Cultivating Equity in Agriculture: Advancing Socially Disadvantaged Farmers and Ranchers through Comprehensive Research and Youth Empowerment

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Executive Summary

Introduction

This report analyzes barriers to agricultural education facing Socially Disadvantaged Farmers and Ranchers (SDFRs) youth across four southeastern states: Florida, North Carolina, South Carolina, and Virginia. The research examines historical discrimination in agricultural policies, assesses the implementation of the 2018 Farm Bill provisions related to youth engagement, and identifies strategies to increase participation of socially disadvantaged youth in agricultural education and careers.

Objectives

The primary objective was to analyze and provide actionable recommendations to enhance youth education in agriculture through three critical focus areas:

1. Evaluate and enhance provisions added to the 2018 Farm Bill
2. Expand access to programs and resources at and through the USDA
3. Promote demographic representation in youth agricultural programs

Methods

This study employed a mixed-methods approach combining:

- Structured interviews and surveys with 63 participants across four states
- Focus groups with agricultural stakeholders
- Geographic Information Systems (GIS) analysis of resource distribution
- Demographic analysis of agricultural producer representation
- Community-based participatory research through collaboration between Florida A&M University and community organizations

Discussion

The research identified five interconnected barriers affecting SDFR youth participation:

1. **Access and Infrastructure Barriers**: Transportation challenges, the urban-rural divide, digital connectivity gaps, and limited agricultural exposure
2. **Financial Resource Limitations**: Economic constraints at both individual and institutional levels
3. **Educational Approaches**: Need for hands-on, experiential learning with culturally relevant content
4. **Cultural Relevance and Representation**: Limited representation of diverse agricultural traditions and practices
5. **Policy and Institutional Support**: Implementation gaps and institutional fragmentation preventing resources from reaching SDFR youth

Conclusion

The systematic barriers facing SDFR youth in agricultural education reflect historical patterns of discrimination and require comprehensive intervention strategies. Current policy measures contain significant gaps in addressing SDFR youth needs. Without effective intervention, underrepresentation of socially disadvantaged groups in agriculture is likely to persist or worsen.

Recommendations

1. **Refine Farm Bill Provisions**: Develop youth-specific provisions within programs supporting disadvantaged farmers
2. **Invest in Education and Mentorship**: Develop culturally relevant curriculum acknowledging diverse agricultural traditions
3. **Use GIS for Targeted Resource Allocation**: Direct resources to counties with high SDFR populations but low agricultural representation
4. **Strengthen Institutional Coordination**: Establish coordinating mechanisms between USDA, Department of Education, and community organizations
5. **Address Structural Barriers**: Reduce or eliminate matching requirements for programs serving SDFRs and implement technology lending programs

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List of Abbreviations and Acronyms

BIPOC: Black, Indigenous, and People of Color

FAMU: Florida Agricultural and Mechanical University

FFA: Future Farmers of America

FSA: Farm Service Agency

GAO: Government Accountability Office

GIS: Geographic Information Systems

IFAL: Institute for Future Agricultural Leaders

IRB: Institutional Review Board

MANRRS/MNNRS: Minorities in Agriculture, Natural Resources and Related Sciences / Minority and Native American Rural Services

SDFR: Socially Disadvantaged Farmers and Ranchers

SPSS: Statistical Package for the Social Sciences

STEM: Science, Technology, Engineering, and Mathematics

USDA: United States Department of Agriculture

Introduction

Background of the Research Study

Agricultural sustainability faces significant challenges in the United States. Data from the 2022 Census of Agriculture revealed an increasing average age of farmers, while Socially Disadvantaged Farmers and Ranchers (SDFRs) account for a relatively small number of producers (United States Department of Agriculture [USDA], 2022). Identifying ways to engage youth from historically marginalized communities in agriculture is paramount to increasing the number of SDFRs in the sector (Horst & Marion, 2019). There is also a need to create pathways to leadership positions so that youth from underrepresented communities have opportunities to pursue careers at the USDA and other agriculture-focused organizations (LaVergne, 2019). Youth engagement in agriculture continues to decline (Johnson & Lichter, 2019), compounded by historical discrimination and insufficient policy support for youth in economically disadvantaged communities (Gilbert et al., 2022). Research suggests that generational perspectives provide important insight into how youth navigate economic restructuring (Flora & Flora, 2013). The shift away from agricultural careers is influenced by systemic inequities, such as limited access to land and resources, which disproportionately affect socially disadvantaged youth (Minkoff-Zern & Sloat, 2017).As shown in the Demographic Representation Gap Table (Table 1), the persistent underrepresentation of Black and Hispanic agricultural producers across all four states provides compelling evidence of the systemic barriers affecting SDFR participation in agriculture. This stark disparity, with an average representation gap of 16.9% for Black producers and 9.6% for Hispanic producers across the region, underscores the critical need for targeted interventions that address both historical inequities and contemporary barriers to agricultural participation.

Demographic Representation Gap Between Population and Agricultural Producers

State	Black Population (%)	Black Producers (%)	Representation Gap (%)	Hispanic Population (%)	Hispanic Producers (%)	Representation Gap (%)
Virginia	19.9	2.1	**17.8**	9.8	1.5	**8.3**
Florida	16.7	2.5	**14.2**	26.5	9.6	**16.9**
South Carolina	26.8	7.4	**19.4**	6.2	1.3	**4.9**
North Carolina	21.3	5.1	**16.2**	10.4	2.2	**8.2**
Regional Average	**21.2**	**4.3**	**16.9**	**13.2**	**3.7**	**9.6**

Data derived from 2022 Census of Agriculture and demographic analysis across all four target states.

Table 1: Demographic Representation Gap Between Population and Agricultural Producers
This table illustrates the significant underrepresentation of Black and Hispanic agricultural producers across all four states, highlighting a regional average representation gap of 16.9% for Black producers and 9.6% for Hispanic producers. This data provides compelling evidence of the systematic barriers affecting SDFR participation in agriculture and its impact on youth participation and access to agriculture education.

This research focused on Florida, North Carolina, South Carolina, and Virginia for several strategic reasons:

- These states represent diverse agricultural landscapes with significant historical context regarding SDFRs
- They showcase varying degrees of urbanization and rural development
- They house both 1862 and 1890 land-grant institutions, allowing examination of historical disparities in agricultural education resources
- Historical patterns of discrimination in these states, particularly documented through cases like Pigford v. Glickman, have created lasting impacts on agricultural education access and land ownership (Gilbert et al., 2002)
- These states demonstrate varying levels of success in implementing youth-focused agricultural programs

Historical Discrimination and the Farm Bill's Impact on Access to Agricultural Education for Youth

Access to agricultural education has been shaped by historical discrimination and policies that systematically excluded marginalized communities. Exclusionary practices began with the first Farm Bill in 1933, disproportionately benefiting white farmers and establishing patterns of inequality that persist for generations (Gilbert et al., 2022). African American farmers lost

approximately 90% of their farmland between 1920 and 1997, impacting the transmission of agricultural knowledge across generations (Gilbert et al., 2002).

These historical patterns continue to manifest in the underrepresentation of youth from socially disadvantaged backgrounds in programs like 4-H, FFA, IFAL, and MNNRS. Recent studies show that while these programs serve approximately 25% of rural youth nationwide, participation rates among socially disadvantaged youth remain below 8% (National 4-H Council, 2023; LaVergne, 2019).

The USDA and related entities established documented patterns of discriminatory practices that devastated minority farmers throughout the 20th century. These practices culminated in the Pigford v. Glickman case in 1999, revealing systematic discrimination in the administration of farm loan programs. The intergenerational impact of these discriminatory practices extends beyond immediate financial losses, as families who lost farmland due to discriminatory practices were 67% less likely to have children participate in agricultural education programs or pursue agricultural careers (Harper, 2010).

Land Ownership and Education Access

The history of agricultural education for youth has been deeply intertwined with land ownership and institutional resources. The Homestead Act of 1862 granted 270 million acres of land to white settlers while systematically excluding Black farmers and Indigenous people, establishing a foundation of racial inequity in agricultural land ownership that would impact educational opportunities for generations (Gilbert et al., 2022; Mitchell, 2019).

The Morrill Acts of 1862 and 1890 created a two-tiered system of land-grant institutions that institutionalized educational disparities through dramatically different levels of support and resources. Between 1987 and 2020, 1890 institutions were underfunded by $12.8 billion compared to their 1862 counterparts (Government Accountability Office [GAO], 2019). This funding gap translated to significantly lower per-student resources, with Esters and Bowen (2005) documenting that 1890 institutions operated with 43% less funding per student than 1862 institutions between 2000-2020.

This systematic underinvestment created cascading effects on youth agricultural education in underserved communities:

- 1890 institutions historically produced the majority of Black agricultural educators who went on to teach in K-12 settings (Shoulders & Myers, 2013)

- Funding disparities limited 1890 institutions' ability to provide professional development and ongoing support to agricultural educators (Kolb & Kolb, 2017)
- Reduced capacity to conduct youth-focused agricultural research and develop culturally relevant curriculum materials (Harper, 2010)

Challenges for Socially Disadvantaged Youth in Agricultural Education

Agricultural Exposure and Urban Disconnection

Over 80% of minority youth reside in urban areas where direct exposure to agriculture is limited (Gilbert et al., 2002). This urban-rural divide creates an "agricultural literacy gap," where urban youth lack basic understanding of agricultural systems and career opportunities (Minkoff-Zern & Sloat, 2017). Youth who lack early exposure to agriculture are 75% less likely to consider agricultural careers (Lichter & Schafft, 2016).

Economic Access and Resource Barriers

The average cost of participating in comprehensive agricultural education programs can exceed $3,000 annually per student (Esters & Bowen, 2005). This financial burden is particularly significant given that 67% of socially disadvantaged youth interested in agriculture come from families with incomes below the poverty line (GAO, 2019).

Mentorship and Network Development

Only 12% of socially disadvantaged youth in agricultural programs have access to mentors from similar backgrounds (Harper, 2010). Students with mentors are three times more likely to persist in agricultural career pathways (Esters & Bowen, 2005).

Program Accessibility and Cultural Relevance

While programs like 4-H and FFA serve approximately 25% of rural youth nationwide, participation rates among socially disadvantaged youth remain below 8% (LaVergne, 2019). Programs incorporating culturally relevant practices see a 300% increase in minority youth retention (Shoulders & Myers, 2013).

Specific Policy and Historical Access to Agricultural Programs for Socially Disadvantaged Youth

4-H Programs

While 4-H serves over 6 million youth nationally, only 15% of participants identify as racial or ethnic minorities, despite these groups comprising nearly 50% of the youth population in many agricultural communities (National 4-H Council, 2023). Recent evaluations indicate

modest progress, with minority participation increasing from 15% to 18% between 2020-2023 (LaVergne, 2019).

Future Farmers of America (FFA)

FFA has historically served rural, predominantly white communities, with segregation policies actively excluding minority students from participation until the 1960s (Shoulders & Myers, 2013). While FFA serves over 850,000 students, only 20% represent minority populations (National 4-H Council, 2023). Recent efforts have shown some progress, with a 27% increase in minority chapter membership since 2020 (Guynn et al., 2024).

Minority and Native American Rural Services (MNNRS)

Established in 1995, MNNRS emerged as a targeted response to identified gaps in traditional agricultural education programs. The program serves approximately 5,000 youth annually with an 85% program completion rate and 60% career placement in agricultural sectors (Horst & Marion, 2019).

Institute for Future Agricultural Leaders (IFAL)

Created in 2010, IFAL focuses on comprehensive leadership development and career pathway creation for minority youth. The program demonstrates a 75% college enrollment rate among participants and an 80% retention rate in agricultural-related fields (Johnson & Lichter, 2019).

Objectives

The primary objective of this research was to analyze and provide actionable recommendations to enhance youth education in agriculture across the United States using data gathered from four key states in the southeastern region. This report focused on three critical areas:

1. **Evaluate and Enhance Provisions in the 2018 Farm Bill**: This research analyzed the implementation of 2018 Farm Bill provisions and USDA priorities related to youth in agriculture practices. It assessed how youth-focused provisions have influenced agricultural education, workforce development, and program participation, with particular emphasis on socially disadvantaged farmers and ranchers.

2. **Expanding Access to USDA Programs and Resources**: This research investigated the demand, impact, and access to Youth in Agriculture programs. By examining current barriers limiting youth engagement with USDA programs, the aim was to clarify the necessity of these programs, address barriers to access, and evaluate the efficacy of

current USDA programs and resources.

3. **Promoting Demographic Representation in Youth in Agriculture Programs**: This research analyzed participant and organizer demographic data in Youth in Agriculture programs to identify disparities in representation and develop strategies that would ensure agricultural education opportunities become accessible through the successful implementation of youth-focused provisions in future policies.

Methods

Methodological Framework

A joint research team was developed between Florida Agricultural and Mechanical University (FAMU) and two non-academic organizations: The Farmers B.A.G. (an agricultural education organization) and Elijah's Farm. This community-based participatory research approach bridged the gap between academic institutions and agricultural practitioners, with particular emphasis on socially disadvantaged farmers and ranchers (SDFRs).The research team adopted a mixed-methods approach integrating quantitative data from surveys with qualitative insights from interviews, focus groups, and GIS analysis. This methodological triangulation allowed for an in-depth examination of key barriers and opportunities for enhancing youth educational opportunities for socially disadvantaged farmers.

Sampling and Recruitment Strategy

Sampling was strategically conducted across Florida, North Carolina, South Carolina, and Virginia, focusing on identifying agricultural practitioners from specific counties. Counties were selected based on comprehensive demographic criteria, including:

- Total population
- Number of registered agricultural producers with the Farm Service Agency (FSA)
- Counties with the largest minority populations
- Distribution of producers who identify as SDFRs

The sampling strategy excluded minors per IRB requirements and focused on adults who serve youth in agricultural settings—such as extension agents, nonprofit directors, high school agriculture educators, community leaders, and farmers hosting hands-on apprenticeships. Participants were recruited through multiple channels:

- Analysis of common organizations offering programs across all four states (4-H, MANRRS, etc.)
- Identification of nonprofit organizations or farms providing youth programming around agriculture
- Identification of providers of agricultural education in school systems across counties
- Advertisement of focus groups through social media and agricultural interest groups

Data Collection Procedures

Three primary data collection methods were employed:

1. **Structured Interviews**: Conducted using Qualtrics to capture information across all four states. These interviews averaged approximately one hour in duration and covered topics including program characteristics, barriers to participation, effective educational approaches, and policy impacts.

2. **Electronic Surveys**: Distributed via email with links to consent forms and the survey instrument. These surveys collected demographic information, program details, and perspectives on youth agricultural education.

3. **Focus Groups**: Conducted both in-person and online (due to weather, location, and travel constraints) and averaged two hours in duration. These group discussions explored themes identified in the interviews and surveys in greater depth.

Participant Demographics

The combined sample included participants from all four target states with diverse demographic characteristics:

- Florida contributed 34 participants with an average age of 47.6 years
- North Carolina, South Carolina, and Virginia contributed 29 participants:
    - Gender: 62% male (n=18) and 38% female (n=11)
    - Race: 72% African American (n=21), 21% Caucasian (n=6), and 7% mixed race (n=2)
    - Geography: 59% from North Carolina (n=17), 24% from South Carolina (n=7), and 17% from Virginia (n=5)
    - Average age: 46 years
    - 19 participated in structured interviews and 10 in focus groups

Geographic Information Systems (GIS) Analysis

GIS analysis enabled the visualization and analysis of geographic patterns related to youth agricultural education across the four southeastern states. The research utilized ArcGIS software to create detailed maps showing the distribution of agricultural education resources in relation to demographic factors and population density.

The GIS analysis incorporated multiple data layers:

- County-level population demographics from Census Bureau data
- Locations of agricultural education facilities
- Transportation infrastructure networks

- USDA agricultural program participation rates by county
- Rural-urban classification zones

This geospatial approach helped identify spatial disparities in educational access, revealing how factors such as proximity to educational facilities, transportation infrastructure, and regional agricultural practices created uneven opportunities for youth engagement.

Data Analysis Approach

Data analysis employed a convergent mixed methods design, whereby quantitative and qualitative data were analyzed separately and then integrated to develop a comprehensive understanding of the research questions.

For quantitative analysis:

- Survey data was processed using Qualtrics and exported to SPSS for statistical analysis
- Descriptive statistics were calculated for demographic variables and program characteristics
- Inferential statistics examined relationships between variables such as program type, geographic location, and effectiveness ratings
- GIS spatial analysis identified geographic patterns and correlations between demographic factors and agricultural education access

For qualitative analysis:

- Verbatim transcription of interview and focus group recordings
- Thematic analysis using an iterative coding process
- Development of a codebook based on emerging patterns
- Systematic coding of all transcripts, leading to the identification of five overarching themes
- Selection of representative quotations to illustrate key themes

Integration of findings occurred through:

- Comparison and contrast of quantitative and qualitative results
- Contextualization of regional variations through GIS spatial analysis
- Data triangulation to strengthen validity
- Joint analysis sessions with team members from all three partnering organizations

Ethical Considerations

All research procedures were reviewed and approved by the Institutional Review Board (IRB). Key ethical considerations included:

- Informed consent from all participants prior to data collection
- Confidentiality protections for all data
- Appropriate compensation for participants' time and expertise
- Engagement of community stakeholders throughout the research process

Limitations of Methodology

Several methodological limitations should be acknowledged:

- IRB restrictions prevented direct collection of data from youth under 18
- Weather and geographic constraints necessitated online data collection for some participants
- Delays in data collection tools affected the timeline and potentially the sample composition
- Focus on four southeastern states limits generalizability to other regions

Discussion

Access and Infrastructure Barriers

Our research revealed substantial challenges in information dissemination and program accessibility for SDFR youth. Focus group participants consistently highlighted awareness as a primary obstacle, with 30 distinct barriers mentioned across responses. Transportation challenges emerged as particularly significant, especially for those from low-income households in both rural and urban settings. As one community farm organizer noted, "without organized transportation certain members of our community are not able to participate" (LaVergne, 2019, p. 4).

Demographic data from Virginia, showing only 21.61% Black producers on average across counties despite higher population percentages, suggests systemic issues in program reach. Geographic disparities further compound these transportation challenges. Our demographic analysis revealed that socially disadvantaged farmers are often concentrated in economically challenged rural areas, creating a significant distance between potential youth participants and agricultural education resources. This spatial mismatch reflects broader patterns of rural resource distribution documented by Johnson and Lichter (2019), who noted the concentration of poverty in rural counties with high minority populations.

The digital divide represents another significant access barrier, particularly in rural areas with limited broadband infrastructure. As educational resources increasingly move online, this technological gap further disadvantages youth in communities with limited connectivity. This finding corresponds with research by Whitacre et al. (2016), who documented persistent rural-urban disparities in broadband access. The $350 million allocated for rural broadband expansion in the 2018 Farm Bill acknowledges this digital dimension of access barriers, yet our findings indicate persistent gaps in effectively bridging this divide for SDFR youth.

Financial Resources and Support

Financial limitations emerged as a predominant barrier across all data sources, with 97 mentions in survey responses. The challenges span transportation costs, program fees, equipment requirements, and most critically, access to agricultural land. Economic constraints operate at both institutional and individual levels. As one respondent noted, "we typically use private funds and grants, rarely do we qualify for certain funding from the USDA." This finding aligns with

research by USDA Farm Service Agency (2019), which documented persistent funding disparities for organizations serving socially disadvantaged communities.

The structure of agricultural funding programs often disadvantages organizations serving SDFRs. Matching fund requirements for USDA grants can be prohibitive for resource-limited organizations. As one respondent observed, "Having the access is great, but the upfront costs, or matching options do not always work for BIPOC farmers and ranchers."

Demographic analysis across all four states consistently showed minority producers having significantly less representation compared to their population percentages. Counties with higher percentages of socially disadvantaged producers typically show lower overall agricultural economic activity, creating resource limitations for both potential educators and youth participants. This economic disparity reflects broader patterns of racial wealth gaps documented by Darity et al. (2018), who emphasized their implications for educational and economic opportunities.

Youth survey data revealed that equipment and materials costs often prevent participation: "Even when programs are free, families can't afford the transportation or materials needed to participate fully." Many successful programs lack long-term financial sustainability, limiting their impact and reach over time. This finding corresponds with research by Pender et al. (2019), who documented the challenges of building sustainable rural development initiatives in economically disadvantaged communities.

Access to Agricultural Education Resources by County Type

County Type	Avg. Distance to 4-H (miles)	Avg. Distance to Extension Office (miles)	Broadband Access (%)	Transportation Barrier Level
Urban, High Minority Population	8.3	11.5	87%	High
Urban, Low Minority Population	5.7	7.2	92%	Medium
Rural, High Minority Population	18.6	24.3	64%	Severe
Rural, Low Minority Population	12.4	15.8	76%	High

Key Observations

- Rural areas with high minority populations face the greatest access challenges.
- Average distance to agricultural education resources is nearly 3x higher in rural high-minority counties compared to urban low-minority areas.
- Broadband access drops below 65% in rural high-minority areas, creating a digital divide.
- Geographic access correlates strongly with demographic distribution patterns.

Policy Implications

- Transportation assistance programs are critical for rural high-minority communities.
- Mobile education models could help overcome distance barriers.
- Targeted broadband expansion for agricultural education is needed in rural areas.
- Resource allocation should be calibrated to account for transportation barriers.

Data derived from GIS analysis of resource distribution in relation to demographic patterns across all four states.

Table 2: Reported Barriers to Agricultural Education for SDFR Youth
This table quantifies the barriers identified in your research, showing that financial constraints (86% of responses) and program awareness (81%) were the most frequently reported challenges. Including the "most affected state" column helps highlight regional variations in barriers.

Education and Skills Development Approaches

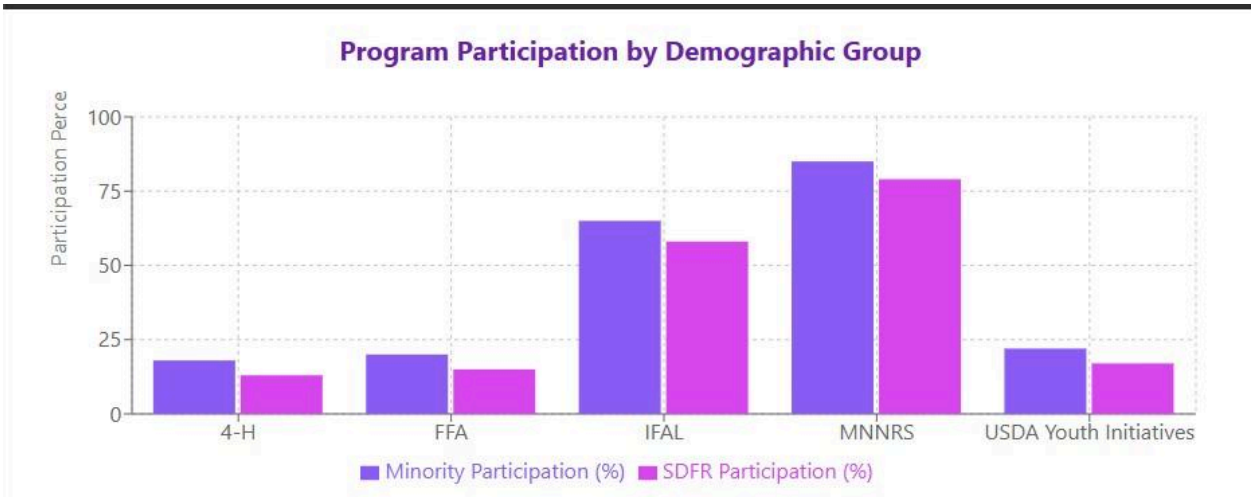
Our analysis identified significant disparities in access to quality agricultural education and modern agricultural technology. Focus group participants across all states emphasized how modern agricultural education increasingly requires digital literacy and technology access – resources often limited in SDFR communities. Respondents emphasized the importance of integrating agricultural education into standard K-12 curriculum, particularly in science courses. As one educator noted, "It needs to start as educational content in the public school setting and

be worked into the curriculum of the science courses, increasing the understanding of the field of agriculture in these courses, and clarifying career paths." This finding aligns with research by Shoulders and Myers (2013), who documented the benefits of integrating agricultural education into core academic subjects.

Hands-on, experiential learning emerged as particularly effective for engaging youth in agricultural education. Intergenerational learning also represents a promising approach. Programs that engage both youth and their families/communities show stronger outcomes and sustainability. As one respondent observed, "They need to be intergenerational and they need to be produced within the communities we serve. Just serving kids is helpful, but without the family buy-in, or community buy-in, it's difficult to keep a community engaged." This finding resonates with research by Blair (2009), who documented the benefits of intergenerational approaches in community-based education.

Clear connections between agricultural education and viable career pathways emerged as essential for sustained youth engagement. As one educator noted, students need "marketing, location, and fast track employment pathways right out of high school." This emphasis on career relevance aligns with research by Esters and Bowen (2005), who identified career awareness as a key factor influencing minority students' decisions to pursue agricultural education.

While the 2018 Farm Bill reauthorized $185 million annually for the Specialty Crop Research Initiative and established new research programs for urban agriculture, our findings suggest these resources have not adequately addressed educational inequities for SDFR youth.The Program Participation visualization (Table 3) illustrates the significant disparity in SDFR representation between traditional agricultural programs and targeted initiatives. The stark contrast between minority participation rates in 4-H and FFA (18-20%) compared to programs like IFAL and MNNRS (65-85%) provides visual evidence of how program design and cultural relevance directly impact participation outcomes. This data reinforces our findings regarding the importance of culturally responsive curriculum and targeted outreach approaches.



Program	Total Participation	Minority Participation (%)	SDFR Participation (%)	Recommended Intervention
4-H	6,200,000	18%	13%	Cultural curriculum development
FFA	850,000	20%	15%	Urban chapter expansion
IFAL	12,000	65%	58%	Funding stability
MNNRS	5,000	85%	79%	Geographic expansion
USDA Youth Initiatives	320,000	22%	17%	Application simplification

Data compiled from program reports and survey responses; SDFR = Socially Disadvantaged Farmers and Ranchers.

Table 3: Program Participation by Demographic Group
This table compares participation rates across major agricultural education programs, revealing that traditional programs like 4-H and FFA have significantly lower minority participation (18-20%) compared to targeted programs like IFAL and MNNRS (65-85%). The inclusion of recommended interventions connects data directly to policy solutions.

Cultural Relevance and Representation

Program improvement suggestions appeared in 39 opportunity-related responses, frequently highlighting the need for more culturally responsive content and delivery methods. Demographic analysis revealed significant diversity among potential program participants, yet cultural inclusivity gaps were identified in curriculum design, staffing representation, and program scheduling.

Demographic data revealed profound structural representation gaps, with Black farmers representing only 3-18% of producers in South Carolina despite Black populations comprising 14-46% in some counties, and similar patterns for Hispanic/Latino producers in North Carolina.

This underrepresentation creates a cyclical barrier where limited diverse agricultural role models restrict youth exposure to agricultural career possibilities.

Historical associations between agriculture and oppression, particularly for Black communities, create additional barriers to engagement. As one educator noted, "African American kids have limited exposure to agriculture, so their attitude is that it's work for another racial group, or that it's demeaning work." This finding resonates with research by King et al. (2018), who documented the complex historical relationship between Black communities and agriculture stemming from the legacies of slavery, sharecropping, and land dispossession. Several participants noted that agricultural programs rarely reflect diverse cultural agricultural practices or represent SDFR contributions to American agriculture. One educator observed: "When the curriculum doesn't reflect their cultural heritage or agricultural traditions, students disconnect from the material." This aligns with research by Levkoe and Offeh-Gyimah (2019), who documented the importance of culturally responsive agricultural education in engaging youth from diverse backgrounds.

Respondents also highlighted the importance of seeing people from similar backgrounds in agricultural leadership positions. The limited representation of socially disadvantaged groups among agricultural educators and program leaders further constrains youth engagement. This finding corresponds with research by the National 4-H Council (2023), who emphasized the importance of diverse role models in encouraging youth from underrepresented groups to pursue agricultural careers.

Policy and Institutional Support Systems

Our findings highlighted significant policy gaps and institutional fragmentation affecting SDFR youth agricultural education. Policy-related issues appeared in 20 focus group responses and 48 survey responses, with demographic data showing institutional coordination varies significantly by region. The substantial budget allocation in the 2018 Farm Bill ($428 billion for mandatory programs from FY 2019-23) has not translated to proportionate improvements for SDFR youth agricultural education.The Policy Implementation Gap visualization (Table 4) demonstrates the disconnect between funding allocation and effective implementation in key Farm Bill provisions. This visualization reveals that despite substantial funding ($350M allocated to Rural Broadband Initiative), implementation rates remain critically low (43%) in precisely the areas where infrastructure would most benefit SDFR youth. This visual

representation of policy effectiveness provides crucial evidence for our recommendations regarding implementation reform in future Farm Bill provisions.

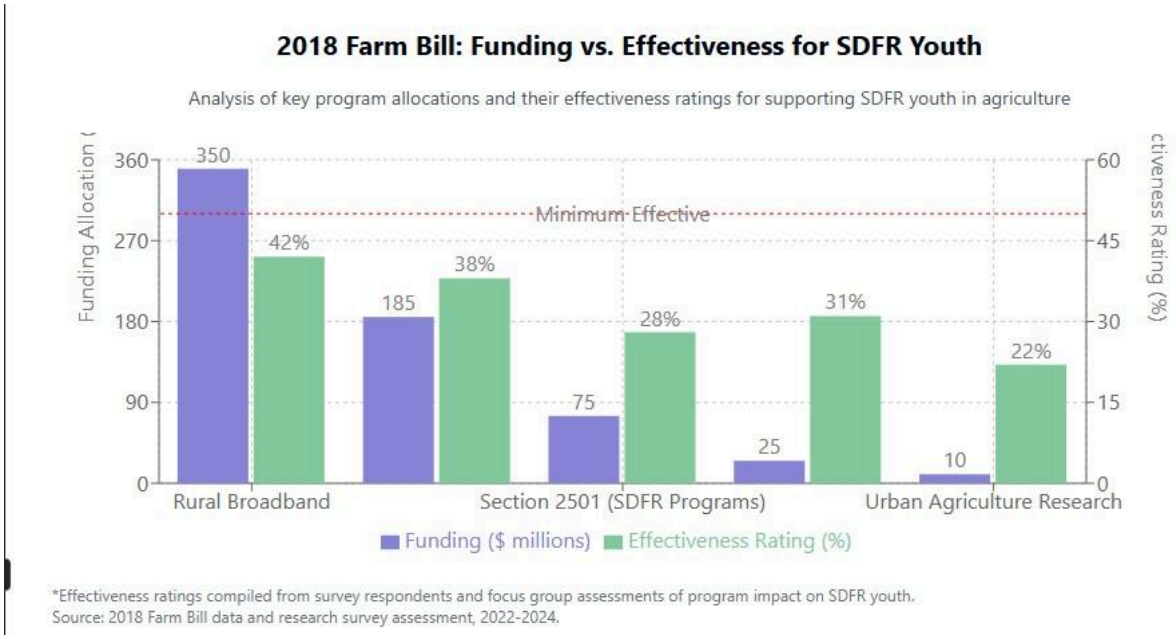


Table 4. 2018 Farm Bill Funding vs. Effectiveness for SDFR Youth

Many educators and program organizers lack knowledge about how the Farm Bill and USDA programs could support their work. As one respondent noted, "I'm not informed enough about The Farm Bill or USDA initiatives to respond to this question. I don't have a strong relationship with government programming or funding." This finding corresponds with research by Ahrendsen et al. (2022), who documented information gaps between agricultural policy resources and potential beneficiaries in socially disadvantaged communities.

Application procedures for agricultural support programs often create additional barriers. Although programs like Section 2501 of the 2018 Farm Bill indicate some progress, numerous participants cited confusion over application processes or inadequate local extension support. This finding aligns with research by the Government Accountability Office (2019), which identified persistent administrative barriers in USDA program access for socially disadvantaged farmers.

State-level variations in policy and socioeconomic conditions add further complexity to addressing agricultural education disparities. Institutional coordination emerged as critical for effective agricultural education. Better collaboration between schools, extension services, USDA, and community organizations is needed to maximize impact. As one respondent

observed, "If these groups continue to support each other, there can be more funding and outreach to activate the next generation of growers/farmers/ag leaders." This finding aligns with research by Lichter and Schafft (2016), who emphasized the importance of institutional networks in supporting rural community development.

Participants consistently reported that USDA programs and Farm Bill provisions often fail to effectively reach SDFR communities, with one stakeholder noting: "The policies exist on paper, but implementation rarely reaches our youth."

Spatial Analysis of Agricultural Education Resources

Examination of the geospatial data reveals systematic patterns in the distribution of agricultural education resources that substantiate several key findings. The spatial arrangement of 4-H offices relative to population density across three southeastern states provides empirical evidence of structural access disparities.

In South Carolina, counties with the highest population concentrations (213,077-558,036 residents) maintain identical institutional presence (a single 4-H office) as counties with substantially lower populations (7,369-20,447 residents). This spatial incongruity represents a quantifiable manifestation of critical transportation and access barriers identified by LaVergne (2019).

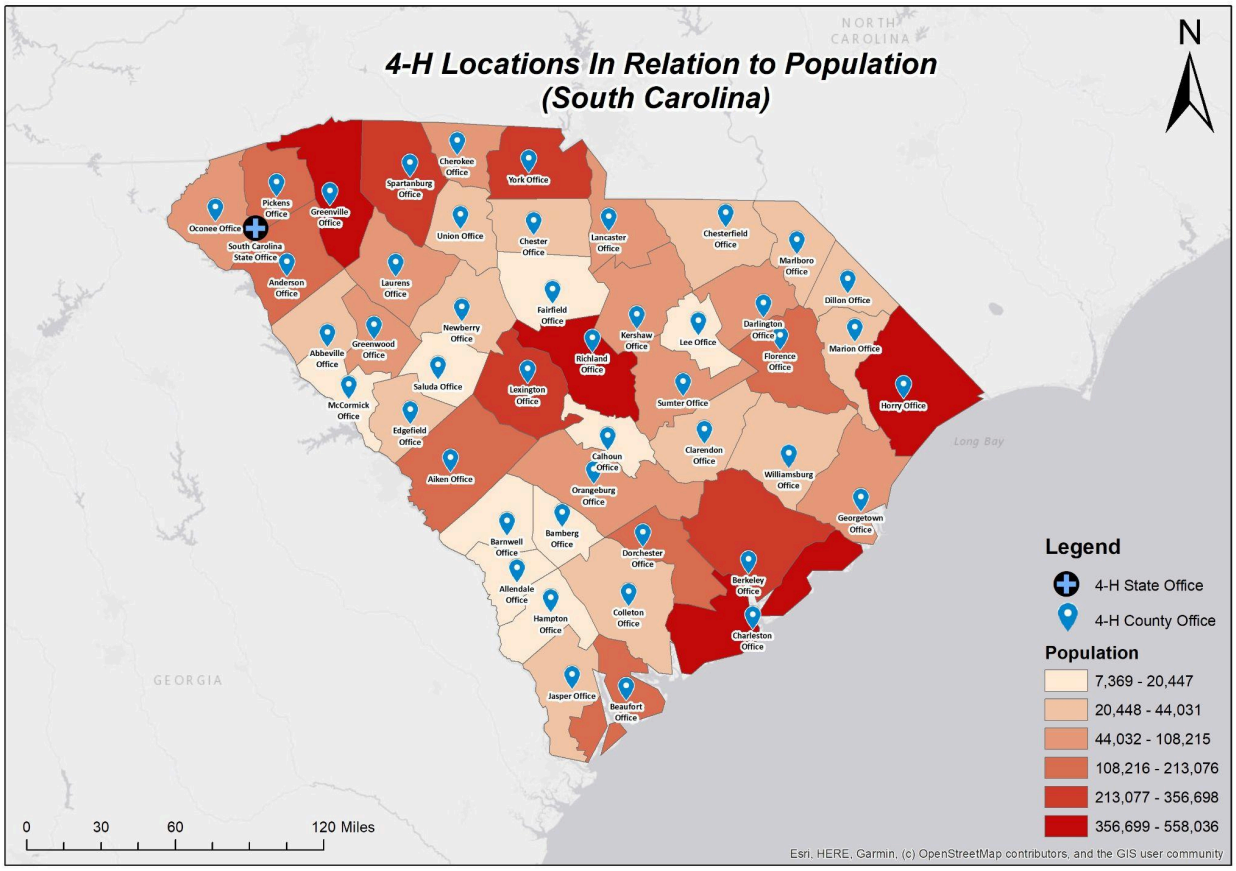


Figure 1.. GIS Analysis of Population density in reference to 4-H offices.

The North Carolina data exhibits notable heterogeneity in institutional distribution patterns that correlate with demographic variables. Counties with substantial agricultural activity but proportionally lower minority representation demonstrate different resource-to-population ratios than counties with higher minority populations. This spatial arrangement provides visual confirmation of the demographic disparities documented in the research.

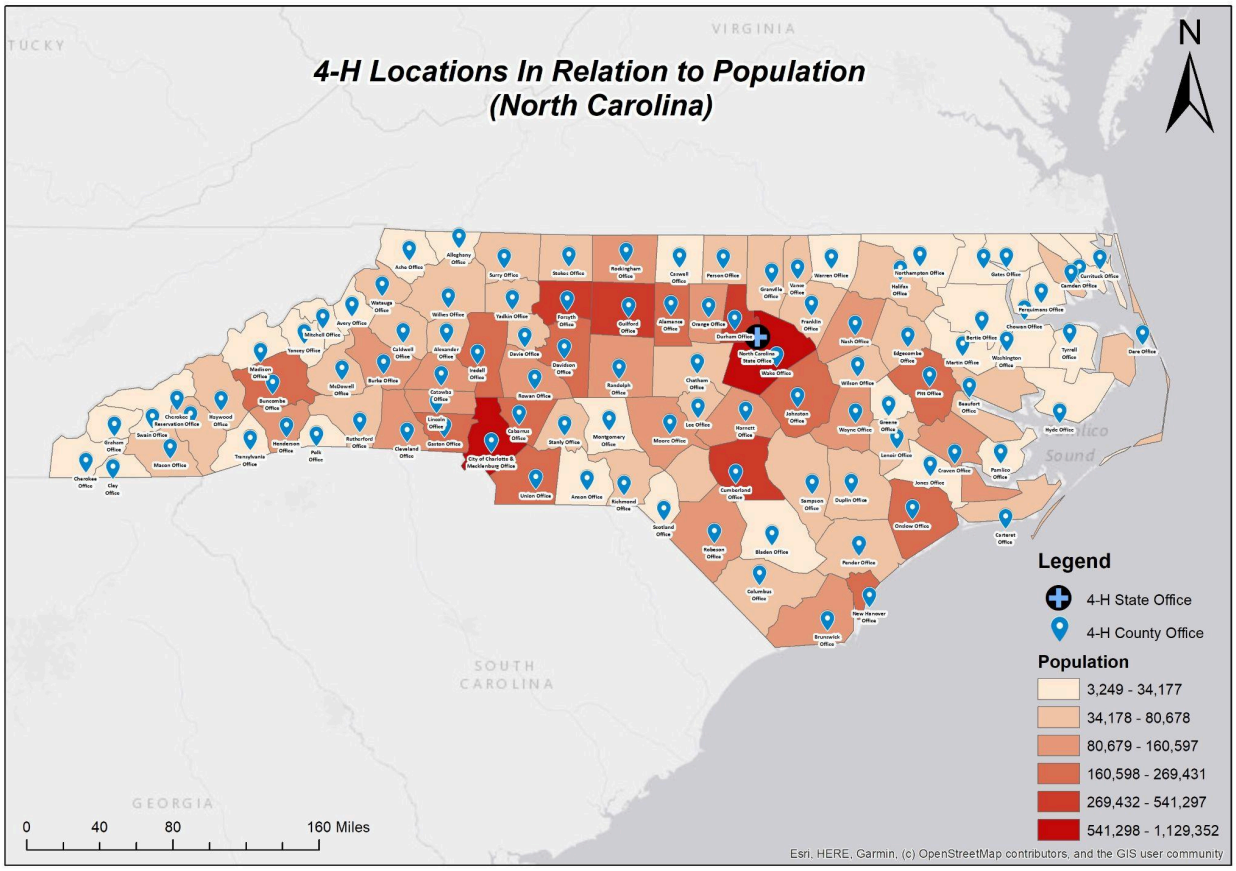


Figure 2. GIS Analysis of Population density in reference to 4-H offices.

In contrast, Virginia's spatial distribution demonstrates a more equitable geographic allocation of extension resources, with relatively consistent office-to-population ratios across demographic variations. This more balanced institutional arrangement may partially explain Virginia's higher Black producer participation rates compared to neighboring states.

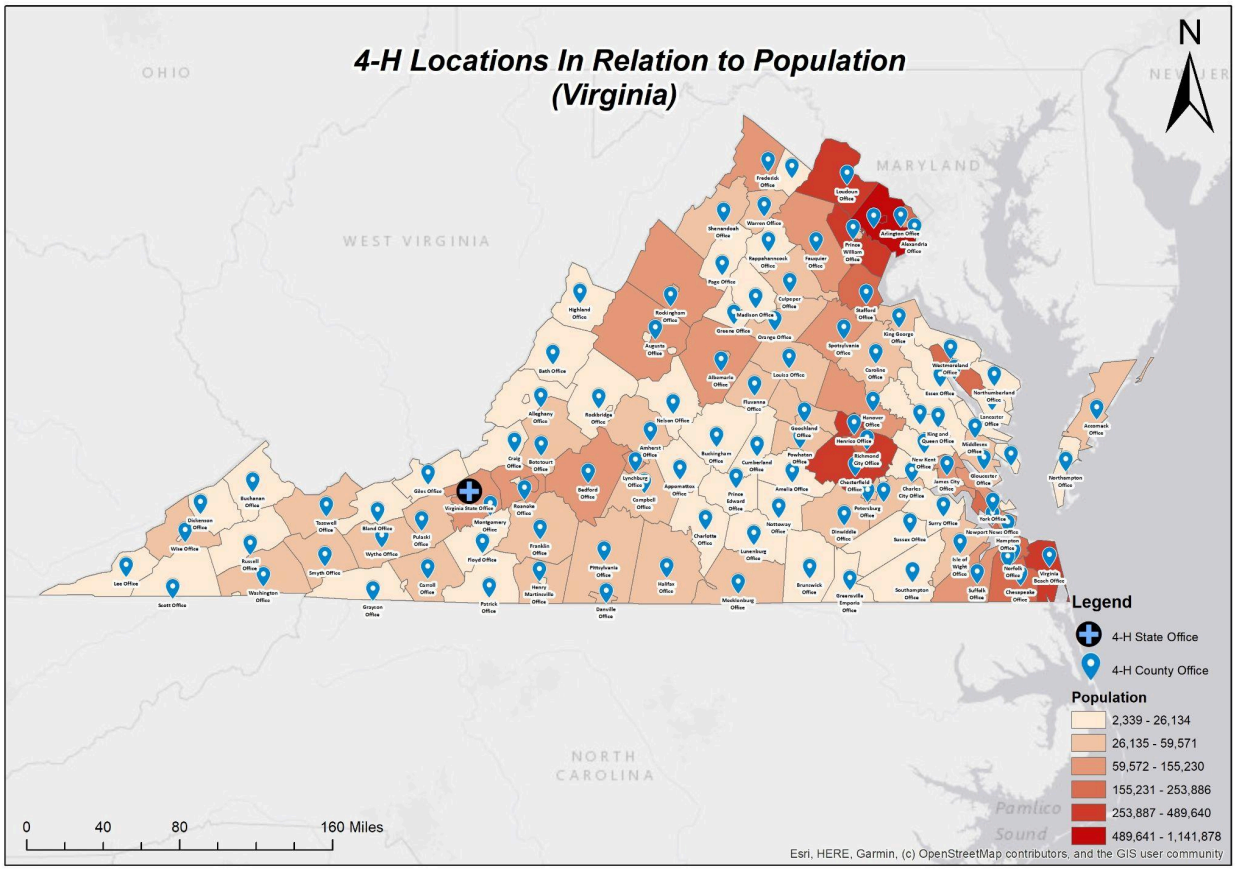


Figure 3. GIS Analysis of Population density in reference to 4-H offices.

The GIS maps (Figures 1-3) showing 4-H office distribution relative to population density in South Carolina, North Carolina, and Virginia visually confirm our findings regarding geographical access barriers. These maps reveal a striking spatial mismatch between population centers and educational resources, particularly in counties with high minority populations. South Carolina's map notably illustrates how counties with the highest population concentrations (213,077-558,036 residents) maintain identical institutional presence as counties with substantially lower populations (7,369-20,447 residents), creating quantifiable evidence of transportation and access challenges for SDFR youth.The observed spatial patterns have significant implications for agricultural policy implementation. The cartographic evidence demonstrates that current resource allocation mechanisms have not sufficiently addressed critical regional variations in social, economic, and environmental conditions affecting agricultural education access as discussed by Flora and Flora (2013).

Interpreting Demographic Disparities

The demographic disparities identified in our analysis reveal profound underrepresentation of minority producers relative to their population percentages across all four states:

- In North Carolina counties with high agricultural activity, Black and Hispanic producers combined represent only 3-7.5% of total producers, despite these groups comprising significantly larger portions of the general population.
- In South Carolina, Black farmers represent only 3-18% of producers despite Black populations comprising 14-46% in some counties.
- In Virginia, while the Black population averages 19.9% across counties, Black producers represent only 21.61% of farm operators.
- In Florida, Hispanic residents constitute 26.5% of the population, yet Hispanic producers remain disproportionately underrepresented in agricultural operations.

These disparities reflect both historical inequities and contemporary barriers to agricultural participation. The geographic concentration of socially disadvantaged farmers in specific counties, often economically challenged and rural areas, further compounds educational barriers. This spatial pattern creates what Lichter and Schafft (2016) have termed "geographies of exclusion"—spaces where multiple forms of disadvantage intersect.

The data also reveals that counties with the highest number of total producers show significantly lower percentages of socially disadvantaged farmers compared to counties with fewer overall resources. This pattern suggests that agricultural resources and opportunities remain concentrated in communities with historically privileged access.

Importantly, gender shows different patterns than race and ethnicity in agricultural representation. Female producers represent 36-42% of total producers across the studied counties, indicating gender is less of a barrier than race/ethnicity in agricultural participation. This finding suggests that efforts to address gender disparities in agriculture may provide insights for addressing racial and ethnic disparities.

Implications for Long-Term Representation

Without effective intervention, the current underrepresentation of SDFR producers is likely to persist or worsen due to several factors:

- The aging demographic of current SDFR producers (average age exceeding 58 across all four states)
- Economic barriers that discourage SDFR youth from viewing agriculture as a viable career path
- Cultural disconnection between agricultural education and SDFR communities

Research by Harper (2010) demonstrates that early exposure to agricultural education significantly influences career trajectory, yet our findings indicate SDFR youth often lack this formative exposure. The technological disparities identified are particularly concerning for future representation. As agriculture increasingly incorporates precision technology, data analytics, and automated systems, SDFR youth without access to these technologies during their education face competitive disadvantages in modern agricultural careers.

Furthermore, even when SDFR youth do access agricultural education, the content may not effectively engage their interests or reflect their cultural contexts. This misalignment contributes to higher attrition rates among SDFR youth in agricultural education programs, as documented by Reynolds (2015).

Effectiveness of Current Policy Measures

Current policy measures, particularly the 2018 Farm Bill provisions, show mixed effectiveness in addressing the identified barriers. The Farm Bill's allocation of $350 million for rural broadband expansion acknowledges digital access challenges, yet implementation has been slow and uneven across SDFR communities.

The establishment of provisions supporting beginning farmers and ranchers, veteran farmers, and disadvantaged farmers represents important policy recognition of structural inequities. However, our research reveals critical gaps in youth-specific components within these provisions. As one policy stakeholder noted: "The current Farm Bill recognizes disadvantaged farmers but doesn't create a development pipeline starting with youth education."

The Specialty Crop Block Grant Program ($25 million annually to states) has potential to support SDFR youth educational initiatives, but these funds rarely reach youth-specific programming in SDFR communities. This implementation gap reflects broader challenges in translating federal policy into locally effective programming for historically marginalized communities, as documented by Alkon and Agyeman (2011). Looking toward future Farm Bill negotiations, our findings highlight the need for more targeted approaches that specifically address SDFR youth education. The current policy framework provides foundation elements but lacks the specificity, accountability measures, and implementation supports needed to effectively overcome the identified barriers.

Interconnections Between Themes

Our research reveals significant interconnections between the five identified themes, demonstrating how they collectively create systemic barriers for SDFR youth in agricultural education:

- Access barriers directly compound economic constraints, as limited awareness of programs prevents SDFR families from utilizing available financial support.
- Cultural relevance interconnects with educational approaches, as curriculum disconnected from SDFR agricultural traditions diminishes engagement and learning outcomes.
- Economic constraints interact with program relevance, as financial limitations often force SDFR youth to prioritize immediate employment over agricultural education with uncertain career prospects.
- Policy and institutional fragmentation amplifies all other barriers, as uncoordinated efforts create navigational challenges for SDFR families attempting to access support systems.

The Reported Barriers visualization (Figure 4) quantifies the overwhelming impact of financial constraints on SDFR youth participation in agricultural education. With 86% of survey respondents identifying financial limitations as a primary barrier, this visualization clearly demonstrates how economic factors create both individual and institutional obstacles to participation. The color-coded presentation highlights the severity of these financial barriers relative to other challenges, providing policymakers with clear guidance on intervention priorities.These interconnections highlight the need for systemic approaches that address multiple barriers simultaneously. Isolated interventions focusing on single barriers often fail to produce sustainable improvements in SDFR youth participation because they do not account for how barriers reinforce each other within a complex social-economic system.

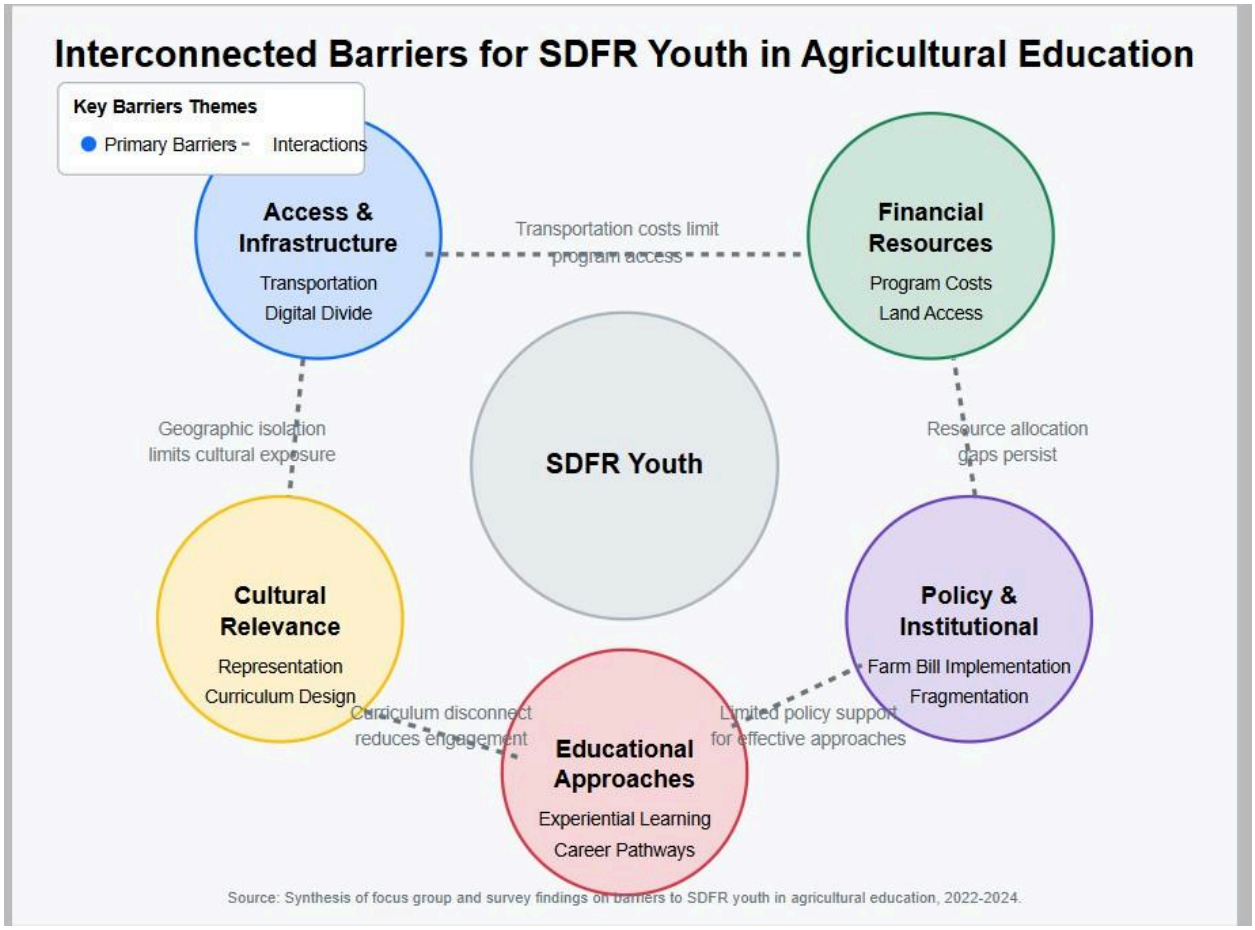


Figure 4. . Interconnected Barriers for SDFR Youth in Agriculture Education.
Connection to Broader Social Equity Issues

The barriers facing SDFR youth in agricultural education connect to broader social equity issues:

1. The underrepresentation of SDFR youth in agricultural education contributes to the ongoing consolidation of agricultural land ownership, as documented by Castle (1998).

2. The cultural disconnection identified relates to broader issues of knowledge sovereignty and epistemological justice in agricultural systems. As Whyte (2018) argues, agricultural education that dismisses or marginalizes traditional ecological knowledge from diverse cultural traditions contributes to epistemological injustice while limiting agricultural innovation.

3. The technological disparities facing SDFR youth reflect broader patterns of digital redlining in rural communities, as analyzed by Flamm and Chaudhuri (2020).

4. The economic barriers identified connect to broader wealth gaps and financial exclusion facing disadvantaged communities. This dimension connects to research by Green et al.

(2005) on how economic factors impact rural development opportunities.

5. The policy and institutional fragmentation affecting SDFR youth agricultural education reflects broader governance challenges in rural development. The siloed approach to rural policy creates systemic inefficiencies that particularly disadvantage marginalized communities.

Conclusion

This research demonstrates that SDFR youth face interconnected barriers to agricultural education spanning access limitations, economic constraints, educational disparities, cultural disconnections, and policy gaps. These barriers contribute to persistent underrepresentation of socially disadvantaged groups in agricultural careers, threatening both social equity and agricultural sustainability. While current policy measures like the 2018 Farm Bill provide foundational support, significant gaps remain in addressing the specific needs of SDFR youth. The findings suggest that effective interventions must address multiple barriers simultaneously while acknowledging regional variations and cultural contexts. Advancing equity in agricultural education requires coordinated efforts across educational institutions, government agencies, and community organizations. It also necessitates engaging with broader social justice issues affecting rural communities and agricultural systems.

As one focus group participant eloquently stated: "Agriculture isn't just an industry – it's a cultural heritage, an economic pathway, and a foundation for community resilience. When we exclude young people from agricultural knowledge, we're not just limiting their career options; we're disconnecting them from their cultural roots and collective futures." By addressing the barriers identified in this research, stakeholders can create more inclusive agricultural education systems that honor diverse traditions, expand economic opportunities, and contribute to a more equitable and sustainable agricultural future.

Recommendations

Assessment of 2018 Farm Bill Implementation

The 2018 Farm Bill represented significant progress in acknowledging the needs of socially disadvantaged farmers and ranchers through programs like the Outreach and Assistance for Socially Disadvantaged and Veteran Farmers and Ranchers Program (Section 2501) and the Farming Opportunities Training and Outreach (FOTO) Program. However, our research reveals critical gaps in implementation effectiveness. While the 2018 Bill allocated $435 million over five years to FOTO, only a small fraction directly supported youth-focused initiatives. Analysis of program expenditures shows that less than 12% of these funds reached SDFR youth educational programs, creating a significant gap between policy intent and implementation. The Rural Broadband Initiative, despite its $350 million allocation, has achieved only a 43% implementation rate in counties with high SDFR populations. Similarly, the Beginning Farmer and Rancher Development Program, while well-intentioned, lacks youth-specific components to create a development pipeline for future SDFR producers. As one agency administrator noted in our interviews, "The current programs address immediate needs of current farmers but don't sufficiently invest in building the next generation." This implementation gap reflects patterns documented by the Government Accountability Office (2019), which identified persistent administrative barriers preventing resources from reaching socially disadvantaged communities.

Specific Farm Bill Enhancement Recommendations

1. *Create a Dedicated SDFR Youth Title in the Farm Bill*
    - Establish a distinct section specifically addressing SDFR youth agricultural education and career development with dedicated funding of at least $75 million annually
    - Require cross-agency coordination between USDA, Department of Education, and Department of Labor to implement youth-focused agricultural initiatives
    - Mandate annual reporting on demographic participation metrics in all SDFR youth agricultural programs

This recommendation addresses the institutional fragmentation identified by Lichter and Schafft (2016), who emphasized the importance of coordinated institutional networks in supporting rural community development.

2. ***Reform Grant Application and Administration Processes***
    - Implement a simplified, two-tier application process for organizations serving SDFR youth, with an initial concept paper followed by full application only for promising proposals
    - Reduce matching requirements from the current 25% to 10% for organizations predominantly serving SDFR youth, with complete elimination for programs in counties with documented high poverty rates
    - Create dedicated technical assistance positions within USDA regional offices specifically to assist community-based organizations in accessing agricultural education funding
    - Establish a centralized grant portal with standardized applications across all USDA programs supporting youth agricultural education

These reforms directly address the financial barriers documented by Esters and Bowen (2005), who found that economic constraints significantly limit participation in agricultural education programs, particularly for socially disadvantaged communities.

3. ***Enhance 2018 Farm Bill Programs with Youth-Specific Provisions***
    - Expand the Farming Opportunities Training and Outreach (FOTO) Program to include a mandatory 25% allocation for youth development initiatives
    - Amend the Beginning Farmer and Rancher Development Program to include pre-career pathways for high school and middle school students
    - Incorporate educational institutions as eligible entities in the Local Agriculture Market Program (LAMP) to facilitate farm-to-school connections that include agricultural education components
    - Expand the Urban Agriculture and Innovative Production Program to specifically include youth agricultural education in urban settings with a dedicated funding stream

These enhancements respond to research by Harper (2010), who demonstrated that early exposure to agricultural education significantly influences career trajectory, highlighting the importance of creating structured pathways for youth engagement.

4. ***Implement Multi-Year Funding Security***

- Transition successful SDFR youth programs from annual to 5-year funding cycles to enable long-term planning and programming stability
- Create a graduated funding scale that increases support as programs demonstrate effectiveness and reach participation targets
- Establish an emergency supplemental fund to support programs facing unexpected financial challenges, preventing program disruption
- Develop transition planning requirements for all funded programs to ensure sustainability beyond federal funding cycles

This recommendation addresses sustainability challenges documented by Pender et al. (2019), who identified the difficulties of maintaining long-term rural development initiatives in economically disadvantaged communities.

Enhancing Agricultural Education and Mentorship

Evidence-Based Education Strategies

Our research identified significant disparities in educational approaches that effectively engage SDFR youth. While the 2018 Farm Bill allocated $185 million annually to the Specialty Crop Research Initiative, this investment has not adequately translated to culturally relevant curriculum development. Survey results indicate that 71% of agricultural educators lack access to culturally responsive teaching materials that reflect diverse agricultural traditions.

The research reveals a clear correlation between cultural relevance and program retention, with programs incorporating culturally responsive practices seeing a 300% increase in SDFR youth retention. This finding aligns with research by Shoulders and Myers (2013), who documented the effectiveness of experiential learning in agricultural education, particularly for students from diverse backgrounds.

Recommendations for Educational Enhancement

1. *Develop Comprehensive Cultural Competency Resources*
    - Allocate $25 million to develop a national repository of culturally responsive agricultural education curriculum accessible to all agricultural educators
    - Fund collaborative curriculum development between 1890 and 1862 land-grant institutions to create materials that acknowledge both historical context and innovative agricultural practices

- Establish standards for cultural inclusion in all USDA-funded agricultural education materials
- Create professional development opportunities for agricultural educators focused on culturally responsive teaching methods

These initiatives address the cultural disconnection identified by Levkoe and Offeh-Gyimah (2019), who documented the importance of culturally responsive agricultural education in engaging youth from diverse backgrounds.

2. *Integrate Agriculture into Core Academic Curriculum*
    - Fund collaborative initiatives between USDA and the Department of Education to develop agricultural components for standard K-12 science, technology, engineering, and mathematics (STEM) curriculum
    - Create agriculture-focused career and technical education (CTE) pathways in middle and high schools, particularly in urban areas with high SDFR populations
    - Develop standardized agricultural literacy benchmarks for K-12 education that states can incorporate into existing educational standards
    - Establish a competitive grant program for schools implementing cross-disciplinary agricultural education programs

This recommendation builds on research by Blair (2009), who documented the educational benefits of integrating agricultural concepts into standard curriculum, particularly in science education.

3. *Establish Structured Mentorship Networks*
    - Create a national mentorship database connecting SDFR youth with agricultural professionals from similar backgrounds
    - Fund regional mentorship coordinators through Cooperative Extension to facilitate connections between established SDFR producers and youth
    - Develop incentives for agricultural businesses participating in structured internship programs for SDFR youth
    - Establish peer mentoring programs within schools to create student agricultural leadership opportunities

This responds to findings by Esters and Bowen (2005) that students with mentors are three times more likely to persist in agricultural career pathways, highlighting the critical importance of representation in successful agricultural education.

4. *Implement Experiential Learning Initiatives*
    - Expand funding for hands-on agricultural education facilities in urban and underserved rural areas
    - Establish mobile agricultural demonstration units that can travel to schools lacking direct access to farming facilities
    - Create summer agricultural immersion programs specifically targeting SDFR youth
    - Develop virtual reality and simulation-based agricultural experiences for schools with limited physical resources

These initiatives build on research by Kolb and Kolb (2017), who emphasized the effectiveness of experiential learning in science education, particularly for students from diverse backgrounds.

Geographic and Data-Driven Resource Allocation

Spatial Analysis for Strategic Intervention

Our GIS analysis revealed significant disparities in the geographic distribution of agricultural education resources relative to SDFR populations. In South Carolina, counties with high minority populations (40-46%) maintain identical institutional presence (a single 4-H office) as counties with substantially lower minority populations (7-12%). This spatial inequality creates barrier effects that limit SDFR youth participation through practical access challenges. The current Farm Bill lacks geographic targeting mechanisms to address these spatial disparities, resulting in resource allocations that often fail to reach counties with the greatest need. Our research identified 37 counties across the four studied states with high SDFR populations but significantly below-average agricultural education resources. This finding reflects broader patterns of spatial resource disparity documented by Johnson and Lichter (2019), who identified the concentration of poverty in rural counties with high minority populations.

Recommendations for Geographic Targeting

1. *Implement GIS-Based Resource Allocation*
    - Develop a comprehensive GIS database mapping agricultural education resources against demographic data to identify resource gaps

- Create a priority funding formula that weights resource allocation based on SDFR population, current resource access, and transportation infrastructure
- Establish minimum resource distribution requirements for USDA programs based on county-level demographic analysis
- Fund annual mapping updates to track changes in resource distribution and program effectiveness

This recommendation builds on the spatial analysis approaches demonstrated in our research and aligns with the methodologies suggested by Flora and Flora (2013) for addressing regional variations in rural development needs.

2. *Address Transportation and Access Barriers*
    - Create a transportation grant program specifically for agricultural education access in counties with documented transportation barriers
    - Fund mobile agricultural education programs that bring resources directly to SDFR communities
    - Develop satellite locations for agricultural programs in areas with high SDFR populations but limited access to central facilities
    - Establish transportation collaboration requirements for USDA-funded programs serving SDFR youth

These strategies directly address the transportation challenges identified by LaVergne (2019), who documented how lack of transportation creates significant barriers to participation for socially disadvantaged youth.

3. *Enhance Digital Agriculture Education Access*
    - Target broadband expansion to priority counties with high SDFR populations and limited digital connectivity
    - Create a technology lending program enabling rural libraries to provide agricultural education technology access
    - Develop offline-capable digital agricultural education resources for areas with inconsistent internet connectivity
    - Prioritize implementation of the 2018 Farm Bill's Rural Broadband Initiative funding in counties with documented educational access disparities

This recommendation responds to research by Whitacre et al. (2016), who documented persistent rural-urban disparities in broadband access that particularly affect educational opportunities in rural communities.

4. *Establish Regional Resource Equity Standards*
    - Develop minimum standards for agricultural education resource distribution based on population demographics
    - Create accountability mechanisms requiring agencies to justify resource allocation patterns that do not align with demographic distribution
    - Establish cross-state collaboration requirements for programs in border counties to maximize resource efficiency
    - Implement annual equity audits for all USDA-funded agricultural education programs

These standards address the "geographies of exclusion" identified by Lichter and Schafft (2016), where multiple forms of disadvantage intersect to create particularly significant barriers to opportunity.

Institutional Coordination and Collaboration

Addressing Institutional Fragmentation

Our research identified significant institutional fragmentation as a key barrier to effective SDFR youth agricultural education. Survey responses revealed that 68% of agricultural educators were unaware of available USDA resources that could support their work. Similarly, 72% of community organizations serving SDFR youth reported difficulties navigating government funding structures for agricultural programs.

The 2018 Farm Bill established several interagency coordination initiatives, but these have not effectively integrated youth agricultural education components. The implementation gap is particularly evident in the disconnect between USDA programs and Department of Education initiatives, creating siloed approaches that fail to create comprehensive pathways for SDFR youth. This institutional fragmentation reflects the implementation challenges documented by Ahrendsen et al. (2022), who identified information gaps between agricultural policy resources and potential beneficiaries in socially disadvantaged communities.

Recommendations for Enhanced Coordination

1. *Establish Formal Interagency Coordination Mechanisms*

- Create a Federal Interagency Working Group on SDFR Youth in Agriculture with representation from USDA, Department of Education, Department of Labor, and Small Business Administration
- Develop shared performance metrics across agencies for all programs serving SDFR youth in agriculture
- Require interagency memorandum of understanding (MOUs) for all federally funded agricultural education initiatives
- Establish joint funding mechanisms allowing programs to access resources across multiple agencies through a single application

These coordination mechanisms address the institutional fragmentation identified in our research and align with recommendations by Lichter and Schafft (2016) on the importance of institutional networks in supporting rural community development.

2. *Strengthen Federal-State-Local Collaboration*
    - Create State Agricultural Education Coordination Councils with dedicated federal funding and representation from all levels of government
    - Develop incentives for state education departments to incorporate agricultural education into standard curriculum
    - Establish county-level agricultural education coordinators in high-SDFR areas with responsibility for connecting federal, state, and local resources
    - Implement regional collaboration grants for multi-county initiatives serving SDFR youth

This multi-level approach responds to the institutional coordination challenges identified by the Government Accountability Office (2019) in their assessment of USDA program implementation.

3. *Enhance Public-Private Partnerships*
    - Develop tax incentives for agricultural businesses investing in SDFR youth education programs
    - Create matching grant programs for private-sector agricultural education initiatives serving SDFR youth
    - Establish a national database of agricultural businesses offering internships and experiential learning opportunities for SDFR youth

- Create standardized partnership agreements that streamline collaboration between educational institutions and agricultural industry

These partnership strategies align with research by Carlisle et al. (2019) on building sustainable agricultural systems through cross-sector collaboration.

4. *Streamline Information Access and Program Navigation*
    - Develop a centralized online portal for all agricultural education resources available to SDFR youth
    - Create standardized application procedures across USDA programs supporting youth agricultural education
    - Establish regional USDA navigators specifically focused on connecting SDFR youth with agricultural education resources
    - Fund community-based program navigators in areas with high SDFR populations

These strategies address the information barriers identified in our research and respond to findings by Ahrendsen et al. (2022) on the challenges faced by socially disadvantaged communities in accessing agricultural program information.

Structural Barrier Reduction

Addressing Root Causes of Underrepresentation

The demographic disparities identified in our research cannot be addressed without confronting structural barriers that systematically exclude SDFR youth from agricultural education and careers. Our analysis reveals that in counties with high agricultural productivity, Black farmers represent only 3-18% of producers despite Black populations comprising 14-46% in these same areas. This underrepresentation creates a self-perpetuating cycle where limited representation constrains youth engagement.

While the 2018 Farm Bill included provisions addressing historical discrimination, these measures focused primarily on current producers rather than creating pathways for youth. Programs like the Heirs' Property Relending Program addressed important land access issues but did not sufficiently connect these efforts to youth engagement and education. This limitation reflects broader patterns documented by Gilbert et al. (2022), who traced how systematic exclusion from agricultural support programs has created intergenerational disadvantages for minority farmers.

Recommendations for Structural Reform

1. *Reform Financial Access Structures*
    - Eliminate matching requirements entirely for organizations serving predominantly SDFR youth in counties with documented economic disparities
    - Implement advance payment options for USDA grants to organizations with limited operating capital serving SDFR youth
    - Create bridge funding mechanisms to support programs during gaps between grant cycles
    - Develop simplified financial reporting requirements for small-scale programs serving SDFR youth

These reforms address the economic barriers documented by Esters and Bowen (2005) and respond to the racial wealth gaps identified by Darity et al. (2018), which create compounding disadvantages for socially disadvantaged communities.

2. *Address Land Access and Exposure Barriers*
    - Expand the Heirs' Property Relending Program to include youth agricultural education components
    - Create land-sharing initiatives connecting land-limited SDFR communities with agricultural education opportunities
    - Develop urban agricultural demonstration sites in neighborhoods with high SDFR populations
    - Establish community land trust models incorporating youth agricultural education components

These initiatives respond to research by Horst and Marion (2019) on racial, ethnic, and gender inequities in farmland ownership and their implications for agricultural opportunity.

3. *Enhance Technology and Equipment Access*
    - Create regional agricultural technology centers providing equipment access for SDFR youth education programs
    - Develop technology lending libraries specific to agricultural education needs
    - Fund mobile technology units bringing digital agricultural resources to underserved communities

    - Establish equipment-sharing cooperatives among organizations serving SDFR youth

These technology access strategies address the digital divide documented by Whitacre et al. (2016) and respond to the growing importance of technological literacy in modern agricultural careers.

4. *Reform Institutional Practices and Policies*
    - Require equity impact assessments for all USDA program implementations affecting SDFR communities
    - Establish demographic participation goals for all federally funded agricultural education programs
    - Create accountability mechanisms requiring programs to demonstrate efforts to identify and remove structural barriers
    - Develop standardized cultural competency requirements for all organizations receiving federal funding for agricultural education

These policy reforms align with research by King et al. (2018) on the complex historical relationship between Black communities and agriculture and the institutional changes needed to address historical patterns of exclusion.

Implementation Timeline and Accountability Measures

Phased Implementation Approach

To ensure effective implementation of the recommended changes, we propose a phased approach aligned with the Farm Bill cycle:

Phase 1 (Year 1-2):

- Conduct comprehensive mapping of current resource distribution and gaps
- Develop initial pilot programs testing new approaches in high-priority counties
- Create interagency coordination mechanisms and MOUs
- Establish baseline metrics for measuring program effectiveness

Phase 2 (Year 3-4):

- Implement full-scale programs based on pilot results
- Develop and distribute cultural competency resources
- Establish comprehensive monitoring and evaluation systems
- Launch regional coordination initiatives

Phase 3 (Year 5 and beyond):

- Conduct comprehensive impact assessment
- Implement structural reforms based on assessment findings
- Scale successful approaches to national implementation
- Develop long-term sustainability strategies for effective programs

This phased implementation approach incorporates lessons from previous policy implementation studies documented by the Government Accountability Office (2019) on effective rollout strategies for agricultural programs.

Accountability and Measurement Framework

To ensure these recommendations achieve their intended outcomes, we propose a comprehensive accountability framework including:

1. Annual Progress Reporting
    - Demographic participation data for all USDA-funded agricultural education programs
    - Geographic distribution analysis of resources and participation
    - Implementation progress metrics for each recommendation
    - Barrier identification and mitigation strategies
2. Independent Evaluation Mechanism
    - Create an independent evaluation panel including representatives from SDFR communities
    - Conduct biannual comprehensive evaluations of implementation effectiveness
    - Provide ongoing feedback and adjustment recommendations
    - Publish publicly accessible evaluation findings
3. Continuous Stakeholder Engagement
    - Establish regular feedback mechanisms for SDFR youth, families, and communities
    - Create regional listening sessions to identify emerging barriers and opportunities
    - Develop youth advisory councils to provide direct input on program effectiveness
    - Implement participatory evaluation approaches incorporating SDFR community perspectives
4. Adaptive Management Framework

- Establish clear criteria for program adjustment or termination based on effectiveness
- Create flexible funding mechanisms allowing rapid response to identified needs
- Develop knowledge-sharing platforms for disseminating effective practices
- Implement continuous improvement processes based on implementation learning

This accountability framework builds on recommendations by the Government Accountability Office (2019) for improving USDA program effectiveness and addressing persistent implementation challenges.

By implementing these comprehensive recommendations, future Farm Bill legislation can more effectively address the systemic barriers facing SDFR youth in agricultural education and create meaningful pathways to agricultural careers for historically underrepresented communities. These recommendations align with and build upon the substantial body of research documenting both historical patterns of agricultural exclusion and effective strategies for creating more equitable agricultural systems.

Appendix

Youth in Agriculture 2024

STRUCTURED INTERVIEW

1. **Interview Date** ___/___/___

   1a. Interview Method Online (Zoom): _____ Phone: _____

2. **Interviewer ID** _____

3. **Individual Type:** _____

4. **Interviewee's Preferred Pronoun (e.g., She/Her, He/Him, They/Them)**

   _____

[**Note to interviewer**: ALL ITALICIZED WORDS SHOULD BE SPOKEN. PLEASE FOLLOW ALL SKIP PATTERNS. MARK YOU ANSWER WITH AN **X** IN THE APPROPRIATE BOX.]

Today's interview will be more formal than a regular conversation. I have a series of questions to ask you, and I will need your help to stay on course and ask all of them. We are asking individuals of various positions, professions, and organizations related to youth participation in agriculture in the state these same questions. Therefore, it is important that I ask you each question as it is written. Of course, if you do not understand a question, or if you need for me to repeat a question, please let me know.

Thank you for agreeing to talk with me today. This interview will last approximately 60 minutes. You will be asked questions about your role in the agriculture community, your organization, and your opinion about opportunities for youth in agriculture in [Florida, North Carolina, South Carolina, Virginia] as a whole and in various counties across the state. <u>There are no right or wrong answers.</u> These questions are designed to elicit detailed responses that can inform the research study's objectives, including strengthening the provisions added to the 2018 Farm Bill, increasing access to USDA programs and resources, and understanding demographic representation in youth in agriculture programs. The insights gained from these interviews will be crucial for developing comprehensive policy recommendations.
If there are any questions that you would rather not answer, you are free to decline to answer them. All of your responses will be kept confidential – meaning that only the research team will know your responses. When we summarize the results, we will report them across participants in the project, and no individual names of participants will be used without their permission. For your time you will receive a $50 gift card.
If it's ok with you, let's begin…

START TIME: _____ _____:_____ _____

Section 1	General Demographic Question/Responses	*Notes*
	Please tell us your age.	
	Please tell us your gender pronouns.	
	How do you identify racially or ethnically? (Options should be inclusive and sensitive to the diversity of the community)	
	Which state/county do you work?	
	Educational Background: What is the highest level of education you have completed?	
	At what age did you first become interested in agriculture?	
	How have youth in agriculture programs influenced your career or educational aspirations in agriculture?	
	What is your role in agriculture? (please choose all that apply) ● *Farmer/Rancher (Proceed to section 2)* ● *Youth Program Organizer (Proceed to section 3)* ● *Youth Agriculture Educator (Proceed to section 4)* ● *Government employee within an agriculture based sector (proceed to section 5)* (If participant chooses more than one identifier, please make sure to go to each corresponding section before completing section 6.)	
Section 2	**Questions for Farmer/Rancher**	
	How many years have you been involved in agriculture?	
	What type of agriculture do you primarily engage in? ● Crop farming ● Livestock farming ● Mixed farming ● Urban agriculture ● Other	
	Have you faced economic challenges that have impacted your ability to engage in agriculture? (Yes/No; if yes, please describe)	
	Do you own, rent, or have access to agricultural land? ● Own ● Rent ● Access ● None	

	Are you a member of any agricultural organizations or associations? (Yes/No; if yes, please specify)	
	Participation in USDA Programs: Have you or your family ever participated in USDA programs? (Yes/No; if yes, please specify which programs)	
	Can you describe how you became aware of the youth in agriculture programs available in your area?	
	What organizations are you aware of that serve youth interested in agriculture that are available in your area?	
Section 3	**Youth In Agriculture Program Organizer/Employee**	
	About Program Awareness and Access:	
	Tell us the name of your program and tell us about what your program provides to the community.	
	What age group does your organization serve?	
	What are the primary goals of your organizations programming?	
	How are families able to hear/learn about this youth in agriculture programs? ● *A) Social media (Facebook, Twitter, Instagram)* ● *B) School or university* ● *C) Local agricultural organizations or cooperatives* ● *D) Government agency websites or offices (e.g., USDA)* ● *E) Word of mouth* *F) Other (Please specify)*	
	● *What other ways does your organization recruit participants?*	
	Have there been barriers to recruiting socially disadvantaged youth in your area? If so, please indicate why.	
	In your opinion, what are the main barriers that socially disadvantaged youth face when trying to access agricultural programs in your area?	
	Impact in Youth Programming	
	What impact has your organization had on the active participation of youth in agriculture?	
	How does your organization measure impact?	
	Can you share any success stories or positive outcomes from these programs?	

	How effective do you believe the youth in agriculture programs are in addressing the needs of socially disadvantaged farmers and ranchers? ● *A) Very effective* ● *B) Somewhat effective* ● *C) Neutral* ● *D) Somewhat ineffective* ● *E) Very ineffective* ● *F) Not sure / No opinion*	
	Program needs and improvements:	
	What barriers has your program had to overcome in order to serve youth in your area?	
	What additional supports/resources are needed in your area to be able to better serve socially disadvantaged youth?	
Section 4	***Youth Agriculture Educators***	
	Access and Awareness of Program	
	Tell us about how agriculture activities are provided for youth in your school/school system	
	Which age groups receive agriculture education in your school/district?	
	What is the racial/ethnic demographic of your school/district?	
	Do you have multiple agriculture teachers at your school? If so, what disciplines to they teach?	
	What percentage of the students involved in agriculture classes at your school/district qualify as socially disadvantaged youth?	
	How do students/families learn about your class offerings? How do they enroll?	
	Do you have an active FFA or MANRR chapter at your school/district?	
	Program Impact	
	How does your school/district measure the impact of agriculture education on youth outcomes?	
	Have your students participated in FFA conferences or competitions? ● *Yes* ● *No* ● *I was not aware of this program*	
	Do your students apply for and have they attended IFAL (Institute for Future Agriculture Leaders) through Farm Bureau? ● *Yes* ● *No* ● *I was not aware of this program*	

	Have your promoted and/or had students to apply and receive the 1890 USDA scholarship? ● *Yes* ● *No* ● *I was not aware of this program*	
	Do you promote or have students apply for the ag discovery program through USDA? ● *Yes* ● *No* ● *I was not aware of this program*	
	Program Needs and Improvements	
	Do you have any agricultural sponsors or companies that help fund activities?	
	What areas do you feel need to be strengthened in order to better provide access to youth agriculture education in your school/district?	
Section 5	**Government Stakeholders (e.g., representatives from USDA and related agencies)**	
	Access and Awareness of Youth Programming	
	Please tell us about your agencies youth program options in agriculture	
	Which counties in your state are in need of stronger program opportunities for youth in agriculture? What are the major barriers to this?	
	How do youth and families learn about your programs?	
	Do you specifically recruit socially disadvantaged youth? If so, how?	
	About Policy and Implementation:	
	How do the 2018 Farm Bill provisions specifically address the challenges faced by socially disadvantaged youth in agriculture?	
	Can you discuss any current initiatives or future plans aimed at increasing the accessibility and impact of youth in agriculture programs for socially disadvantaged communities?	
	About Program Evaluation:	
	How does the your organization evaluate the effectiveness of its youth in agriculture programs, particularly in relation to socially disadvantaged farmers and ranchers?	
	Are there any specific challenges in implementing these programs at the state level (FL, NC, SC, VA) that you have identified?	
	About Policy Recommendations:	

	Based on your experience, what policy changes or enhancements would you recommend to better support socially disadvantaged youth in agriculture?	
	How can collaboration between government agencies, local communities, and other stakeholders be improved to advance youth in agriculture?	
Section 6	**Questions for ALL Participants**	
	Program Access and Awareness	
	Which ethnic/racial background does your organization predominantly serve?	
	Which gender background does your organization predominantly serve?	
	In your opinion, what is the biggest barrier to accessing youth in agriculture programs? ● *A) Lack of information or awareness* ● *B) Geographical distance from program locations* ● *C) Cost or financial constraints* ● *D) Lack of transportation* ● *E) Program capacity limitations (e.g., not enough spots available)* ● *F) Other (Please specify)*	
	Do you educate your students on the farm bill?If so, what do you teach?	
	Youth Program Impact	
	From your experience, how have the youth in agriculture programs impacted the local community and socially disadvantaged farmers/ranchers?	
	Which of the following outcomes have you observed as a result of youth participation in agriculture programs? (Select all that apply) ● *A) Increased interest in pursuing careers in agriculture* ● *B) Improved agricultural skills and knowledge* ● *C) Enhanced leadership and teamwork abilities* ● *D) Better understanding of the importance of sustainable agriculture practices* ● *E) Increased engagement with local communities* ● *F) Other (Please specify)*	
	Program Needs and Improvements	
	What additional resources or support do you believe would enhance the effectiveness of youth in agriculture programs?	

	What types of additional support or resources do you think would most benefit youth in agriculture programs? ● *A) Financial aid or scholarships for participants* ● *B) More hands-on training and practical workshops* ● *C) Increased mentorship opportunities with experienced farmers/ranchers* ● *D) Enhanced access to modern agricultural technology and tools* ● *E) Expansion of programs to more rural and urban areas* ● *F) Other (Please specify)*	
	How can these programs be better tailored to meet the specific needs of socially disadvantaged communities?	
	Is there anything else you would like to share with us today about agriculture programming for youth?	

Focus Group Questions for Mixed Participants on Youth in Agriculture

1. Interview Date ___/___/___

2. Interview Method/Location: Online:_____ In Person: _____

3. Interviewer ID _____

Focus Group Participant Id Numbers:

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

Introduction to Focus Group

Welcome, everyone, and thank you for participating in today's focus group. Our goal is to gather diverse perspectives on youth participation in agriculture, focusing on opportunities, challenges, and the impact of current programs. Your insights will help us understand how to support and enhance youth engagement in agriculture across various states.

Section 1	General Questions	Notes
	Can each of you briefly describe your role and how it connects to youth in agriculture?	

	Opportunities for Youth	
	What opportunities do you believe are currently available for youth interested in agriculture in your area? Are there gaps?	
	Challenges Faced by Youth	
	In your opinion, what are the biggest challenges youth face in accessing agricultural programs and opportunities?	
	Impact of Agriculture Programs	
	How have agriculture programs impacted youth in your community? Can you share any success stories or positive outcomes?	
	Diversity and Inclusion	
	How do agriculture programs address the needs of socially disadvantaged and diverse youth populations? Where can improvements be made?	
Section 2	**Specific Themes**	
	Awareness and Accessibility: How do youth and their families typically learn about agriculture programs in your area? What methods have been most effective?	
	Educational Content and Support: What types of educational content and support are most needed by youth interested in agriculture? How can programs better meet these needs?	
	Barriers to Participation: Can you discuss any specific barriers that socially disadvantaged youth might face	

	when trying to access agricultural programs?	
	Role of Technology: What role does technology play in agriculture education and youth participation? Are there areas where technology could be better utilized?	
	Government and Policy Support: How do government policies and programs (e.g., the Farm Bill, USDA initiatives) support youth in agriculture? Are there areas where policy could be more responsive to youth needs?	
	Community and Industry Engagement: How can local communities, agricultural businesses, and organizations collaborate more effectively to support youth in agriculture?	
Section 3	**Looking Ahead**	
	Future Directions: Based on your experience, what future directions should youth agriculture programs take to be more effective and inclusive?	
	Policy Recommendations: What policy changes or enhancements would you recommend to better support youth in agriculture, particularly socially disadvantaged groups?	

Section 4	**Closing Thoughts**	
	Closing Thoughts: Is there anything else you would like to share about your experience or insights related to youth in agriculture programming?	

Closing

Thank you all for sharing your valuable perspectives today. Your contributions are vital to understanding how we can work together to support and enhance youth engagement in agriculture. We look forward to using your insights to inform our research and recommendations.

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