Notes from the Field

Migrant and Seasonal Farmworkers in Digital Inclusion Planning, North Carolina, 2023-2024

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Abstract

Digital exclusion is a challenge in rural North Carolina (NC), USA, where agriculture is the leading industry. Agricultural workers such as migrant and seasonal farmworkers (hereafter "farmworkers") are disproportionately impacted by digital exclusion. As part of an effort to address digital exclusion, funders and state agencies in NC have promoted the development of county and regional plans for digital inclusion. From July 2023 to July 2024, we identified a total of 30 digital inclusion plans that covered 50 of NC's 100 counties. To assess inclusion of farmworkers, we used a quantitative content analysis approach with two independent coders. No digital inclusion plans included farmworkers in their needs assessments or goals. Just 7% of digital inclusion plans included farmworker organizations in their planning and development, 13% of plans noted agriculture as a topic of interest in their needs assessments, and 40% noted agricultural technologies as a topic of interest. None included short or long-term goals related to agriculture. The general invisibility of farmworkers in plans contrasts with greater attention given to agriculture-related technologies. Additional attention must be given to ensure farmworkers are involved in future digital inclusion efforts.

Keywords: Digital Inclusion; Farmworker Health; Digital Distress; Internet Access; Broadband Planning; Agricultural Workers

Introduction

Research on digital exclusion highlights several characteristics that can place people at greater risk of being excluded from internet access and necessary skills to fully participate in modern society. These include limited available resources because of occupation, not speaking the dominant language, and having migrant or immigrant status (van Dijk, 2005). Despite the importance of agricultural workers such as migrant and seasonal farmworkers ("farmworkers") to food supplies and the economy, farmworkers in the United States (US) are situated in such a way as to be at risk of digital exclusion. For example, most farmworkers in the National Agricultural Workers Survey in the US reported earning between $20,000 to $25,000 in the last year, having completed a ninth-grade level of formal education on average, identifying as Hispanic (75%), and being born outside the US (68%) (JBS International, 2023).

In the US state of North Carolina (NC), a recent survey of 1,034 farmworkers found that nearly 24% of respondents had inconsistent internet access or no internet access at all; moreover, 51% of respondents with internet reported inconsistent speeds available for video calls or streaming (Lee et al., 2024). Further, a report by the NC Department of Information Technology examined internet access for farms and farm owners and found gaps in digital inclusion and barriers to internet access (North Carolina Department of Information Technology, n.d.). Limited internet access is detrimental to well-being for many reasons (Graham et al., 2024),

including that it limits communication with loved ones, access to emergency information, and contact to a critical first point of healthcare: farmworker-serving health organizations. Some efforts have been made to increase internet access among farmworkers in NC; however, sustaining and funding these initiatives has proven to be a challenge, limiting the longevity of these programs and how many farmworkers can be reached (Cofie et al., 2022; Mendez et al., 2019). Additional work is needed to ensure that farmworkers have access to reliable, consistent internet access as part of broader efforts to promote digital inclusion.

To address concerns regarding internet access and availability across NC, regions and counties are in the process of establishing digital inclusion plans catering to their communities' specific needs (Fox, 2022). Digital inclusion plans are meant to guide counties toward creating digital equity; however, for these plans to be effective, they must represent the needs of all the constituents of the communities for which they are written. Little is known about how these plans address digital inclusion for farmworkers in NC or how farmworker-serving health organizations have been engaged in the development and implementation of these plans. This project aimed to evaluate whether farmworkers are represented in digital inclusion plans in NC.

Methods

Identification of Plans

From July 2023 to July 2024, we identified digital inclusion plans for counties or regions in NC by conducting web searches and requesting copies of plans from the Building a New Digital Economy-NC (BAND-NC) Program, which tracks plans across NC and maintains a list of completed digital inclusion plans (Institute for Emerging Issues, n.d.). We identified 30 plans that covered 50 of NC's 100 counties.

Coding and Reliability

We developed a codebook with definitions, which is available in our institutional repository (Bloss, 2025), and we used a quantitative content analysis approach (Riffe et al., 2019). To create the codebook, we leveraged input from our research team, external experts, and advisory panel members about what involving farmworkers in digital inclusion planning could and should entail. Using the finalized codebook, two authors (ER and EH) coded each plan for the following characteristics: if the plan's authors were listed, if farmworker-serving organizations were included among authors, if the term "farmworkers" was used, if agricultural technologies were mentioned in the plan's needs assessment, if farmworkers or agriculture were mentioned in the plan's needs assessment, if there were short or long-term goals related to farmworkers or agriculture, if a scheme for evaluation was included, and if the plan's scheme for evaluation included farmworkers or agriculture. These codes allowed us to assess whether farmworkers or farmworker-serving organizations were included in a plan, how they were included, and if plans described how they were going to address digital inclusion among farmworkers.

To establish reliability, two coders independently applied the codebook to five digital inclusion plans to test coding reliability and refine the codebook as needed. We considered the codebook completed when reliability was >85% coding agreement. Once this threshold was reached, the coders each independently applied the codebook to the rest of the digital inclusion

plans. Coders met regularly to compare coding and discuss discrepancies, and discrepancies were resolved by consensus with a third author (JGLL).

Analysis

We report descriptive frequencies of the characteristics of digital inclusion plans. We managed data in Microsoft Excel. As there were no human subjects, we did not seek institutional review board approval for this research.

Results

The analysis included a total of 30 plans covering 50 counties in NC (Figure 1), and Figure 2 shows the percentage of plans where we identified inclusion of farmworkers or other topics of interest.

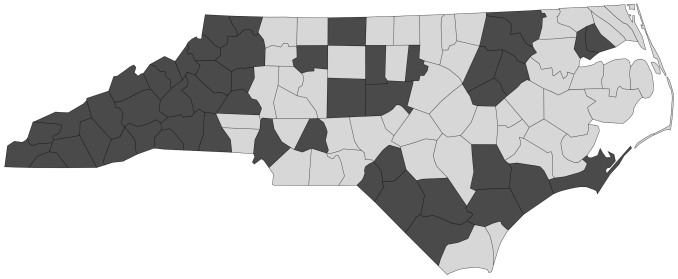

Figure 1: North Carolina counties included (dark grey) in the analysis.

Of 30 plans, only one included the term “farmworker” in their digital inclusion plan. The term was utilized when describing the involvement of a farmworker-serving organization in implementing digital inclusion efforts in agricultural communities. Specifically, *Digital Inclusion for the High Country* recommended working with the NC Farmworker Health Program to bring digital inclusion efforts to agricultural communities (High Country Council of Governments, 2023). Regarding authorship and involvement, 53% of plans had their authors listed, and 7% of plans included farmworker-serving organizations on their planning or development committees; of note, *Digital Inclusion for the High Country* acknowledged the NC Farmworker Health Program for their contributions to the plan’s development (High Country Council of Governments, 2023). None of the plans in this analysis included farmworkers as a population in their needs assessments or as part of their goals toward digital inclusion. Just 13% of plans noted agriculture as a topic of interest within their needs assessment. However, forty percent of plans noted interest in ‘precision agriculture’ or other farming-related technologies. Finally, 6.7% noted a scheme for evaluation, and no plans included specific metrics or outcomes related to farmworkers or agriculture.

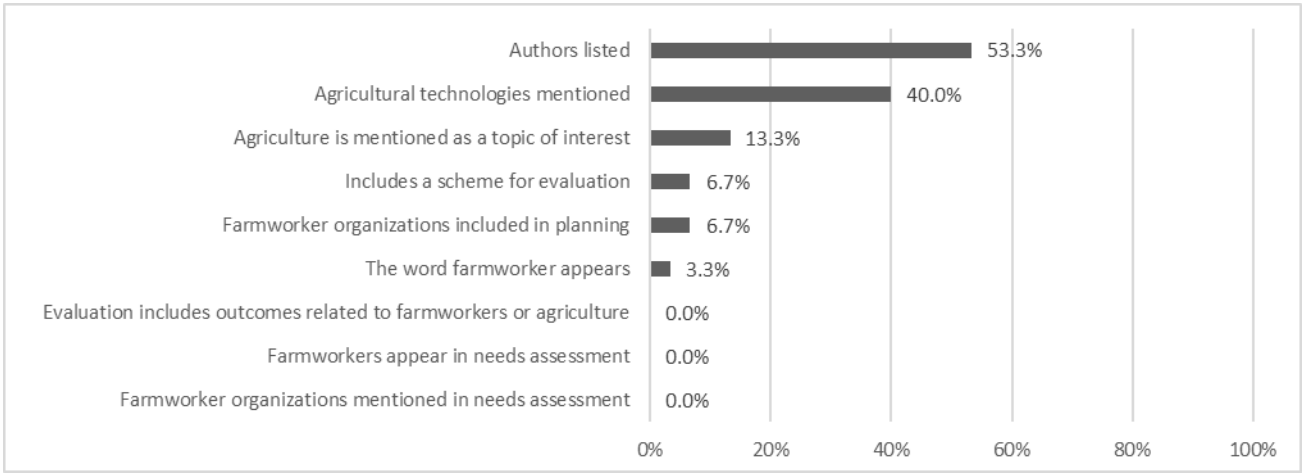

Figure 2: Percentage of digital inclusion plans that included codes of interest.

Discussion

Thirteen percent of plans noted an interest in agriculture and 40% of plans noted interest related to agriculture-related technologies such as precision farming, but just one plan mentioned the term "farmworker." Each year, 70,000-80,000 farmworkers work in NC agriculture, contributing $111 billion to NC's gross state product in 2022 (Walden, 2023). Despite their critical role in NC's agriculture industry and the state's economy, farmworkers and farmworker-serving organizations are largely absent in NC's existing digital inclusion plans.

Internet access and digital literacy skills have been dubbed "super social determinants of health" as these factors can impact all other social determinants of health (Sieck et al., 2021). Internet access is critical for individuals to connect with loved ones, manage employment and banking, and access healthcare services, among a multitude of other uses. The COVID-19 pandemic highlighted the importance of internet connection among farmworkers and revealed that, in many cases, current infrastructure did not support accessing telehealth appointments, contacting farmworker-serving health organizations, or maintaining connections with loved ones (Lee et al., 2020; Tutor Marcom et al., 2020). Furthermore, agriculture is one of the most dangerous industries where farmworkers face a wide range of adverse health outcomes, making access to healthcare especially critical. Improving access to the internet and strengthening digital literacy skills have shown to be impactful to farmworker families' health and well-being (Cofie et al., 2022; Mendez et al., 2019). Including farmworkers in digital inclusion plans could be an important step toward preventing adverse health outcomes and closing the digital divide.

One reason why farmworkers may not be included in planning is the use of federal definitions of *covered populations* for funding to strengthen broadband access and equity. While the Digital Equity Act (47 U.S. Code §1721) includes covered populations that have characteristics that may overlap with farmworkers (e.g., having few economic resources, English as a second language, minoritized racial/ethnic identities, and living in a rural area), it does not include farmworkers specifically. Thus, researchers and practitioners should consider who is left behind and where there may be gaps in statutory definitions used to define inequities.

Regardless of the reasons, there are concrete steps that plan developers and digital inclusion advocates can take. One step toward digital inclusion of farmworkers is ensuring farmworker-serving organizations are involved in plan development. Another is recognizing that farmworkers may be a population that needs particular attention when considering internet access and digital inclusion (Lee et al., 2020). Plan developers may also want to consider how, in some states like NC, many farmworkers live in employer-provided housing during the agricultural season. Congregate housing units on farms represent a unique consideration for digital inclusion. For example, plans may want to consider how to include housing for farmworkers when identifying locations eligible for broadband expansion funding and ensuring services will be sufficient for multiple users. Digital skills for farmworkers are another area of consideration. Representatives of farmworker-serving organizations will have additional input on the localized strategies needed.

Limitations

This study highlights the need for future digital inclusion plans to include additional populations in their digital inclusion efforts. NC agricultural production varies drastically across the state, which may impact the ways farmworkers are integrated into communities and the inclusion of farmworkers in local digital inclusion plans. Given differences in agricultural labor, products, and scale that exist from one state or region to another, these results from NC plans may differ from how farmworkers are included in plans in other states in the US. Finally, the plans and our work coding them were developed prior to the start of the Trump administration's executive orders that orient federal policy away from programs that recognize diverse populations, promote equity, or promote inclusion of populations who have been unfairly excluded. Thus, future work should consider the impacts of the change in administrations in the US on planning in general as well as in the development of plans.

Conclusion

Digital inclusion plans can assist in bridging the digital divide, but these plans must be comprehensive to be effective. The present study found that county and regional digital inclusion plans seldom included farmworker populations. Minimal internet access can have negative impacts on farmworkers' health and well-being as it restricts access to family members, farmworker-serving health organizations, healthcare services and information, and other resources. Going forward, the expertise of farmworker-serving organizations could and should be leveraged in creating farmworker-focused digital inclusion efforts.

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