

# Implementing School-Based Agricultural Education in an Urban Context

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## Abstract

*The implementation of urban school-based agricultural education programs has been a topic of growing interest. The literature indicates that urban programs are increasing in number, presenting unique challenges in implementation and programming. This case study examined a program in an urban community which blended traditional and nontraditional SBAE programmatic elements. The program elements traditional to agricultural education included a barn with livestock and greenhouse focused on floral production. The more unique programmatic elements included the contextualization of agriculture over agricultural content, an emphasis on DEI work, deemphasizing the FFA, inclusion of a Junior MANNRS Chapter, and curriculum focused on food production in the greenhouse. The implications of this case study for urban program design are important in that there is no one size fits all in programming for urban programs.*

## Introduction

School-based agricultural education (SBAE) faces an existential challenge in the growing urbanization of the United States. In 1950, 64% of the US population were found to be living in urban areas, which jumped to 83% in 2022 and is projected to jump an additional 6% by 2050 (Center for Sustainable Systems, 2022). The increased urbanization of the United States is slowly being reflected in the demographics of agricultural education. According to the National FFA Organization, FFA membership in SBAE programs grew by 221,456 individuals with shift from 27% to 39% non-rural representation from 2015 to 2022. The organization also noted a racial and ethnic population increase with a non-exclusively white participation increase of 5.5% in the five-year span between 2017 to 2022 (National FFA Foundation, 2017, 2015, 2022). This demographic reality presents a challenge for SBAE as it is grounded in rural communities through culture and content represented (Elliot & Lambert, 2018; Martin & Kitchel, 2013). Urbanizing SBAE requires bridges be built to connect the rural-centric aspects of SBAE with new, urban populations. This manuscript will explore how one urban SBAE program bridges this divide by offering traditional SBAE activities through contextual approaches and emphasis on diversity, equity, and inclusion (DEI).

Implementing new urban school based agricultural education programs has been the greatest opportunity for growth as well as one of the greatest challenges over the past two decades. There were just over 800,000 agricultural education students as of 2023 through all grade levels (National FFA Organization, 2023), but there were over 50 million students enrolled in school of similar age in the U.S. (United States Census Bureau, 2021), which means around 2% of students in the United States are enrolled in agricultural education. The students not enrolled in agricultural education is a demographic agricultural education can reach. Non-rural and diverse settings often diverge from the agricultural norm, presenting

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new challenges for agricultural educators and researchers. The increasing diversity of agricultural education settings and participants warrants further study of SBAE programs serving diverse audiences.

There has been a high level of agricultural education research on the agricultural perceptions and literacy of urban students (Anderson & Kim, 2009; Frazee et al., 2011; Frick et al., 1995; Hess & Trexler, 2011; Pense et al., 2006; Trexler, 2000), while programmatic design research on urban SBAE programs has varied far and with a focus on a variety of curricular and instructional approaches. These range from traditional production curricular topics and community-centered agricultural education content (such as small animal care) in urban centers (Brown & Kelsey, 2013; Estes & Bowen, 2005; Mabie & Baker, 1996; Martin et al., 2014). Recently, more research has been conducted on important diversity and inclusion implications of urban SBAE design, such as multiculturalism (Vincent & Torres, 2015), critical pedagogy (Hartmann & Martin, 2021), agrarianism (Martin & Kitchel, 2013) and diversity issues (Cano & Moore, 2010; Croom & Alston, 2009; Elliot & Lambert, 2018). Additional topics of research on urban SBAE include youth-adult relationships (Bird et al., 2013), enrollment (Esters, 2007; Esters & Bowen, 2004), program design (Lambert et al., 2018), FFA (Martin & Kitchel, 2015), careers (Esters & Bowen, 2005; Henry et al., 2014; Smith & Baggot, 2012), motivation (Anderson, 2013), and instructor experiences and needs (Roberts & Ramsey, 2017; Warner & Washburn, 2009).

These studies have highlighted the unique circumstances involved with urban SBAE programs. The findings of these studies indicated that urban context presents numerous challenges for agriculture teachers, FFA advisors, and FFA members, yet more research is needed to explore SBAE programmatic designs to effectively serve urban communities. This study examined a SBAE program with traditional programmatic elements serving primarily urban students with no agricultural background and who were racial and culturally diverse.

### **Conceptualizing Urban SBAE – Culture and Content**

This case study was emergent in design (Stake, 1995) and a theoretical framework was not appropriate for this approach. The rural centric nature of SBAE's culture and content was imperative for the authors to keep in mind when analyzing the unique aspects of the urban program and warranted a conceptual framework. The concepts of culture and context can be viewed separately as well as working together to reinforce the ruralness of SBAE. The culture of SBAE is closely aligned to that of rural segments of the United States. This association has roots in the founding of SBAE. Even before the Smith-Hughes Act of 1917, agricultural education in schools was viewed as an important subject for rural youth (Martin, 2010). The progressive movement placed a great emphasis on education that was contextually grounded in the community, and the dominance of farming in rural communities meant that agricultural education became a popular topic (Bowers, 1971). The passage of the Smith-Hughes Act only further cemented the rural nature of SBAE as it became more vocationally focused. Furthermore, even the clientele became more rural focused as the legislation explicitly directed SBAE instruction to be for farming occupations (Gordon, 2003; Kliebard, 1999). The urban SBAE programs of the Smith-Hughes era (1917-1963), however, are few and far between (Enns & Martin, 2015; Martin & Kitchel, 2020).

While the Vocational Education Act of 1963 opened some agricultural content areas, the implications of the ruralness of SBAE was addressed in the 1980s (Martin & Kitchel, 2020; National Research Council, 1988) when it was recognized that urbanized communities needed to engage in agricultural education. A few events occurred at this time to seemingly help facilitate urban adoption of SBAE. For example, the National FFA Organization changed its name from the Future Farmers of America to the National FFA Organization. While the name change seemed to a step back from its rural roots in exchange for an agricultural image inclusive of all backgrounds, the FFA did not adopt meaningful programmatic activities which could be considered urban-centric. The rural ideology of the FFA remained largely intact with an emphasis on individualism through the FFA award structure as well as conservative

ideals through the FFA rituals and traditions (Martin & Kitchel, 2013). Furthermore, the rise of popularity of agricultural literacy, which has been posited as a curricular focus for non-rural audiences, has rural ideological implications. The goal of much of the agricultural literacy content is focused consumer awareness and rural appreciation rather than urban agriculture topics (Bowling et al., 2022; Eck et al., 2021). The rural centric culture of the SBAE that could inhibit the growth of SBAE into urban areas.

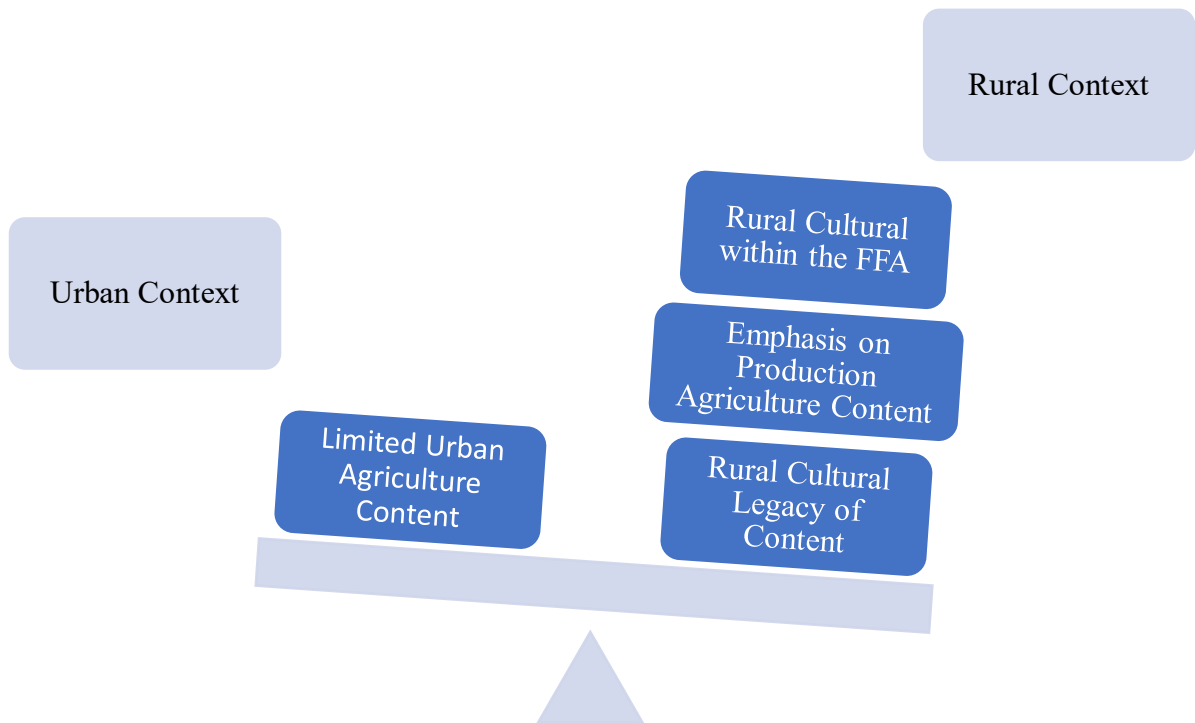
The content of SBAE has shifted over time. Agriculture curriculum after the Smith-Hughes Act of 1917 was almost entirely focused on production agriculture (Moore & Borne, 1986). In the 1950s, SBAE curriculum in some areas began to morph to include agricultural careers connected to production agriculture (e.g., farm machinery repair, agribusiness). New subjects were permitted in legislation with the Vocational Education Act of 1963 as non-production coursework became legitimized (Martin & Kitchel, 2020). This slight shift in emphasis still placed the nucleus of SBAE curriculum in rural communities. Particular career pathways, such as veterinary science and horticulture (Martin et al., 2014), may have more local relevancy in urban communities; however, the popularity of these curricular subjects is a more recent phenomenon. Furthermore, these content areas could still be relevant in rural communities, so identifying veterinary science and horticulture content as urban agriculture is not wholly correct. The same cannot be said for content such as rangeland management, livestock production, and/or crop production as these content areas are heavily embedded into rural rather than urban contexts.

The content opportunities which might have the most potential in urban areas was a shift in how the content was taught. Two approaches to methods and content conceptualization emerged in the 1990s: teaching agricultural science and agricultural literacy. The agricultural science movement began in the late 1980s and accelerated by the 2010s (Bird & Rice, 2021; National Research Council, 2000). Agricultural literacy focused on teaching consumers who are removed from production agriculture about agriculture (National Research Council, 1988). While agricultural science and agricultural literacy emerged during the 1980s, agricultural literacy does not have curriculum developed for SBAE like agricultural science does. Nonetheless, agricultural literacy has become the philosophical orientation for some SBAE teachers (Bowling et al., 2022). Agricultural science and agricultural literacy have become integrated into the curricular and methodological of options for SBAE teachers alongside production agriculture and careers in agriculture. The curriculum and methods brought forth by agricultural science and agricultural literacy might have appeal in urban communities, but there is no prescribed curriculum for urban SBAE programs.

When considered together, culture and content in SBAE have proven to be challenging barriers to overcome when implementing SBAE in urban areas. Figure 1 visually illustrates the tensions within SBAE for balancing culture and content for the rural and urban contexts.

### **Figure 1**

*Illustrating the Rural and Urban Contexts of SBAE Culture and Content*



The central tenets of SBAE culture and content weigh heavily in favor of rural contexts as the emphasis on the FFA, production agriculture content, and the rural cultural legacy of content. The limited urban agriculture content in SBAE shows an imbalance that leans in favor of the rural contexts that align with the culture of SBAE.

**Purpose and Research Questions**

The purpose of this case study was to explore an urban school-based agriculture education program which served predominantly non-traditional agriculture students. The following research questions guided the study:

1. How did the program design agricultural content for their urban students?
2. How did the program attempt to connect with the students’ culture?

**Methods**

This study followed a constructivist epistemology utilizing case study methods (Crotty, 1998). Specifically, we used an emergent case study approach. The emergent design approach is consistent with the intrinsic case study approach outlined by Stake (1995). Constructivist epistemologies and emergent design depend on the data to guide the study rather than theoretical guidance. The exclusion of a theoretical framework allows the research team to allow themes to emerge rather than following the frame provided by a theory. This study was approved by a university institutional review board (IRB) as an exempt research project exploring educational practices. Thus, we could observe what happened in the classroom, analyze documents used in the program, and interview the teachers of the program. We could not interview or directly observe students. We observed the first-year agriculture class of the program. The case study was singly bounded to one agriculture program (Stake, 1995).

The research team included three members. The first member was as a faculty member and a former agriculture teacher and FFA advisor with experience in qualitative research and urban programs. The second member was a graduate student who had student who previously served as a student teacher for agriculture and had experience with researching diversity in SBAE. Finally, the third member of the research team was an undergraduate student in agricultural communication conducting research for an honors project.

The program is located within a metropolitan area in a midwestern state. At the time of the study, the program had two agriculture teachers, two facility managers, and around 100 students from around the city. The hands-on facilities included science lab, a barn containing livestock, and a range of greenhouse and orchard structures and spaces. The two teachers, Tyler and Meg, had less than 10 years of teaching experience. The program employed two facility managers: Dave, who managed livestock in the barn area, and Mary, who managed the greenhouse and nursery. The curriculum was designed so that first year agriculture students in the introductory classes were exposed to both plant and animal coursework, allowing students choice in their advanced coursework.

Data was collected through multiple site visits over the course of a semester. Data included classroom and laboratory observations of the teachers and facility managers (Emerson et al., 2011), program and classroom documents, and interviews with the teachers (Weiss, 1994). During data collection, pseudonyms were given to protect the identities of the teachers and facility managers. Identifying information of places and events were also omitted as much as possible to protect identity. We collected nine field observations (almost 15 hours in total), two teacher interviews (two hours in total), and collected over 20 documents. The three different sources of data allowed the research team to reach triangulation (Stake, 1995).

We utilized a constant comparative data analysis approach, which is aligned with emergent design (Glaser & Strauss, 1967; Saldaña, 2021). We conducted four rounds of data analysis that went from codes to categories to themes. The first round of data analysis identified 34 codes amongst the whole team. The second round of coding began with the research team identifying 19 categories to guide further analysis of the data. After another individual round of data analysis, the research team convened again. We translated the 19 identified to categories into three themes with a possible fourth theme which needed further clarification. The necessary clarification required another smaller round of data analysis which led to the four themes of the study: 1) student voices being heard; 2) use of extra teachers to facilitate learning; 3) context of agriculture, not agriculture content; and 4) diversity, equity, and inclusion.

We employed various standards of trustworthiness for this project, including maintaining an audit trail, data triangulation, as well as providing rich descriptions of the case and themes (Ary, Jacobs, & Razavieh, 2002). Methodological triangulation was accomplished by balancing the data sources represented in each theme. Validation of each theme was completed by utilizing multiple sources and types of data. We developed investigator triangulation by conducting rigorous data analysis meetings (Stake, 1995). We strove for a consensus amongst team members throughout each stage of the data analysis process. Credibility of the research was maintained by a regular peer debriefing.

## **Findings**

The findings section was divided into the four emergent themes.

### **Theme 1: Student Voices Being Heard**

Student voice was central to the program curriculum and activities. This was a mindset that the teachers cultivate with their students and was often highlighted within their classrooms. In his one-on-one interview, Tyler discussed the following, “Students will gravitate toward what they're interested in. And if

you have low class numbers somewhere, you probably are creating a product that kids aren't interested in..." The likening of the program's courses to a product demonstrated a prioritization of student voices being heard. Students were seen as consumers of a product, and the program instructors position themselves as working *for* their students to create a program that will meet their student needs. Tyler and Meg demonstrated this philosophy of exploring student interest during classroom observations multiple times.

During a lesson for Black History Month, a student asked Tyler who was Fredrick Douglas during a lesson covering Black agriculturalists. This question pushed the lesson into a new direction as Fredrick Douglas did not pertain to the lesson at hand. Tyler encouraged student discovery by prompting students to Google the question to find the answer. He gave the students a few minutes to research the question for themselves and then went around the room, asking the students if they would like to share what they found. Students were encouraged to ask questions and Tyler responded by hearing student voices resulting in an encouraging discussion. Tyler employed this technique each day of observations, and the method was observed to encourage student exploration and discovery.

This philosophy of student voice carried over to daily interactions with students. For example, before class began, Meg entertained students joking about their future musical album, asking if she would be willing to buy or listen to it. Later, during the class opener, Meg announced to the class to "keep an eye out for the [student's] album dropping." While her statement earned a chuckle from the rest of the class, Meg took the time to listen to her student interests, allowing her students to be heard. Students felt heard through Meg including them in the opening of the class. These casual interactions were ones that may not appear to hold much weight, but they show a level of respect the teachers had for their students' non-curricular interests. These strategic classroom interactions focused on the learning community in the program.

## **Theme 2: Use of extra Teachers to Facilitate Learning**

Dave and Mary, the two facility managers, played a crucial role in setting up experiential learning within their respective laboratory spaces. During the field observations, Mary was often observed interacting with students in the greenhouse as they completed their daily assignments. Mary served as a co-teacher in key moments in the laboratory space. For example, Meg dismissed students to go to the greenhouse while she remained in her classroom to begin preparing for a lesson about the New Farmers of America. Meg trusted Mary to guide instruction in the greenhouse. Mary then went on to help some students through spider plant propagation and others through the importance of deadheading annual flowers. Students were responsive to Mary's interactions, readily accepting her expertise within the laboratory space to guide their experiential learning.

When not tending to their laboratory spaces, facility managers are also utilized within day-to-day lessons to facilitate learning. During a lesson on the New Farmers of America, Tyler, Meg, and Dave displayed a high level of teacher cooperation as they used walkie talkies to manage the students' rotations from station to station. The lesson was complex as it utilized six stations throughout the hallways and three different classrooms, but it was kept manageable as instructors worked in tandem with Dave to keep the lesson running smoothly. Dave working in the classrooms with Meg and Tyler provided an example of facility managers partaking in day-to-day lessons.

The importance of facility managers can even be found at the curriculum level as their skills were integrated into forming worthwhile lessons for students. The horticulture program was trying to develop the curriculum to be more community-centered Meg relayed Mary's role in this process, "Mary and I [Meg] were just talking about... what can we do to utilize the [greenhouse] space better in the fall... We're thinking even just a little thing next year using fruits and vegetables to then grow our own." On a regular basis, Meg worked *with* Mary to create innovative and worthwhile experiences for students. The presence of facility

managers aiding and enhancing lessons cannot be understated. Dave and Mary were not just assistants as they were utilized as instructors and had a key role in designing curriculum.

The facility managers were well integrated into the curriculum and program to the extent students see them as a resource for personal issues. Meg recalled a situation where a student was having an off day, and Mary was the person whom the student trusted to share his troubles with, "...he ended up going to the greenhouse with our greenhouse manager. She was able to talk to him, which I think was beneficial, and really, he just needed somebody to listen..." This instance showed how Mary isn't just the greenhouse manager, but rather she was there to help the students academically *and* emotionally. Having multiple adults available for personal and academic support were invaluable to the facilitation of learning in their program.

### **Theme 3: Blending Traditional and Nontraditional SBAE**

The agriculture program focused on both traditional and nontraditional SBAE elements to expose students to a broad amount of agricultural knowledge. Students had traditional SBAE hands-on experiences, such as working in barn and greenhouse laboratory settings. They also had nontraditional SBAE course content to allow for a more holistic agricultural experience, including Minecraft applications of agriculture and reconceptualization of the FFA chapter. Tyler explained this during his interview, "I would describe it as a holistic approach to education with an emphasis on preparing students for a broad range of agriculture, a broad range of agricultural careers in the industry." We observed this firsthand work accomplished in barn and greenhouse laboratories contrasted instruction within the classroom. Tyler and Meg were focused on exposing students to a broad view of agriculture, by subscribing to traditional agriculture or nontraditional SBAE.

This blended approach, or holistic as Tyler described, could be seen when reviewing program documents centered on students working in the barn. There is a heavy emphasis on barn work (chores) alongside lectures on nontraditional SBAE animal sciences content such as beekeeping. At the beginning of each class period, students attended to their assigned duties in the barn. These duties changed each class period and included bottle feeding lambs, sweeping, feeding hay, scooping feed, cleaning pens, and filling waters. These experiences are characteristic of traditional agricultural environment wherein students were offered a high level of independence to complete the various assigned tasks. The agricultural coursework at the end of the hour was more nontraditional in nature wherein students utilized technology like Minecraft, discuss culturally diverse agriculturalists, and explored.

The program instructors' approach allowed the student body to gain agricultural skills that can be utilized later during the students' educations, lives, or careers. The following quote from Tyler describes the program's goals in preparing students for diverse agricultural careers:

...we're not preparing kids to become farmers or vets or any of that stuff, but we need to teach them that that's part of the world. But you're not going to go farm, but could you be a geneticist at Corteva? You're not going to be a vet, but could you be the pharmaceutical salesperson for whatever selling to the vet clinics?

To make agricultural careers more accessible to their students, there was an increased focus on exposing students to potentially less visible agricultural careers, including community-focused food production, beekeeping, and culturally relevant agriculture. Without a focus on either traditional or nontraditional agricultural careers, students within the program are allowed to explore a multitude of career opportunities. The program blends both traditional and nontraditional agriculture to create a program to best service the needs of their urban students.

This holistic approach in blending traditional and nontraditional agriculture also influenced how the instructors utilized the FFA within their program. Meg and Tyler did not approach the FFA in a strict traditional way wherein the FFA was a staple within the classroom and extracurricular. Rather, they viewed

the organization as a strategic tool. Tyler said that the FFA was not even a necessity, "... We don't have a major FFA focus here... I like to say, if FFA went belly up, would this program still be here? And yes, it would be." While this statement may seem hyperbolic, the program utilized the FFA to enhance the classroom experiences rather than urging students to join the organization out of the sake of tradition alone. Tyler said, "We're not saying... we're going to do soil judging [just] because... we integrate contests into the curriculum. And if there are kids that enjoy it, then we'll say, 'Hey, you should do this.'" Both Meg and Tyler saw FFA as an organization to be used when students showed interest in CDEs and LDEs. It is traditional for SBAE programs to include or promote FFA activities, but Meg and Tyler were nontraditional in not prioritizing FFA activities, creating of a NFA unit (i.e., Theme 2), as well as starting a Junior MANRRS chapter (i.e., Theme 4) within their program.

#### **Theme 4: Diversity, Equity, Inclusion**

Tyler and Meg's agricultural education program actively recognized the diversity of their students and worked to provide them with curriculum to address DEI in their classroom. During the research team's second visit, we witnessed a lesson covering the history of the New Farmers of America's (NFA) and the NFA's participation in agriculture before the nation underwent desegregation. The lesson included six stations with the goal of analyzing the impact the NFA has had on agricultural education and how those in the FFA can honor the history of the NFA. Through the lesson, students were able to see the historical involvement of Black students and instructors in agricultural education.

During Meg's interview, she reflected on her need to create an inclusive classroom where all students can take part in the learning process by encouraging teamwork between peers. When discussing a student who's second language is English, Meg described the program goals in helping her, "We're just going to work on as a team now to then ensure that communication is happening and she's understanding what we're supposed to be doing, but then also what we're supposed to be gathering from it." To continue developing these students' understanding of horticultural topics, she has her students working in teams to facilitate the intake of knowledge. Rather than leaving students behind due to language barriers, Meg implements changes within her classroom to allow students the opportunity to help build and develop one another's knowledge. These inclusionary practices lend themselves to the program's prioritization of DEI.

The prioritization of DEI in the classroom can be seen in the language used by teachers when approaching potentially sensitive topics. Early into the observations, Tyler began a lesson on Black History Month, and started by apologizing for not addressing Hispanic History Month, promising to celebrate the next year. Tyler then recognized he was 'a white guy' talking about possibly awkward subjects, but that he wanted to acknowledge the good, bad, and ugly of the past and present. This act allowed him to be upfront and honest in his intentions with his students before delving into a potentially challenging topic. The candidness Tyler provided before beginning his lesson on Black History Month provides evidence for the program's dedication to providing a program that is responsive to their students' DEI needs.

The program's DEI work spans further than the classroom as they begin building up a junior MANRRS chapter as a student extracurricular. MANRRS seeks to empower minorities in agriculture, natural resources, and related sciences. During his interview, Tyler emphasized the importance of alternative extracurriculars specifically made to support the program's diverse student body. Tyler explained, "This is our first year being a MANRRS chapter. And so, we're still trying to flush out how do we get kids more engaged in that organization, because it's a phenomenal organization, especially for representation, phenomenal." The creation of a junior MANRRS program was particularly poignant and necessary as students have not felt welcomed at national and state conventions in the past. Tyler explains his own dedication to DEI due to the negative experiences harbored by his students,



I have to care about stresses and barriers that they would experience because I've never had those stressors and barriers. And so, from there, that's why I talk ad nauseam about EDI and stuff. I've had students that have been called the N-word at events, at the state and national events. And that doesn't sit well with me at all. So that's why I care... And I want them to be in agriculture. They're so talented. They're so amazing. Agriculture needs these kids...

The MANRRS chapter developing within this program is essential when considering the oppression students have faced in years past. The push for increased student involvement in an organization such as MANRRS drives home the importance of inclusivity and empowerment of students with marginalized identities within their program.

### **Discussion and Implications**

The program had success in the urban setting because the students were embraced from all walks of life and their interests were incorporated into the program design. This provided the grounds for slight twists on traditional curriculum elements, including emphasizing agricultural contexts and DEI, to meet student needs and desires. These findings have connections to the previous research on how urban agriculture programs connect with non-traditional students (Bird et al., 2013; Brown et al., 2015; Dickey et al., 2020). The program designed content in and out of the classroom through the usage of laboratory spaces and participation of facility managers to facilitate growth of students. The program included both traditional agricultural experiences, including livestock care and production as well as greenhouse production, and nontraditional agricultural content. The holistic curriculum was supplemented by the inclusion of select subjects for an urban audience, including a focus on DEI class topics, the prioritization of student voice, and creation of food-focused curriculum. The instructional team realized the traditional SBAE content and experiences must be adapted to better serve their urban students, which aligns with other programmatic studies (Brown & Kelsey, 2013; Henty et al., 2014; Martin et al., 2014).

The teachers and facility managers worked to meet the cultural needs of their urban student base. Prioritization of students' voices and the incorporation of DEI initiatives, including content on the NFA and the addition of a MANRRS chapter, allowed for non-white students to identify with the program more easily. The teachers recognized systemic racism within some aspects of traditional SBAE and realized that there was a cultural gap between them and their urban students. They worked to close the gap with thoughtful additions to the program. These findings complement the work of other studies examining how to meet the cultural needs of non-traditional agriculture students (Barajas et al., 2020; Bird, et al., 2013; Elliot & Lambert, 2018; Roberts & Ramsey, 2017; Rubenstein et al., 2016).

This case study offered a unique view of how to transform SBAE for an urban community. Some of the elements of this program were typical of traditional programs, including a barn with livestock and greenhouse structures focused on production. The agriculture teachers also utilized student-centered approaches to teaching. Yet, nestled in these more traditional experiences, were elements that are more non-traditional, including a heavy emphasis on DEI work, less emphasis on the FFA, and a holistic approach to agricultural experiences and curriculum that kept urban contexts in mind to prepare students for a broad variety of agricultural careers. The curriculum of the program was slowly shifting as well with the decision to include more food production content over greenhouse production activities. These shifts are comparable to other empirical and philosophical research in urban SBAE programming (LaVerge et al., 2011; Hartmann & Martin, 2021; Martin et al., 2023).

The full scope of this study is limited in its generalizability. As previously mentioned, one size does not fit all within SBAE, and the exact methods in which this program found success cannot be applied to every urban program. However, the implications of this case study for urban SBAE design are important. The agriculture program found success, as defined by the agriculture teachers, utilizing a middle of rural-

urban continuum approach. They have not shifted away from animal science in favor of veterinary science (Martin et al., 2014). The program has a greenhouse with a production focus while slowly increasing food-related curriculum. The agriculture students are involved in the FFA and even traditional FFA activities (Yopp et al., 2018), while the agriculture teachers also place emphasis on DEI topics (Barajas et al., 2020; Hartmann & Martin, 2021). This case study highlights that there is no one size fits all in SBAE programming.

SBAE programs currently serve only a small minority of the potential student population in the United States. While there are many factors which impact this reality, we cannot overlook the need to find models of program innovation to help with the urbanization of SBAE programming. We need to be able to support programs that want to diversify and experiment with program design. More research is needed to identify the wide variety of programmatic designs whether from rural, suburban, or urban communities. Implementing more SBAE programs in urban areas will require models which bridges the rural-urban divide. This research can help us train and support teachers as well as refine how we measure program effectiveness. If we are to spread SBAE to new communities, then we must be open and ready to share explore program designs to meet this challenge.

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