofit organizations.

However, historically, producers from underserved[2] groups have faced inequity and discrimination in receiving financial and technical support from the U.S. Department of Agriculture (USDA). These have been particularly pronounced within institutions that administer credit and other critical farm support programs (Asare-Baah et al., 2018; Russell et al., 2021; SFI, 2024; Tyler & Moore, 2013; USDA Equity Commission, 2024; The White House, 2022). Many testimonies, civil rights investigations, congressional reports, and peer-

[1] The term "agricultural producers" (hereafter "producers") is used to refer to agricultural farmers, ranchers, and private forest landowners and operators.
[2] The 2018 farm bill legislation and the U.S. Department of Agriculture (USDA) identify producers who are "beginning," "socially disadvantaged," "veterans," and "limited resource" as being "historically underserved," in reference to federal policies and programs.

reviewed research document decades of deep-rooted systemic racial discrimination against underserved producers. Such actions have led to the loss of land, businesses, equipment, culture, and identity in these communities (Carpenter, 2012; Elsheikh, 2016; Farrell et al., 2021; Francis et al., 2022; Gilbert et al., 2002; Hinson & Robinson, 2008; Holt-Giménez, 2014; Horst & Marion, 2019; Lahr et al., 2022; Russell et al., 2021). This structural ostracization led to the erosion of trust between TA providers and underserved producers. Over time, this has constructed barriers that have held back these producers from equitable access to TA, among other resources for agricultural growth.

This pilot project takes a qualitative approach to examine the distinct TA needs of Black, Hispanic, and Tribal[3] producers, focusing on the providers' perspectives who deliver these services and programs. Specifically, the objective of this study is to assess the barriers that underserved producers currently face in accessing markets and relevant TA, as perceived by the TA providers. Additionally, this study explores the core competencies of TA providers working with underserved communities.

Support toward initiatives that endorse equity in agri-food systems by federal and state government agencies, as well as civil society organizations and universities, are rather dynamic. At the time of this study, in 2024, federal and state agencies were expanding support for equity (e.g., projects funded through the American Rescue Plan Technical Assistance Investment Program in addition to ongoing funding through the 2501 Program). However, in 2025, following the change in federal administration, several policies and budgetary shifts rolled back some of this targeted support. Many studies argue that when support increases, targeted TA is necessary in navigating the complex bureaucratic systems, overcoming generational disadvantages, mitigating the effect of land loss, and expanding market access (Cornelius & Tai, 2024; Dy & Seybold, 2023; Hernandez, 2025; Reynolds et al., 2025; Tshabalala, 2024; Valley et al., 2020).

This research contributes to the literature by providing evidence-based insights from the perspective of TA providers. Further, it addresses the gap in the literature of understanding of provider experiences and competencies in relation to underserved agricultural communities. This research also contributes methodologically by integrating traditional qualitative analysis with topic modeling.

This pilot study focuses on understanding the TA needs for accessing wholesale markets, recognizing that this constitutes one of many opportunities within the local and regional food systems. Access to wholesale markets can offer significant economic and social benefits to underserved producers (Aminetzah et al., 2021; Crook et al., 2023; SFI, 2024; Wallace Center, 2012). Wholesale markets provide a larger and more consistent demand as well as opportunities to scale operations compared to direct-to-consumer sales (Dumont et al., 2017; Low et al., 2015; McManus et al., 2020; Zare Mehrjerdi & Woods, 2024). They can create opportunities for investing in branding, packaging, and aggregation as well as create opportunities for value-added production (Day-Farnsworth et al., 2009; Schmidt et al., 2011).

Further, producers also have access to institutional buyers that are increasingly incentivized to purchase locally grown foods (Cornelius & Tai, 2024; Crook et al., 2023; Wallace Center, 2012). Wholesale markets can therefore be appropriate for producers who are already producing or plan to produce sufficient volumes or aggregate through collectives to meet the buyer's needs.

However, access to wholesale markets can be challenging due to many barriers that limit the ability of smallholders to compete and scale in a feasible manner. These barriers include quality and volume requirements, compliance with food safety and certification standards, market power and relationships vis-à-vis buyers, high upfront investment in infrastructure, and access to land and credit (Callahan & Daniel, 2022; Collins et al., 2024; McManus et al., 2020; Morrill & King, 2019; Schmidt et al., 2011). Expanding operations would allow smallholders to overcome many of these

[3] USDA employs various terms to refer to Indigenous peoples, including "Tribal," "American Indian," "Alaska Native," and "Native American," depending on the context and program. The term "Tribal" is used in this text.

challenges by achieving economies of scale (Ikerd, 2023).

Studies have shown that TA programming focused on wholesale access have been successful in supporting producers in gaining access to these markets (McManus et al., 2020; Schmidt et al., 2011). However, resource constraints, geographical barriers, and cultural differences can hinder the providers' ability to identify needs and deliver targeted services effectively (Gumirakiza & Matney, 2020; Hartmann & Martin, 2021; Thompson & Gaskin, 2018). Although underserved producers may share many of the same needs and barriers to wholesale market access as other small-scale (predominantly white) producers, substantial differences arise due to the impacts of racism and historic inequities. Yet there is little evidence-based research that examines these challenges and needs specifically for underserved producers (Aminetzah et al., 2021).

Today, socially disadvantaged producers[4] represent about 5% of all producers in the U.S., the remaining 95% identifying as white (USDA National Agricultural Statistics Service [USDA NASS] 2024). They are more likely to specialize in specialty crops, beef cattle, and other livestock, which are not commonly covered by direct government agricultural programs (Todd et al., 2024). For example, in 2022, farms with white producers received 99% of all Commodity Credit Corporation loans and 97.4% of all other federal payments (including loans administered by the Farm Service Agency, disaster payments, and other support) (Fent, 2024).

Figure 1(a) shows the distribution of all farms and ranches as reported in the 2022 Census of Agriculture. Additionally, it shows the states that are included in four Regional Food Business Centers of the USDA: Appalachia, Delta, Great Lakes Midwest, and Southeast, representing the regions that are included in this pilot study. The pilot is part of larger project focusing on equity in wholesale market access for historically underserved producers. Figure 1(b) shows the distribution of Black-operated farms and ranches, largest in the southern and southeastern states, with the highest proportion in Mississippi (13.8%). Figure 1(c) shows the distribution of Hispanic-operated farms and ranches, skewed towards the western and southwestern states, with the highest proportion in New Mexico (36.2%) and a relatively smaller proportion in the southern and southeastern states. Lastly, Figure 1(d) shows the distribution of Tribal-operated farms and ranches, largely concentrated in the southwestern states, with the highest recorded proportion in Arizona (61%).

While producer perspectives are critical in understanding these issues, using only those risks overlooking the institutional and systemic dimensions of TA. Underexplored insights into the issues can be found through focusing on the providers as pivotal change agents in the system and examining their perspectives. These insights will be representative of both the supply side constraints in TA delivery as well as the demand side needs and will be valuable in identifying gaps between policy design and implementation (Dimitri et al., 2025). Thus, gaining insights from TA providers becomes an essential step in program and policy development to address structural challenges within the agricultural support systems. Further, strengthening TA systems will also contribute to broader efforts towards improving resilience and growth of "agriculture of the middle"[5] (Brislen, 2018; Lyson, 2008; Janssen, 2018).

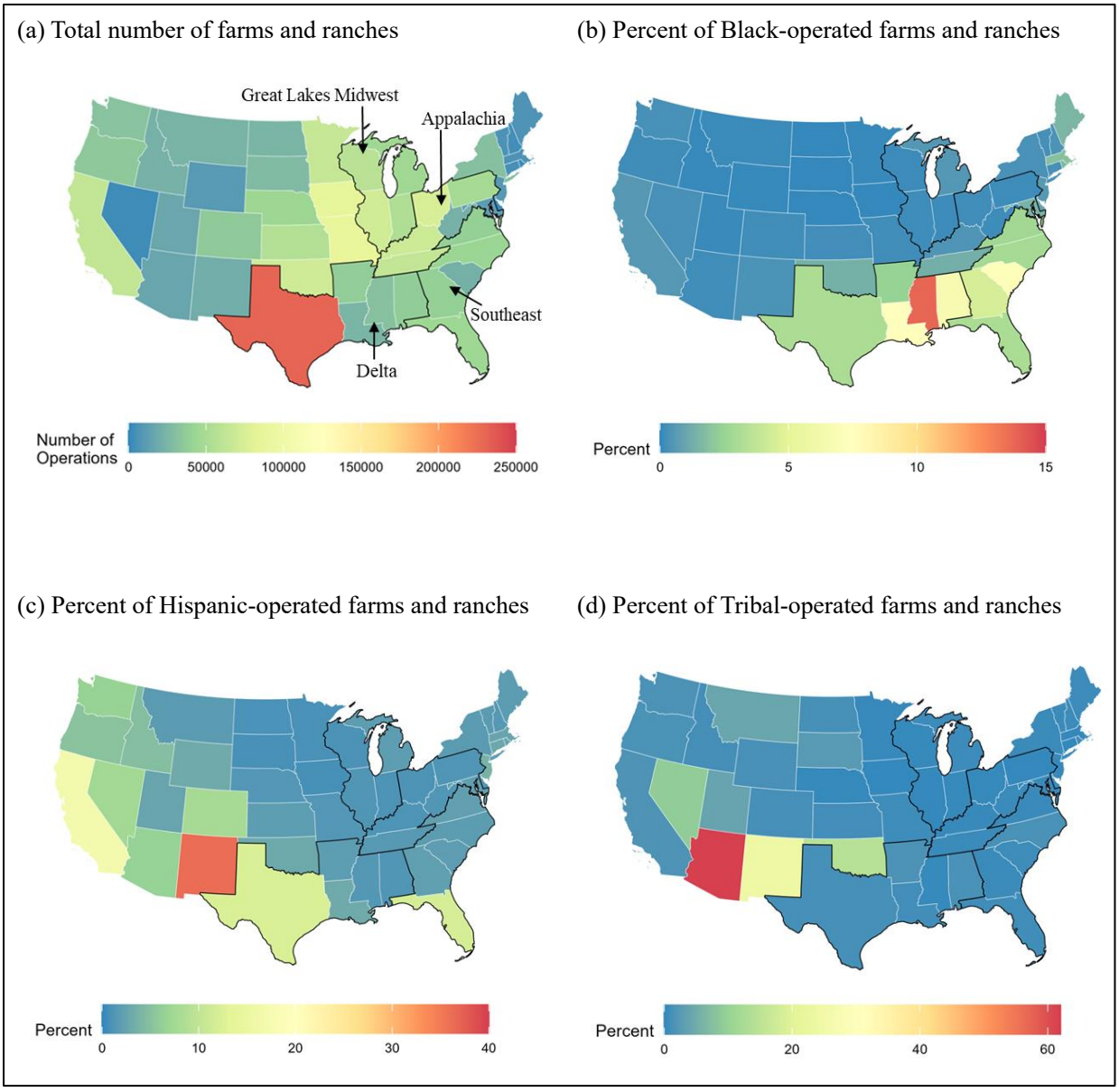
Theoretical Framework

The Agricultural Innovation Systems (AIS) approach conceptualizes innovation in the agricultural and food systems as a complex process that involves interactions among diverse actors and institutions that co-produce technological, social, and institutional innovations within the systems (Annosi et al., 2022; Hall et al., 2006; Herrero et al., 2020; Klerkx & Begemann, 2020; Klerkx et al., 2012).

[4] Socially disadvantaged producers include those who self-identify as Black or African American, American Indian or Alaska Native, Hispanic or Latino, and Asian or Pacific Islander.

[5] Refers to farming operations that are too small to compete with highly integrated corporate markets and distribution systems, yet too large to rely solely on direct marketing techniques (Lyson, 2008).

Figure 1. Distribution of All Farms and Ranches in 2022 and Proportion of Black-, Hispanic-, and Tribal-owned Farms and Ranches



Data source: USDA National Agricultural Statistics Service (2024).

The Mission-Oriented Agricultural Innovation Systems (MAIS) framework builds upon the AIS approach by incorporating a "mission-oriented" perspective to address social and political issues in agri-food systems transformation (Hekkert et al., 2020; Klerkx & Begemann, 2020; Kok & Klerkx, 2023; Pigford et al., 2018). The MAIS framework provides a thorough approach to understanding the technical assistance needs of the wide variety of producers scaling to wholesale markets. Policies guided by the MAIS framework have well-defined, transformative goals with a focus on advocating for public goods like social justice and equity, and demand an active role of the state (Hekkert et al., 2020; Pigford et al., 2018; Timmermann, 2020).

This study applies the MAIS framework to analyze how TA providers operate within interconnected systems of actors, institutions, and policies

that shape underserved producers' access wholesale markets. At the core of MAIS are the producers themselves, who engage with multiple stakeholders, including TA providers, financial institutions, buyers, consumers, and policymakers. TA providers such as USDA agencies, Cooperative Extension, and nonprofits play a critical role in facilitating innovation. These are in the form of accessing new markets, adopting new technologies, or transitioning to new products. The MAIS approach explicitly recognizes the barriers faced by underserved producers in accessing TA as institutional constraints that shape the innovation process (Klerkx & Begemann, 2020; Kok & Klerkx, 2023).

Federal and state-level programs and agencies aimed at supporting underserved producers provide much-needed resources. However, structural and systemic barriers limit their adoption and impact (Aminetzah et al., 2021; Asare-Baah et al, 2018; Russell et al., 2021). Additionally, the MAIS framework highlights the significance of networks and linkages in supporting agricultural innovation. By examining the actors, institutions, and resources within a well-defined framework, the MAIS approach helps us in assessing levers that can effectively support the TA needs of Black, Hispanic, and Tribal producers.

Methods

Alongside guidance from the project advisory group,[6] the study applies the MAIS framework to characterize the policy and programming environment. The study employs a robust approach for triangulating qualitative insights from interviews conducted with TA providers by combining reflexive thematic analysis and Latent Dirichlet Allocation (LDA). This ensures that both inductive thematic development and data-driven topic modeling contribute to a comprehensive understanding of the TA needs.

Data Collection

Data for this study was collected by interviewing TA providers who provided services to Black, Hispanic, and/or Tribal producers. A purposive sampling approach was used to select TA providers with direct experience in providing technical assistance to underserved producers in the Southern, Southeastern, and Midwest/Great Lakes region. Providers who worked exclusively with underserved producers, either by virtue of their location or though targeted programming, and providers who worked with all producers including underserved producers qualified as participants in the study. Since the objective was to identify issues specific to underserved producers, providers who did not work with these producers at all were excluded from the study.

This study was a part of a pilot project with the USDA, which focused on these three regions; therefore, providers from the three regions were included in this study. Emails from the authors' professional networks served as the first medium of contact with participants. The employment of snowball sampling, once interviews began, led to selection of subsequent participants. The interviews were conducted between December 2024 and March 2025. The results and interpretations are not generalized beyond the study context; rather, patterns that emerge consistently across the participants interviewed are examined. The recurrence of themes, therefore, reflects convergence across multiple, independently sourced accounts rather than a result of sampling bias.

Interviews followed a structured protocol that contained a total of 20 open-ended questions (see Appendix). The questions were finalized following a review of literature and input from the project's advisory group. Questions were developed to solicit responses that aligned with the study objectives, addressing topics of wholesale marketing, TA resources and programming, issues related to equity, and needs of the producers and providers.

The interviews were conducted via Zoom or telephone, depending on each participant's preference. They lasted approximately 45-60 minutes. All interviews were audio-recorded with consent and transcribed for analysis by the authors. The

[6] This project's advisory group comprised of four individuals with expertise in farming, extension and education, advocacy, TA programming, grant management, and legal aid. Collectively, this group brought practical farming experience, community perspectives, and TA knowledge, ensuring that this study was grounded in both rigorous research and lived realities.

authors' respective university institutional review boards approved this study as exempt. Prior to participation, all interviewees received information about the study's purpose, confidentiality assurances, and their right to withdraw at any time.

Data Analysis

Reflexive thematic analysis is an inductive approach that allows for identification of themes or patterns in qualitative data following a reflexive and iterative process. This method highlights the researchers' active role in interpretive analysis of the data, the flexibility of the theoretical assumptions being made, and interpretations of themes that emerge (Braun & Clarke, 2019; Braun & Clarke, 2022; Byrne, 2022). In this study, the findings are interpreted in the MAIS framework and the themes identified through manual coding of the data.

By adopting a reflexive approach, the analysis accounts for the contextual complexities of TA provision for underserved producers, while ensuring that the emergent themes are credible and representative of the data collected, as well as informed by the researchers' interactions with the project's advisory group and stakeholders. The approach involved familiarization with the data, coding based on sections within the interview protocol, generating themes, and refining themes to capture the perspectives of TA providers.

To complement the manual coding and to triangulate the findings, LDA was used. A natural language processing technique, LDA is a probabilistic generative model that allows for identifying co-occurring word patterns. This aids in identifying topics that align with the themes identified through reflexive thematic analysis. The process involves preprocessing the textual data to remove punctuation and common words, following which the automated unsupervised learning method identifies patterns in the text. This computational technique adds an additional layer of analytical rigor by revealing patterns that may not be apparent through manual coding alone (Jacobs & Tschötschel 2019; Maier et al., 2021; Nanda et al., 2023).

Results and Discussion

Twenty TA providers were interviewed for this study (Table 1). The interviewed TA providers work at federal and state agencies, cooperative extension, universities, nonprofits, and Tribal organizations. There is not a definitive number of providers in the study region to characterize the universe of providers. While the sample size of this study is 20, it covered a wide range of providers to get a cross-section of perspectives.

Interviewing the TA providers gave a systems-level and institutional perspective within the TA ecosystem that shapes how these resources reach underserved producers. The providers offered a broad and comparative view across multiple producer communities and geographies, allowing the identification of patterns that just a producer-perspective may not fully capture. The rest of this section presents interview results based on the research objectives, which included examining (a) issues in wholesale market access for Black, Hispanic, and Tribal producers; (b) the TA needs of producers to support wholesale market access; (c) the current state of programming and support by the TA providers, and (d) core competencies of the TA providers.

Wholesale Market Readiness and Access

Several themes emerged from the analysis of qualitative interview data that highlight the barriers faced by underserved producers in accessing wholesale markets. The interconnected themes include (a) information asymmetry and regulatory environment, (b) limited capital and capacity, and (c) infrastructure and logistical constraints. An overarching issue discussed in each of the three themes was "structural racism and discrimination" and its impact and persistence in social and economic outcomes today. The LDA model application yielded the following terms within three topics: "grants," "funding," "knowledge"; "land," "capital," "capacity"; and "infrastructure," "scale," "aggregating," "processing," respectively. These reaffirm the validity of the themes from the reflexive analysis.

Information Asymmetry and the Regulatory Environment

One of the main themes that emerged for underserved producers for expanding to wholesale markets is information asymmetry, particularly related to the economics of wholesale markets. Among the TA providers interviewed, 85% emphasized that the underserved producers served were largely unaware of available market data like current market demand, pricing trends, and opportunities. Another common theme is the highly regulated environment, which aligns with the findings of Asare-Baah et al. (2018) and Tyler and Moore (2013). The complexity and technical language as well as the cost of regulations related to food safety and handling, quality inspections, and certifications were significant challenges for the producers.

The majority of the TA providers (65%) noted that the producers' lack of experience in applying for federal grants, the complexity in the grant application process, and the inability to provide the required operations data were major barriers preventing them from applying for grants. More than half of the providers interviewed (60%) spoke about their expectation of their application being rejected as dissuading them from applying for federal grants and loans. They recounted that producers have voiced discomfort in visiting local offices owing to an expectation of racism. They are further discouraged by a lack of transparency in the decision-making process of loan and grant allocations. These issues were also reported by Guynn et al. (2024), Reynolds et al. (2025), and Russell et al. (2021).

Some TA providers (40%) reported that many producers were not accustomed to estimating the costs of production for their operations. They did not have data and records for their inputs, acreage, practices, and output in the form required by federal and certification agencies. This is often a result of not having access to tools like farm management software or the lack of time and labor to meticulously manage all records (Friedman et al., 2024). These providers also reported that many Black and Tribal producers operate on historical knowledge and experience-based decision-making rather than formally collecting data. Together, these led to challenges in applying for loans and grants, meeting the GAP certification requirement, and selling to institutions. In the following excerpt, a TA provider who is also a farmer, working with producers in Southern states, described this issue:

Table 1. Characteristics of Technical Assistance (TA) Providers Interviewed (*N* = 20)

Characteristic	Sample size	Description
Geographic Scope		
Southern and Southeastern regions	10	Includes providers from Kentucky, Georgia, Texas, Virginia, and Mississippi
Midwest/Great Lakes region	7	Includes providers from Illinois, Michigan, and Wisconsin
National organizations	3	Providers working nationally
Organizational Affiliation		
Federal and state agencies	5	Providers at federal and state agencies managing and/or delivering TA programs
Cooperative Extension and land-grant universities	8	Providers affiliated with land grant universities, holding full-time or part-time extension appointments
Nonprofit organizations	5	Providers working at nonprofit organizations focused on outreach, education, and advocacy
Tribal organizations	2	Providers affiliated with Tribal-serving organizations
Providers also producers	4	Producers who are also providing TA by being affiliated through one of the above organizations
Total sample size (*N*)	20	Total providers interviewed

> That's been the biggest one [challenge], getting folks [GAP] certified. … And it was very difficult to scale because a farmer couldn't tell me how much it cost him, for example, to grow a tomato or couldn't give me accurate statistics. On year to year, how much their cost to produce was. So, all of that stuff before you get outside the farm gate, there's still a lot of education that needs to be done in that space.

Limited Capital and Capacity

All interviewed TA providers mentioned land and capital as constraints blocking access to wholesale markets in a few ways. First, access to land is a hindrance, including land that is permanently owned by the producers and land that is feasibly accessible for them to scale operations. Most underserved producers grow on small operations and the availability and cost of land for upscaling operations can be extremely challenging (Callahan & Daniel, 2022; Figueroa & Penniman, 2020). Many producers are running their operations on leased land, and due to land tenure insecurity, they may lack the incentive to invest in infrastructure or sustainable practices as they may have to relocate (Carlisle et al., 2019).

Second, access to working capital, for scaling operations as well as for managing day-to-day operational costs, is a significant barrier. Producers find it difficult to make the decision to scale as it may require them to invest in infrastructure for storage, processing, packaging, and transportation, and these costs can be prohibitive. While the challenge of securing working capital to scale operations may not be unique to underserved producers, barriers in accessing loans and technical assistance add additional layers of complexity (Asare-Baah et al., 2018; Rittner et al., 2025). An auxiliary issue associated with working capital is that many grants require producers to claim reimbursements for expenditures made. In the following excerpt, a TA provider working with Tribal producers described this issue:

> So, the biggest issue I see is, outside of technical jargon, outside of people misunderstanding stuff, is the fact that these grants are written with the idea that people will have established capital to take advantage of these grants. The people I work with when they say like, oh, this is a reimbursement grant and you need [US]$25,000 of your own money up front before you can get reimbursed, that is an insurmountable hurdle for them.

Third, 55% of providers spoke about limited access to human and social capital to support on-farm practices as well as market relationships as a major constraint. They reported that it is common for underserved communities to have fewer providers from organizations and federal agencies available to support them. They also noted the loss of generational farming knowledge as an impediment for new and beginning producers and as a factor that affects their production and marketing decisions.

Infrastructure and Logistical Constraints

Almost every interviewed TA provider (90%) identified significant deficiencies in infrastructure as a major barrier that physically constrains wholesale market access, not just for underserved producers but for any producer in the agriculture-of-the-middle category. Limited availability of processing facilities, for fruits, vegetables, and meat, directly impacts producers' ability to sell to institutions and grocery stores (Brislen, 2018; Carrillo, 2008). These providers emphasized that infrastructure and logistical gaps disproportionately affect underserved producers due to factors like historical disinvestment, lower access to capital, and weaker networks. One TA provider described this issue as a "chicken or egg problem" for the market, referring to who, between the producer and the buyer, takes the first step toward the wholesale relationship. Must the producer first invest in the infrastructure and capacity to be wholesale-ready before approaching the buyer, or can the buyer approach the producer to guarantee a market and share the risk in upscaling to meet the needs of the market?

Access to Technical Assistance

The themes that emerged from the interview responses related to barriers in accessing or utilizing technical assistance are (a) historical distrust and institutional barriers, (b) operational and infra-

structural challenges, and (c) socioeconomic and cultural factors. Topic modeling with three assigned topics provided the terms "trust," "racism," "grant"; "part-time," "capacity," "technology"; and "language," "identity," respectively. These reaffirm the themes that emerged from reflexive thematic analysis.

Historical Distrust and Institutional Barriers

A major theme revolves around the historical distrust between underserved communities and federal institutions, particularly USDA agencies (Russell et al., 2021). Half the TA providers interviewed said that such distrust creates a perception among underserved communities that TA programs are designed for larger and primarily white producers. Further, the providers pointed to skepticism about program continuity and availability of funds, which discourage many producers from engaging with available TA resources.

Forty percent of interviewed TA providers discussed how persistent mistrust has resulted in further alienation from standard communication networks for sharing information about TA resources available. A TA provider working at a nonprofit organization in the Midwest/Great Lakes region shared a statement related to this mistrust:

> We've heard from Latino producers that they've been talked down to or ignored in spaces where other farmers were welcomed. Some of our families don't even open mail from the USDA because they assume it's going to lead to trouble. There's a real fear of being visible in systems that haven't protected you in the past.

Operational and Infrastructural Challenges

Sixty percent of TA providers highlighted that TA by itself may not have much value to a producer, if it is not associated with any financial assistance for infrastructure or operational costs. An example mentioned included TA for setting up high tunnels to grow vegetables. While valuable to the producer, it is irrelevant if there are no financial resources to purchase and install the tunnels.

Technological constraints were noted by 40% of the TA providers interviewed. Limited access to broadband internet, a computer or smartphone, and/or lacking technological proficiency hinder direct access to online resources and make it difficult to participate in virtual programming (Pesci et al., 2023).

Socioeconomic and Cultural Factors

About a third of the providers (30%) noted that many underserved producers prefer working with organizations and TA providers they trust, such as local nonprofits or community-based organizations. But these groups are often underfunded to provide long-term support (USDA Office of the Secretary, 2022). Additionally, the limited representation of leadership and staff in extension and federal agencies makes it harder for underserved producers to trust and relate to the services they offer (Hartmann & Martin, 2021).

TA providers are predominantly white and may not reflect the cultural backgrounds of underserved producers (Hartmann & Martin, 2021; Russell et al., 2021). This results in unintentional biases or unrelatable outreach efforts. Examples include making assumptions about technological proficiency, assuming literacy in technical jargon, and prioritizing commodity crops that are more common among white, large-scale producers (Diaz et al., 2023; Furman et al., 2014). A provider noted that many Tribal and Black farmers may use traditional knowledge systems, and for this they rely on informal community-based knowledge and networks rather than formal TA providers.

Program Delivery by TA Providers

Many factors limit the reach and impact of TA providers when it comes to identifying the needs of underserved producers and developing and delivering appropriate services. The major themes that emerged from interviews with TA providers that focus specifically on unique challenges that directly impact program delivery were (a) limited capacity and mobility of providers, (b) insufficient financial resources, and (c) cultural barriers. The element of trust is deeply intertwined within these themes and continued to be a major structural factor highlighted by all TA providers. Topic modeling provided the terms "capacity," "staff," "distance"; "funding," "grants"; and "language," "barrier,"

"cultural," respectively, and reaffirm the themes identified.

Limited Capacity and Mobility of Providers

Over half of the TA providers interviewed (60%) described having to operate with limited capacity, constrained by insufficient funding, understaffing, and high workloads. This significantly affected their ability to deliver tailored services and conduct outreach to underserved producers. They described that it is common for a single provider based out of a federal agency office, nonprofit, or cooperative extension office to serve a diverse region and community that may be spread across several counties. Thus, finding qualified topic specialists (e.g., specializing in cooperative marketing or food safety certification) to work in remote and rural areas can be difficult (Narine et al., 2016).

These providers highlighted that these capacity constraints vastly limit their ability to focus on "proactive" TA, instead providing "reactive" TA, which limits innovation and creativity in programming and resources. They recognized the need for and value of being present in underserved communities on a regular basis to form relationships and build trust, especially considering the historical mistrust already contributing to fewer interactions.

Insufficient Financial Resources

Half the TA providers interviewed discussed how limited funding might only support a portion of their time, meaning that they are often engaged in multiple projects, thus limiting their focus on any one service. The majority of the providers (60%) highlighted that most federal grants for agricultural support, as well as related issues like disaster support, have limited funding. The resulting oversubscription creates a self-reinforcing cycle of disengagement among underserved producers, as many are repeatedly unable to access support.

They further noted that since these financial resources can be tied closely to the federal and state-level political climates, it can create uncertainty for the TA providers advocating for these resources. They mentioned that despite their best intentions, they have to be cautious about the promises they make about available support because these may suddenly become unavailable. This can drastically affect the relationships, trust, and credibility that the providers built with producers. Reflecting on this uncertainty, a TA provider noted the following:

> You know that if the political climate changes a little bit, to what extent are we going to have the federal government behind us, backing up what we've said. It is a very precarious position to be in, to put yourself out there in a community that already has some reasons to be skeptical and you're telling them that this time it's going to be different.

Cultural Barriers

Some TA providers (40%) acknowledged that cultural barriers are common between producers and providers, and many face challenges in cross-cultural engagement. These challenges may manifest in the form of discomfort and hesitancy in working with underserved producers and an inability to connect or communicate as desired. This can result in providers avoiding underserved communities altogether. The providers also reported that despite their efforts to hire professionals belonging to the underserved communities they work with, they are often unable to do so. This could be due to a limited availability as well as a mismatch between education and occupational requirements, which results in hiring professionals who are white (Elliott-Engel et al., 2021).

Less than half of the providers interviewed (40%) reported hearing directly or indirectly from underserved producers that these professionals "do not speak their language." This is not just referring to the spoken language but also to the cultural, behavioral, and experiential disconnect between providers and producers (Elliott-Engel et al., 2021). This, in different ways, continues to occur in programming. An example is trainings that have a one-size-fits-all approach that is more suited to conventional operations.

Core Competencies of TA Providers

The analysis of responses related to essential qualities and core competencies of TA providers working with underserved producers underscores the importance of both interpersonal skills and appro-

priate technical expertise. The LDA model yielded the following terms: "cultural," "communication," and "relationships."

"Cultural competency and relationship building" emerged as a critical theme emphasized by every provider responding to this question. They discussed the need for providers to establish credibility and develop trustful relationships with producers over time. "Technical expertise and tailored programming" were reported as important factors by 70% of the providers. These would contribute to building trust with producers through the provision of culturally appropriate programming, meeting them where they are, and ensuring equitable access to resources. Most providers (65%) noted "communication and advocacy" as a key theme. They emphasized the importance of active listening and communicating through channels more commonly used by producers. Additionally, they recognized the need for facilitating producers' participation in decision-making spaces and advocating for systems that benefit underserved producers.

Conclusion and Recommendations

Results from this pilot study indicate that effective TA to meet the needs of underserved producers requires approaches that address both structural barriers and technical skills. These correspond to the institutional systems within the MAIS framework that shape innovation processes and equity outcomes. These findings build on prior studies that collect data from producers and also report the lack of communication and transparency in federal programming, along with discrimination, as major barriers (Russell et al., 2021).

The authors recognize that this study is not without limitations. Because the study is part of a pilot with the USDA, it includes interviews with a limited number of TA providers (20), selected across the Southern, Southeastern, and Midwest/ Great Lakes regions. Its findings do not consider issues related to wholesale markets and TA in other U.S. locations. Regional variations in policy, infrastructure, market access, and demographics may limit the broader applicability of the recommendations. The purposive sampling strategy used in this study may introduce a selection bias. The relatively small sample size means that the findings are preliminary in nature and calls for future work with a larger sample to validate them. A larger sample will also allow for making comparisons across regions and provider types. The authors also acknowledge that their positionality[7] may have influenced the presentation of the findings.

Direct input from producers is needed to validate this study's findings, particularly in relation to trust, discrimination, and cultural relevance. It is important to note that these findings represent insights for a particular period, based on current program structures, political climate, and funding availability. As federal and state policies evolve, the relevance of challenges and opportunities identified in this study may shift.[8]

This research becomes especially important in the current political climate, following the change in U.S. federal administration in 2025 when the USDA ended or cut a wide range of equity initiatives in agriculture, totaling at least US$148.6 million.[9] Socially disadvantaged producers represent about 5% of all producers in the U.S. today, with the remaining 95% identifying as white (USDA NASS, 2024). Removing funding available specifically for underserved producers will be regressive in nature. This is because it shifts resources away from those producers with the least historical access to federal support, thereby disproportionately reducing resources available to them.

[7] The authors include both men and women; white, Black, and South Asian; and native-born and immigrants. These positionalities likely affected how they understood and interpreted the experience of the providers and producers. While such diversity can enrich the analysis, it can also influence the significance placed on different themes and therefore the overall findings.

[8] While this research was conducted prior to the change in U.S. administration in 2025, the authors recognize that changes in the associated funding and political landscape directly and indirectly affect the discussion and recommendations of this study. The USDA will also no longer use the term "socially disadvantaged" (USDA, 2025), which included producers who identified as Black, Hispanic, and/ or Tribal. This is likely to have an impact on programs that had funding earmarked for these communities.

[9] Refer to USDA press release: https://www.usda.gov/about-usda/news/press-releases/2025/06/17/secretary-rollins-takes-bold-action-put-american-farmers-first-cuts-millions-woke-dei-funding

The themes that emerge from the analysis point towards a lack of "readiness" both for producers seeking to scale operations and for TA providers working with underserved producers. As emphasized by the TA providers interviewed, the success of these programs depends on their ability to be relational and not transactional in nature. The barriers and recommendations from the findings are summarized in Figure 2. The arrows from the "interventions" point at the direction to address the "barriers" identified. The arrow from "access to technical assistance" underscores its emphasis on supporting wholesale market access for underserved producers.

Wholesale Market Readiness

The findings underscore the need for tailored capacity-building for underserved producers in the regions covered by the study. This is particularly important regarding specific entry points to wholesale markets, data collection and management, regulatory compliance, and certification requirements (McManus et al., 2020; Schmidt et al., 2011). These support producers with applications for grants and loans, and in obtaining necessary certifications (e.g., the USDA's Good Agricultural Practices Program). While online resources, programming, and federal grant programs[10] are available to help assess and support wholesale readiness, there is still a large gap in TA required to meet the specific needs of underserved producers (Asare-Baah et al., 2018). Further, there is a need to facilitate the development of long-term relationships between producers and buyers. This will keep producers more informed about current market opportunities and create incentives for buyers to invest in aggregation and logistics systems (e.g., packaging and storage facilities, transportation, and institutional orders) (Crook et al., 2023; Day-Farnsworth et al., 2009; Schmidt et al., 2011).

Technical Assistance Delivery and Provider Support

Institutions providing TA must consider including members from underserved communities in their staff. This recommendation aligns with literature on community development as foundational ways to increase trust and engagement from communities who may otherwise distrust formal institutions (Ellis & Muyita, 2025; Hartmann & Martin, 2021; Oliver & Strager, 2021). Hartmann and Martin (2021) refer to this as "insider collaboration." An increased capacity among TA providers to deliver long-term programming that is backed by guaranteed funding will be critical in establishing trust with underserved communities (Furman et al., 2014).

Some ways of building relationships and trust, as also supported by other studies, could be to partner with established community-based organizations and models of cooperative learning (Dy & Seybold, 2023; Furman et al., 2014). Further, with an increase in engagement, it will be important to incorporate traditional farming knowledge systems into TA programs (Francke & Briones, 2017; Hartmann & Martin, 2021). Strategies to address operational challenges of participation include greater engagement in appropriate communication networks, delivering culturally appropriate services, and creating accessible programming (Diaz et al., 2023; Elliott-Engel et al., 2021; Lahr et al., 2022).

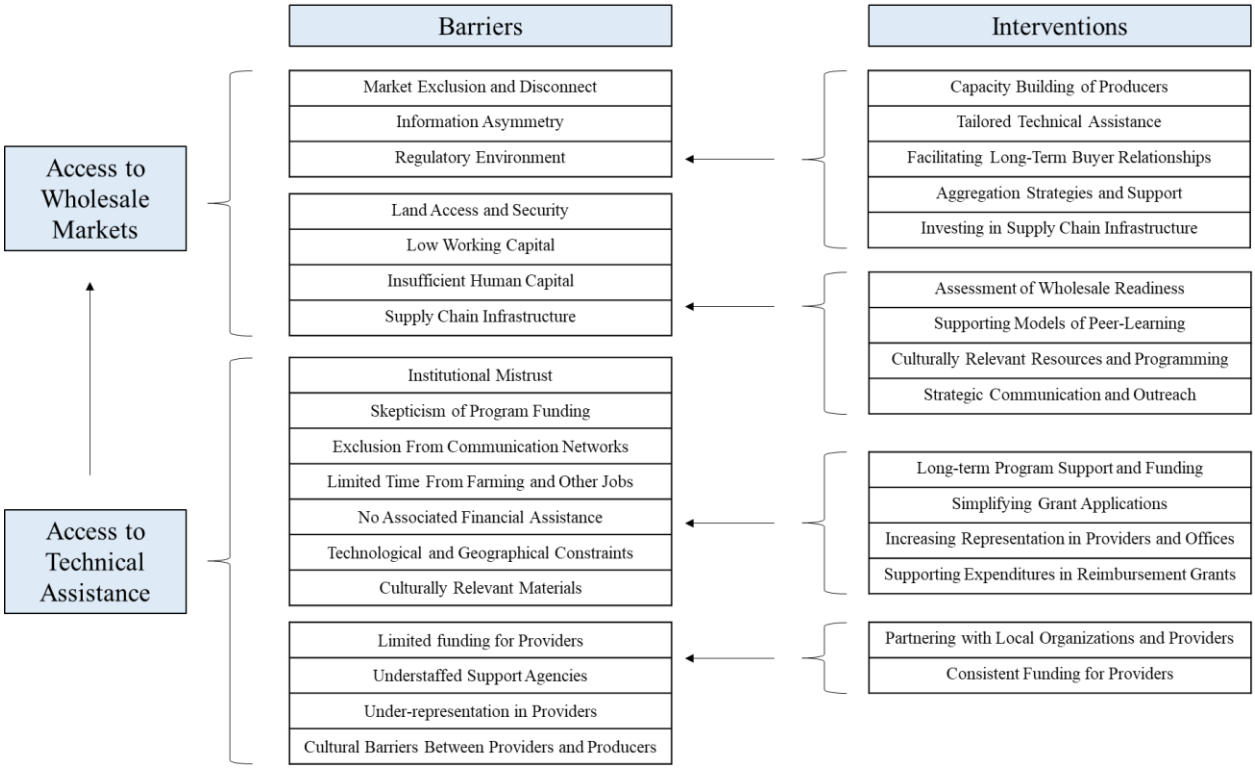
Federal Program Design and Administration

The USDA established Regional Food Business Centers[11] across the country with the objective of supporting market access and TA for producers, emphasizing their planned efforts to rebuild trust with underserved producers. However, the program timeline of five years has been criticized as not being sufficient to establish trust and build last-

[10] Some examples of resources, programming, and support available include the Baskets to Pallets project at Cornell University, the Small Farm Outreach Program at Virginia State University, the wholesale readiness training curriculum at the Minnesota Institute for Sustainable Agriculture, published guides by Sustainable Agriculture Research and Education, as well as support offered by many local nonprofit organizations and civil society groups. Some notable federal grant programs include the Outreach and Assistance to Socially Disadvantaged and Veteran Farmers and Ranchers Program (2501 Program) and the American Rescue Plan Technical Assistance Investment Program (ARPTAI).

[11] Notably, federal funding to support the USDA Regional Food Business Centers was withdrawn following the change in federal administration in 2025, directly affecting the TA communication, coordination, and support being extended through these groups.

Figure 2. Barriers Identified in Wholesale Market Access and Access to Technical Assistance, and the Associated Proposed Interventions



ing relationships (Van Sandt et al., 2024). Findings from the study emphasize the need for engaging with peer networks, producer organizations, and the communication networks that underserved producers use (e.g., Facebook groups as opposed to emails) to improve outreach among those who have been excluded from conventional communication networks.

There is a need to address the bureaucratic challenges that underserved producers face, particularly in accessing federal assistance. This could be done by simplifying application and evaluation requirements for underserved producers and further assisting those who have not applied for federal grants and loans before (Reynolds et al., 2025). One way of addressing this challenge, as suggested by a TA provider interviewed and recommended by Dy & Seybold (2023), is establishing panels of underserved producers who also weigh in on funding decisions for grants. Providers also noted a need for reducing upfront capital requirements for reimbursement-based grants or supporting producers in making these expenditures through low-cost credit. Further, equitable funding for the 1890 institutions[12] would also support the creation of tailored research and knowledge as well as human resources to address these issues (Asare-Baah et al., 2018; Furman et al., 2014).

As federal agricultural support institutions seek to rebuild trust with underserved communities, it will be particularly important to implement transparent decision-making processes for loan and grant allocation (Dy & Seybold, 2023). There needs to be a stronger push to diversify agency leadership and staff at all levels and to create safe, welcoming spaces at local offices to address the discomfort reported by many producers visiting these facilities (Diaz et al., 2023).

[12] 1890 institutions are 19 historically Black land-grant universities in the U.S. established to provide agricultural and mechanical education. They receive federal funding for research and extension programs to support underserved communities and small farmers.

Future research is needed that measures the distribution and quality of TA programming across the country—especially regarding the intensity of engagement and associated measurable outcomes. In addition to qualitative research like this study, longitudinal and mixed-methods study that link funding and service delivery with farm-level economic and social outcomes are required to examine specific results. Since trust is a major factor in sustaining equity-focused TA programming, future research must examine how policy shifts like the ongoing ones have long-term effects, assess how subsequent reinvestments have (or have not) rebuilt trust and capacity, and identify strategies to make TA resilient to future political and funding fluctuations.

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Appendix. Structured Interview Guide for Technical Assistance Providers

Introduction

1. Can you please tell us about your organization; if it is a local or national nonprofit or for-profit, extension, institution, state or federal, if there are TA staff who are Black, Hispanic, or Tribal; where you are located, your position and role, and how long you have been with the current organization?
2. Thinking about a typical day in your work, what type of farming operations do you most frequently work with and what are the most common issues that you address?

Technical Assistance for Wholesale Marketing

3. Can you provide an overview of the technical assistance programs and resources you currently provide to assist producers in upscaling their agricultural operation to production for wholesale?
4. Are any of these programs specifically designed for Black, Hispanic, or Tribal producers or are they designed for all producers? If so, please elaborate.
5. Please share (or explain) your process for developing your technical assistance for wholesale market upscaling?
6. Do you do outreach to specifically recruit and engage Black, Hispanic, and Tribal producers in your wholesale farming programming? Please elaborate.
7. On average per year, how many are on staff at your organization to provide the technical assistance you described to producers overall, and specifically to Black, Hispanic, and Tribal producers?

Distinct Needs of Black, Hispanic, and Tribal Producers

8. How, if at all has your organization worked with Black, Hispanic, and/ or Tribal producers? Which, if any, of these communities does your organization focus on?
9. In your experience, what are some of the distinct needs that Black, Hispanic, and/ or Tribal producers have when scaling their operations for wholesale markets?
10. How do these needs differ from those of other producers in the same region?
11. What examples do you have of how you have tailored your services to meet these specific needs?
12. Are there any barriers or challenges that Black, Hispanic, and/ or Tribal producers face in accessing or utilizing technical assistance resources?

Feedback and Improvement

13. What are some qualities that you believe are essential for technical assistance providers when supporting Black, Hispanic, and/ or Tribal producers?
14. What are some issues that are preventing technical assistance providers from working with Black, Hispanic, and/ or Tribal producers?
15. What specific modes of delivery have been most effective in delivering technical assistance to Black, Hispanic, and/ or Tribal producers? Please elaborate.

Professional Development

16. Have you ever received training focused on wholesale marketing for Black, Hispanic, and/or Tribal producers. If so, please share more details about this training.
17. Have you received either through your organization or on your own, training in cultural and racial competency, ethics and/or racial bias? If so, please share more details about this training.

18. What other trainings, specific to wholesale marketing and/ or cultural and racial competency are you interested in?

Closing Remarks

19. Is there anything else you would like to share regarding your experiences working with Black, Hispanic, and Tribal producers in accessing wholesale markets and technical assistance resources?
20. Is there anyone who you would recommend that we talk to regarding this study?