Elementary Agricultural Education in Georgia: Exploring Teacher Characteristics and Perceptions of Standards

by

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A dissertation submitted to the Graduate Faculty of
Auburn University
In partial fulfillment of the
Requirements for the Degree of
Career & Technical Education, Doctor of Philosophy

Auburn, Alabama
December 13, 2025

Keywords: agricultural education, school-based agricultural education, Georgia's elementary agricultural education, agricultural systems standards

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Abstract

The presence and growth of elementary agricultural education in Georgia highlight a critical area of exploration when examined through teacher characteristics, curriculum standards, and professional perceptions. This dissertation reviewed three studies focusing on Georgia's elementary agricultural education teachers, their characteristics, and their perceptions of the state's elementary agriculture standards relating to agricultural systems, leadership, and employability skills. Collectively, these studies emphasized the need for intentional curriculum development and professional support to strengthen the role of elementary agricultural education across Georgia.

The first study examined the characteristics and statistical makeup of Georgia's elementary agricultural education teacher population. By identifying teacher background, certification, geographic location, and program structure, this study provides foundational insight into who is delivering agricultural content at the elementary level and the contexts in which these programs exist. The results highlight trends and gaps that influence both access and equity in agricultural education across the state.

The second analyzed teachers' perceptions of Georgia's elementary agricultural systems standards. Findings revealed variations in perceived importance and emphasis, reflecting both confidence in agricultural systems knowledge and areas where additional resources and training may be required. This study demonstrated a need to reinforce teacher preparedness and support in addressing plant and animal systems content in elementary classrooms.

The third study extended this research to focus on teachers' perceptions of Georgia's leadership and employability standards within elementary agricultural education. While the study confirmed broad recognition of the importance of career readiness and leadership development, differences in perceived implementation suggest gaps in how these standards are prioritized and integrated at the elementary level. These findings underscore the importance of preparing students early to build soft skills, leadership qualities, and workplace readiness.

Artificial Intelligence (AI) Use Disclosure Statement

In the preparation of this dissertation, the following Artificial Intelligence (AI) tools were used: ChatGPT5 and Grammarly. These tools were used primarily for formatting, reference checkins, grammar, and spelling. The author acknowledges full responsibility for the intellectual content of this work and has ensured that all AI-assisted sections have been reviewed and revised for accuracy and appropriate academic style. All AI-generated content was reviewed and validated for relevance, appropriateness, and accuracy before incorporation into the final document to maintain scholarly integrity of this research.

Acknowledgements

First, I want to thank my family—my mom, Lisa Courson, my dad, Jack D. Courson Jr., and my sister, Diana Courson. Your unwavering love, encouragement, and support have been my foundation throughout this journey. From cheering me on during the hardest days to celebrating every small victory, you have been by my side through it all, and I am endlessly grateful.

I also want to honor my grandparents, Dr. Jack D. Courson Sr. (Big Jack), Charlotte Courson (Gramottie), Albert James Bruce (Grandaddy), and Eva Bruce (Grandma). Big Jack set the path for me to follow—attending ABAC, graduating from UGA in the College of Agriculture and Environmental Science, and ultimately becoming the second Dr. Courson. Gramottie encouraged me endlessly and celebrated every accomplishment, reminding me that no dream was too big. Grandaddy and Grandma taught me the value of hard work and inspired me to spread the importance of agriculture to others. Their influence and love have shaped every part of this journey.

I owe much of my career path to my high school agriculture teachers, Dr. Debra Barry and Mrs. Karly Bell, whose passion for agricultural education inspired me to pursue this field. I would also like to thank my mentors and colleagues, Brandon Walker and Tim Griffeth, John Collins along with Dr. David Chapman, for supporting me at the beginning of my career. You each pushed me to grow, challenged me to aim higher, and encouraged me to see this accomplishment through.

To my closest friends and colleagues—Dr. McKinley Hunter, Eryn Holton, Sara Reeves, and Alyssa Maxwell—thank you for your unwavering love and support through undergraduate

school, graduate school, and into our careers. You have been my constant source of encouragement and laughter, reminding me that this journey was never one I walked alone.

I would also like to thank my professors at the University of Georgia, Dr. Eric Rubenstein and Dr. Jason Peake, for their guidance and influence during my undergraduate and master's programs. Your teaching and mentorship shaped me into the educator and researcher I am today.

To my committee chair, Dr. Jason McKibben, thank you for your leadership, support, and belief in me throughout this process. I am grateful for your guidance and for always reminding me of the bigger picture. I would also like to thank my committee members, Dr. Clemmons, Dr. Lindner, and Dr. Ford, for the time, feedback, and encouragement you each poured into my work. Your contributions helped make this dissertation possible. Finally, to everyone who has been part of this journey; whether through mentorship, friendship, or encouragement; thank you. This accomplishment is a reflection of the many people who invested in me, challenged me, and stood by me, and I am deeply grateful to each of you.

Contributors And Funding Sources

This dissertation was conducted under the supervision of a committee consisting of Dr. Jason McKibben (Chair), Dr. James Lindner, Dr. Christopher Clemmons, Dr. David Chapman and Dr. Jillian Ford. The external reader for this study was Dr. Adam Cletzer. Data analysis was completed under the guidance of Dr. McKibben, while all other work was carried out independently by the student. No external financial support was provided for this research.

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List Of Abbreviations

SBAE	School-Based Agricultural Education
GaDOE	Georgia Department of Education
CTE	Career and Technical Education
SAE	Supervised Agricultural Experience
GSE	Georgia Standards of Excellence
HB 1303	House Bill 1303
SCT	Social Cognitive Theory

Chapter I. Prologue

Introduction and Significance of the Study

The preparation and training of agricultural educators to deliver quality, standards-based instruction has long been a key focus point for both research and outreach (Doerfert, 2011; Roberts & Ball, 2009; Phipps & Osborne, 1988). Inherent to formal agricultural education has been the focus on secondary or post-secondary education in agriculture. Steinkamp, C. J. (2024) found the development and implementation of elementary agricultural education programs, which aim to introduce young learners to agriculture, natural resources, and career readiness concepts at an early age, on the other hand, has garnered increasing attention. In 2018, the Georgia Department of Education initiated the creation of pilot elementary agricultural education programs to introduce agriculture-based curricula in select schools and evaluate their effectiveness in promoting agricultural literacy and meeting state standards (GaDOE, 2023). Agricultural literacy "is the awareness and understanding [of] food, fiber, natural resources, and animal health and its relationship to the public and environment." (Clemons, et al. 2018, p. 248).

As Georgia continues to expand these programs statewide, questions remain regarding who is teaching agriculture at the elementary level, what they emphasize in the classroom, and how they perceive the importance of the topics initially offered in the first iteration of Georgia elementary agricultural education standards. Agricultural education as a field is closely aligned with constructivist philosophies and is often framed in experiential learning theory, emphasizing hands-on, real-world applications that connect students to food systems, environmental stewardship, and foundational agricultural knowledge (Dewey, 1938; Kolb, 1984; Roberts & Harlin, 2007; McKibben et al., 2023).

The Georgia Standards of Excellence (GSE), the guiding standards for education in Georgia, for elementary agricultural education encompass domains such as Agricultural Systems, Natural Resource Systems, Foundations of Agriculture, and Employability and Career Readiness Skills (Georgia Department of Education [GaDOE], 2023). While Georgia has been able to develop these initial standards for this pilot program in elementary aged agricultural education, the rapid growth of these programs has not allowed for focused empirical research examining the characteristics, educational backgrounds, or perceptions of the educators responsible for implementing these standards. This research, comprising three interconnected yet distinct studies, examined the characteristics of the individuals who are teaching formal agricultural education courses in elementary schools and the perceptions of the Georgia elementary agricultural education teachers on the initial standards as well as the teachers beliefs about their ability to successfully teach the content the standards require to elementary age students. Together, these studies provide a snapshot of the initial stages of implementation of elementary agricultural education and provide an insight into the current culture of elementary agricultural education in Georgia, reveal areas of emphasis and potential gaps, and establish a foundation for future research and professional development.

Background

Agricultural education has long been a foundational component of preparing future generations to understand and engage with the world's food, fiber, and natural resource systems (Cosby, Manning, Power, & Harreveld, 2022). Across the United States, SBAE programs have traditionally focused on middle and secondary levels, emphasizing career development, leadership, and experiential learning through organizations like FFA and supervised agricultural experiences (Doerfert, 2011; Phipps & Osborne, 1988; Roberts & Ball, 2009). Hannigrif et al.,

(2010) highlighted the positive economic impact of SAE. Some of the first formal agricultural education courses in public schools were originally aimed at what would now be considered elementary age (Bailey, 1904; Hummell & Hummell, 1913; Jackman, 1891). This early, practical based science education was rooted in the experiences of children outside of the schoolhouse and showed the "farm student" how science could be added to the already known activity and knowledge base of "farming" (Bailey, 1897; Bailey, 1904; Hummell & Hummell, 1913; Jackman, 1891; Spencer, 1902; Spencer, 1904). In recent years, however, the growing emphasis on early career awareness and agricultural literacy has prompted educators and policymakers to consider the value of introducing agriculture back into elementary education (Cosby et al., 2022).

In Georgia, this shift was formalized in 2018 when the GaDOE created pilot elementary agricultural education programs designed to evaluate the feasibility of integrating agriculture-based curricula within elementary schools (GaDOE, 2023). These programs were designed to offer young learners' meaningful exposure to agriculture, natural resources, and environmental stewardship, aligning with the Georgia Standards of Excellence. The pilot initiative represented a significant step toward expanding agricultural education beyond traditional grade levels, supporting the state's broader goals of developing early agricultural literacy and promoting career readiness (Georgia Department of Education, 2019).

The development of Georgia's elementary agricultural standards reflects the broader mission of agricultural education: to prepare students for personal success, informed citizenship, and potential careers in agriculture (Goldman, 2024). Agricultural education emphasizes "learning by doing," connecting academic knowledge to real-world contexts, stemming from experiential learning theories advanced by Dewey (1938) and Kolb (1984) (Baker & Robinson, 2012). This philosophy has shaped the elementary standards, which encompass key domains

including Agricultural Systems, Natural Resource Systems, Foundations of Agriculture, and Employability and Career Readiness (GaDOE, 2023). These domains encourage students to explore the origins of food, recognize environmental interdependence, and develop foundational workplace skills, such as teamwork, communication, and problem-solving, which have been increasingly recognized as essential across all careers (ACTE, 2020; Conneely et al., 2018).

As the pilot programs expanded and were formally codified into law through House Bill 1303 in 2022, establishing elementary agricultural education as part of Georgia's state-approved curriculum, the need to understand the educators implementing these standards became increasingly significant (Steinkamp, 2024). Research in agricultural education has long demonstrated that teacher characteristics such as age, gender, years of experience, and formal training can influence instructional practices, curriculum emphasis, and perceptions of program importance (Roberts et al., 2020). Yet, little empirical data currently exists on Georgia's elementary agricultural education teachers. Questions remain regarding their characteristics, educational backgrounds, certification pathways, and prior agricultural experience, all of which influence how standards are delivered in the classroom (Warnick, Thompson, & Tarpley, 2010).

Understanding these characteristics is crucial for guiding professional development, recruitment, and long-term program sustainability. Equally critical is examining how these educators perceive the standards themselves. The Georgia Standards of Excellence outline rigorous expectations for content delivery, yet teacher perceptions often determine which standards receive the most emphasis and how effectively they are implemented (Darling-Hammond et al., 2020). For instance, teachers with limited agricultural experience may prioritize general science or environmental topics over technical agricultural systems, while those with industry backgrounds may place greater focus on applied skills and careers. Similarly, educators'

views on employability and career readiness standards—including leadership, collaboration, and goal setting—can significantly shape how early learners develop essential soft skills (Weeks, Lawver, Sorensen, & Warnick, 2020).

Existing literature supports the importance of agricultural literacy and early career exposure. Attitudes and Stages of Concern of Elementary Teachers Toward Agriculture as a Context for Teaching Across Grade Level Content Area Standards (Bellah & Dyer, 2009) found that elementary teachers held favorable attitudes toward using agriculture as a context for teaching, which suggests early exposure may foster positive attitudes toward agriculture and science learning. Furthermore, as CTE increasingly emphasizes employability and leadership skills beginning in the earliest grades (ACTE, 2020), understanding how Georgia's teachers interpret and implement these objectives becomes crucial for aligning classroom practices with state and national goals (Viviano 2012).

Despite the potential of elementary agricultural education, gaps persist in research and practice. There is currently no comprehensive characteristic profile of Georgia's elementary agricultural educators, nor is there sufficient understanding of their perceptions of the relative importance of various standards (Peake, Rubenstein, & Byrd, 2020). Without this knowledge, policymakers and teacher educators may struggle to provide targeted support, develop relevant instructional resources, or refine curriculum frameworks. Furthermore, as elementary agricultural education programs continue to expand rapidly throughout Georgia, establishing a research-based understanding of teacher attitudes and instructional priorities is crucial to ensure consistency, quality, and equity across programs.

Statement of the Problem

As elementary agricultural education expands throughout Georgia through experiential and standards-based learning, understanding how educators implement and perceive this instruction has become increasingly important. Although House Bill 1303 (2022) formally established elementary agricultural education within Georgia's state curriculum, little research has examined the teachers responsible for delivering this content. Previous studies have shown that teacher characteristics—such as age, experience, and educational background—can influence instructional priorities and perceptions of curricular importance (Roberts et al., 2020). However, the characteristic composition and instructional perspectives of Georgia's elementary agricultural educators remain largely unknown. While the Georgia Standards of Excellence encompass key domains such as Agricultural Systems, Natural Resource Systems, Foundations of Agriculture, and Employability and Career Readiness, there is limited empirical evidence on how teachers perceive the importance and applicability of these standards in their own classrooms. This lack of understanding creates a gap between state policy and classroom practice, indicating a need to examine who is teaching elementary agriculture in Georgia and how they value and prioritize the standards they are tasked with implementing (Peake, Rubenstein, & Byrd, 2020).

Statement of Purpose

The purpose of this study was to examine the characteristics and perceptions of Georgia's elementary agricultural education teachers. The specific focus of this dissertation was to investigate Georgia's current elementary agricultural education teacher population and to understand teachers' perceptions of the standards related to Agricultural Systems, Natural Resource Systems, Foundations of Agriculture, Employability Skills, and Career Readiness.

Organization

This dissertation was split into five chapters. Chapter one provided the introduction, which leads to the remaining chapters. Chapters two, three, and four are individual articles related to the characteristics and perceptions of Georgia's current elementary agricultural education teachers. Chapter five provides a summary of major implications, and recommendations for future research and implementation.

Research Objectives

Each of the three articles aimed to understand the current state of elementary agricultural education programs across Georgia. The articles built upon one another, beginning with a description of teacher characteristics and backgrounds in Article 1, followed by an exploration of teacher perceptions of standards related to Agricultural Systems, Natural Resource Systems, and Foundations of Agriculture in Article 2, and concluding with an analysis of teacher perceptions of Employability and Career Readiness standards in Article 3. The following research objectives guided this study:

Article I:

1. What are the personal, community, and educational characteristics of Georgia's elementary agricultural education teachers?
2. What prior agricultural experiences and backgrounds do Georgia's elementary agricultural education teachers possess?

Article II:

1. How do Georgia's elementary agricultural education teachers perceive the importance of standards related to Agricultural Systems?
2. How do Georgia's elementary agricultural education teachers perceive the importance of standards related to Foundations of Agriculture?

3. How do Georgia's elementary agricultural education teachers perceive the importance of standards related to Natural Resource Systems?
4. How do teacher characteristics influence their perceptions of Agricultural Systems, Natural Resource Systems, and Foundations of Agriculture Standards?

Article III:

1. How do Georgia's elementary agricultural education teachers perceive the importance of Career Readiness and Leadership Skills standards?
2. How do Georgia's elementary agricultural education teachers perceive the importance of Employability Skills standards?
3. How do teacher characteristics influence their perceptions of employability and career readiness standards?

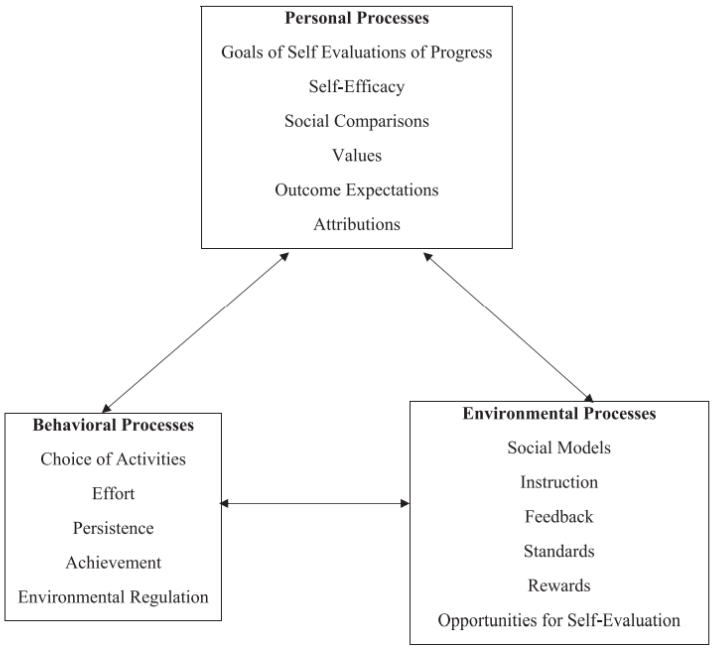
Framework

This dissertation was framed by Social Cognitive Theory (SCT) (Bandura, 1986), which highlights the dynamic interaction between personal factors, behaviors, and environmental influences in shaping human learning and motivation. SCT suggests that learning occurs through observational experiences, self-reflection, and reciprocal determinism, where individuals both influence and are influenced by their environment. Georgia's elementary agricultural education standards were designed to align with this philosophy by promoting meaningful, applied learning experiences that build both competence and confidence among students and teachers. The Georgia Standards of Excellence (GSE) for elementary agricultural education were developed around four key domains: Agricultural Systems, Natural Resource Systems, Foundations of Agriculture, and Employability and Career Readiness (Georgia Department of Education [GaDOE], 2023). This study applied SCT to examine how Georgia's elementary agricultural

education teachers' self-efficacy, prior experiences, and perceptions of support systems influence their perceptions of these standards. The framework assumed that teachers' beliefs, experiences, and environmental supports interact to shape their perceptions across the four key domains.

Figure 1.1

Overview of Social Cognitive Theory



Note. Adapted from "Motivation and Social Cognitive Theory" article (Schunk & DiBenedetto, 2020).

Each article in this dissertation explored a different component of the Social Cognitive Theory (SCT) framework. Article 1 investigates the personal, community, and educational characteristics of Georgia's elementary agricultural education teachers, establishing who is responsible for implementing agricultural instruction and sets the foundation for the following articles which evaluated how their prior experiences, preparation, and beliefs shape their self-

efficacy as educators. Article 2 examines teacher perceptions of standards within Agricultural Systems, Natural Resource Systems, and Foundations of Agriculture, exploring how teachers' backgrounds, environmental supports, and previous experiences influence the emphasis they place on different content areas and instructional approaches. Article 3 focuses on the Employability and Career Readiness standards, investigating how teachers perceive the importance of leadership, teamwork, communication, and other workplace readiness skills, and how these perceptions reflect the reciprocal relationship between teacher educational background, environmental support, and agricultural experience within Georgia's elementary agricultural education programs.

Scope and Limitations

The scope of this dissertation was intentionally limited to teachers currently implementing elementary agricultural education programs in Georgia public schools. This research does not attempt to evaluate student learning outcomes, assess curriculum fidelity, or compare Georgia's elementary programs to those in other states. Instead, the findings aim to provide insight into the current population of elementary agricultural educators and their perceptions of standards guiding instruction within Georgia.

There are limitations to this dissertation. Data collection relies on self-reported survey responses, which may be influenced by participant bias, social desirability, or misinterpretation of survey items. Participation in the study was voluntary, which may have introduced selection bias, as teachers who chose to respond may differ in meaningful ways from those who did not. Furthermore, because the study employed a quantitative descriptive design, the results are limited to statistical descriptions and do not capture the depth or context of teachers' individual

experiences, perceptions, or instructional practices that could be captured through a qualitative design.

Despite these limitations, this dissertation provides valuable baseline information about Georgia's elementary agricultural education teachers, their characteristics, and their perceptions of the Georgia elementary agricultural education standards. The findings can contribute to a broader understanding of how early agricultural education is being implemented across the state. They also serve as a foundation for future research examining teacher preparation, professional development, and curriculum support for elementary agricultural programs within Georgia.

Definition of Key Terms

School-Based Agricultural Education SBAE: refers to agricultural education courses offered in secondary schools. SBAE operates through a comprehensive three-component model consisting of classroom and laboratory instruction, leadership development through the FFA organization, and work-based learning experiences through Supervised Agricultural Experience (SAE) programs (National FFA Organization, n.d.). This structure ensures that students receive a balanced education integrating academic, personal, and professional growth in agricultural contexts

Perception: The process through which individuals interpret and make sense of information from their environment, influenced by personal experiences, beliefs, and context. In the context of educational research, perception often refers to how individuals understand or evaluate programs, initiatives, or teaching practices (Fraenkel, Wallen, & Hyun, 2019).

Agricultural Education: A systematic program of instruction that prepares individuals for careers and informed participation in the science, business, and technology of agriculture, food, and natural resources. It incorporates classroom instruction, supervised agricultural experiences

(SAE), and leadership development through the FFA organization (The National Council for Agricultural Education, n.d.). The overarching goal of agricultural education is to develop students' technical knowledge, problem-solving abilities, and leadership skills necessary for success in agricultural and related industries.

Traditionally Certified Teacher: A traditionally certified teacher is an individual who has completed a state-approved collegiate teacher preparation program in agricultural education and has successfully fulfilled student-teaching or clinical field experience requirements prior to initial certification. This pathway typically provides comprehensive preparation in both pedagogical content knowledge and experiential learning methods, aligning with established professional teaching standards (Darling-Hammond et al., 2020; Roberts & Dyer, 2004)

Social Cognitive Theory: A psychological framework developed by Albert Bandura (1986) that explains learning as a dynamic, reciprocal interaction between personal factors, behaviors, and environmental influences. It emphasizes the role of observational learning, self-efficacy, and reciprocal determinism, proposing that individuals acquire knowledge and skills not only through direct experience but also by observing and modeling the behaviors of others (Bandura, 1997). Within SCT, learning is viewed as a social process in which cognition, motivation, and environmental feedback collectively shape human behavior and decision-making (Schunk, 2012).

Competence are the knowledge, skills, and abilities needed to carry out and activity (Dooley & Lindner, 2002; Harder, et al., 2013; Lindner, et al. 2001)

Chapter 2: Personal and Professional Characteristics of Georgia's Elementary Agricultural Education Teachers

Abstract

The elementary agricultural education initiative in Georgia was formalized in 2018 after the Georgia Department of Education established pilot programs to evaluate the feasibility of integrating agriculture-based curricula into elementary schools. The purpose of this study was to describe the demographic, educational, and professional characteristics of Georgia's elementary agricultural education teachers. As agricultural literacy expands into earlier grade levels, understanding who is implementing these programs is essential for program support and growth. Using a quantitative descriptive design, a census of all 62 identified elementary agricultural education teachers in Georgia was invited to participate in an online questionnaire administered through Qualtrics. The instrument collected data on teachers' age, gender, experience, degree type, certification route, agricultural background, and community type. Descriptive statistics, including frequencies and percentages, were used to summarize responses. Results revealed that Georgia's elementary agricultural education teachers are predominantly female, White, traditionally certified with advanced degrees, in the middle of their career, evenly distributed between rural and urban programs, and mostly having previous agricultural work experience. Recommendations for strengthening teacher preparation programs and expanding professional learning opportunities for elementary agricultural educators are addressed.

Keywords: Agricultural Education, Teacher Characteristics, Elementary Programs

Introduction and Review of Literature

Across the field of agricultural education, understanding the people who deliver instruction is foundational to understanding the quality and direction of the programs themselves. Teachers bring with them distinct experiences, training, and beliefs that shape the content they emphasize and the methods they employ in their classrooms (Hancock et al., 2024). As elementary agricultural education has expanded across Georgia, a new and relatively small population of educators has emerged. Often, these individuals will guide the first opinions that students form about agriculture. With fewer than seventy teachers statewide, these individuals play a vital role in setting the tone for the future of agricultural literacy and agricultural education. By examining their personal and professional characteristics, we can describe who these teachers are and how their experiences may influence the development of early agricultural programs in the state.

While agricultural education at the secondary level has been extensively studied, elementary programs remain largely unexplored. The vast body of existing literature has documented demographic trends, instructional approaches, and professional development needs of secondary agricultural educators (Roberts et al., 2020; Shoulders & Myers). However, the introduction of agriculture at the elementary level requires teachers to adapt both content and pedagogy for younger learners, often without the same depth of agricultural experience or training possessed by traditional secondary educators. Understanding this population's demographic profile—age, gender, and location—as well as professional characteristics such as degree type, certification route, and years of experience, provides critical insight into who is teaching agriculture at this level and how they arrived in these positions.

Teacher background has long been linked to program effectiveness. Research in

agricultural education and broader teacher education alike suggests that professional preparation, prior experience, and academic training influence instructional decisions and self-efficacy (Darling-Hammond et al., 2020; Ray et al, 2022; Faulk et al., 2024; Roberts et al., 2020). Teachers with agricultural backgrounds or formal training in the discipline tend to report greater confidence and more accurate content knowledge than those entering from non-agricultural fields (Mundt & Connors, 1999; Roberts & Dyer, 2004). Because Georgia's elementary agricultural education teachers come from varied educational and experiential pathways, describing this diversity provides the baseline understanding necessary to inform future recruitment, preparation, and professional development initiatives.

Agricultural education in the United States has continually evolved to reflect changes in society, technology, and the agricultural industry. From its early vocational focus to today's emphasis on comprehensive food, fiber, and natural resource systems, the profession has consistently relied on teachers as the central catalysts for transformation within the agriculture field (Phipps & Osborne, 1988). As the field expanded, the importance of qualified, well-prepared educators became even more vital. Studies over the past several decades have consistently tied teacher effectiveness and program quality to teacher characteristics such as formal training, certification, and years of experience (Roberts & Ball, 2009; Roberts et al., 2020). Understanding these variables within Georgia's elementary agricultural education context, therefore, provides an essential first step in assessing the strength of these emerging programs.

Research in teacher demographics within agricultural education has identified several key trends. The profession has seen a gradual increase in female representation, a diversification of educational backgrounds, and a growing number of alternatively certified teachers entering from

other fields (Shoulders & Myers, 2013; Roberts et al., 2020). Age and experience levels vary widely across states, often reflecting regional hiring practices and the availability of teacher preparation programs. The majority of studies examining these factors have been conducted at the secondary level, leaving little documentation of who comprises the elementary agricultural education workforce. Because Georgia's elementary programs are still in early stages of development, documenting these characteristics provides valuable baseline data that can guide state-level planning and support (Steinkamp, 2024).

Educational preparation and certification pathways have also been shown to influence how teachers perceive and deliver agricultural education. Traditionally certified teachers, who complete formal university agricultural education programs, often report stronger pedagogical content knowledge and greater confidence in laboratory and experiential instruction. (Roberts & Dyer, 2004). Alternatively certified teachers may bring unique perspectives and varied professional experiences but frequently express a need for additional agricultural content support (Darling-Hammond et al., 2020). Within Georgia's elementary programs, both pathways likely exist, making it important to understand how each contributes to the overall educator population.

Teacher experience is another critical variable. Dyer and Andreasen (1999) noted that years of teaching are positively correlated with the ability to manage hands-on learning and engage in community activities, both central to agricultural education. However, novice teachers often demonstrate greater adaptability and enthusiasm for innovative practices (Roberts et al., 2020). Describing the distribution of teaching experience among elementary agricultural educators may reveal the developmental stage of the profession within the state. Whether programs are led by veteran educators transitioning from other grade levels or by newly hired teachers entering specifically for agricultural instruction, the background and experience of the

instructor can influence program development and success.

A teacher's agricultural background also plays an integral role in shaping program quality. Teachers with personal or formal experience in agriculture tend to incorporate authentic examples, demonstrate higher self-efficacy in laboratory settings, and more effectively connect students to real-world agricultural systems (Wolf, 2011). In contrast, those without prior agricultural exposure may face challenges with specific content, safety procedures, or access to agricultural resources (Hancock et al, 2023). Section C of this study's questionnaire addressed these variables, asking teachers to identify their experiences across agricultural sectors, including animal systems, plant systems, and natural resources, as well as their participation in organizations like FFA or collegiate agriculture programs. This data provides a snapshot of the depth and diversity of agricultural experience among Georgia's elementary teachers.

Georgia's elementary agricultural education programs are unique because of their limited scale and recent establishment. With only 62 teachers employed statewide, the group represents both the entirety of the population and the potential for program expansion. Small populations pose challenges for statistical generalization but offer vital opportunities for descriptive insight. Understanding who these teachers are and the qualifications they bring helps policymakers, universities, and professional associations identify areas of support and align teacher preparation with program goals (Casteel & Bridier, 2021). Additionally, as these teachers introduce agriculture to thousands of elementary students each year, their preparation and backgrounds directly influence how young learners perceive agriculture's relevance to their daily lives and communities.

Theoretical Framework

This study was grounded in the Social Cognitive Theory (SCT) (Bandura, 1986), which

emphasizes the reciprocal interaction between personal factors, behaviors, and environmental influences in shaping human learning and motivation. SCT suggests that individuals acquire and apply knowledge through observational experiences, self-reflection, and reciprocal determinism, meaning that teachers both influence and are influenced by their teaching environments. Within the context of Georgia's elementary agricultural education programs, SCT provides a framework for understanding how teachers' personal characteristics, agricultural backgrounds, educational preparation, and community contexts shape their confidence, self-efficacy, and instructional readiness. Because SCT positions behavior as the outcome of continuous interaction among personal, behavioral, and environmental determinants (Bandura, 1997), it supports examining how teachers' prior agricultural experiences and contextual factors influence their roles in implementing agricultural instruction. This framework guided the research questions for Article 1, which sought to identify who Georgia's elementary agricultural educators are and to explore how their personal and professional backgrounds may influence their perceptions, confidence, and ability to effectively deliver agricultural education at the elementary level.

Purpose and Objectives

The purpose of this study was to describe the demographic, educational, and professional characteristics of Georgia's elementary agricultural education teachers. This study aimed to provide a comprehensive overview of who these teachers are by examining factors such as age, experience, degree type, certification route, and agricultural background to establish a baseline understanding of this emerging educator population. The questions that guided this study were:

1. What are the personal, community, and educational characteristics of Georgia's elementary agricultural education teachers?
2. What prior agricultural experiences and backgrounds do Georgia's elementary

agricultural education teachers possess?

Methods

This study utilized a quantitative descriptive survey design using a questionnaire administered through Qualtrics to collect data on the personal, educational, and professional characteristics of Georgia's elementary agricultural education teachers (Eck et al., 2021). The target population included all elementary agricultural education teachers employed in Georgia during the 2024–2025 academic year. According to the Georgia Agricultural Education Program Directory (2023), there were 62 teachers in total. Due to the small population size, a census was attempted, and all identified teachers were invited to participate via email. A call to action, along with a description of the results serving the respondent teachers, was used in response to McKibben et al (2025). This approach ensured that each teacher had the opportunity to participate and allowed for a comprehensive description of this emerging group of educators. Participants represented a diverse group of educators who were responsible for introducing agricultural literacy and foundational agricultural concepts to elementary students across Georgia. As was predicted by McKibben et al (2025) teachers were not eager to respond, and a census was not achieved. A non-response error was considered a threat to the validity of the results. To mitigate non-response error, every attempt was made to gain more responses within the approved criteria. Additionally, respondents were coded binarily as either early respondents, who had responded to the first call for participation, or late respondents, who had responded to the final call for participation. Those two groups were compared based on the variables of interest, and no significant differences were detected (Lindner et al., 2001). Their demographic, educational, and professional characteristics, which included age, years of teaching experience, degree type, certification route, and agricultural background, were examined to provide a

comprehensive description of this emerging educator population.

Instrumentation and Data Analysis

A questionnaire was designed for this study and administered electronically through Qualtrics. The instrument was designed to gather descriptive information on the personal, community, educational, and professional characteristics of Georgia's elementary agricultural education teachers. The questionnaire consisted of multiple-choice and categorical response items that aligned with the study's purpose of describing the characteristics and experiences of this emerging educator population.

The instrument included two primary sections relevant to this study. Section A collected demographic and professional information such as age, gender, years of teaching experience, highest degree earned, certification route, and teaching assignment. Section C gathered data related to agricultural background and experience, formal agricultural education level, level of agricultural knowledge, and familiarity with agricultural systems, including animal, plant, natural resources, and technical areas. To ensure content validity, the questionnaire was reviewed by a panel of experts in agricultural education and survey research. Their feedback informed revisions to question structure, clarity, and sequencing.

The data were analyzed using SPSS statistical software. Frequencies and percentages were calculated for all descriptive variables to summarize demographic and professional characteristics. Chi-square tests were conducted to examine the relationships between selected categorical variables, including the association between years of teaching experience and educational level, as well as the relationship between educational level and personal characteristics. Additionally, teacher location was analyzed using participants' self-reported zip codes, which were classified as rural or urban based on the U.S. Census Bureau's (2020) final

criteria for defining urban areas published in the Federal Register.

Findings

Research Objective 1: What are the personal, community, and educational characteristics of Georgia's elementary agricultural education teachers?

Table 2.1 presents the personal characteristics of Georgia's elementary agricultural education teachers, including gender, age, education level, teaching experience, and certification type. These data provide an overview of the population and describe who is currently leading agricultural instruction at the elementary level in the state.

Table 2.1

Participant Characteristics(n=26)

Personal Characteristics	*f*	%
Gender		
Male	6	22.2
Female	21	77.8
Not Listed	0	0
Ethnicity		
American Indian or Alaskan Native	0	0
Asian	0	0
Black or African American	0	0
Native Hawaiian or Pacific Islander	0	0
White	27	100.0
Not Listed	0	0
Highest Level of Education		
Bachelor's Degree	8	29.6
Master's Degree	9	33.3
Specialist Degree	6	22.2
Doctoral Degree	4	14.8
Other	0	0
Years Teaching		
1-3	3	11.1
4-6	3	11.1
7-10	2	7.4
11-15	10	37.0

16-20	2	7.4
21-25	1	3.7
26+	6	22.2
Teaching Certification		
Traditional	21	80.8
Non-Traditional	5	19.2
Age		
20-30 years	3	11.5
31-40 years	10	38.5
41-50 years	5	19.2
51-60 years	8	30.8
60 years plus	0	0

A total of 26 elementary agricultural education teachers across Georgia participated in this study. Table 2.1 presents a summary of participants' personal characteristics. The majority of respondents identified as female (77.8%), while male teachers accounted for 22.2% of the sample. This finding aligns with national trends indicating a higher proportion of female educators in elementary-level agricultural and general education programs. All participants identified as White (100%), with no respondents selecting any other racial or ethnic categories, suggesting a lack of racial diversity among Georgia's elementary agricultural education teaching population.

Regarding educational attainment, 33.3% of teachers held a master's degree, 29.6% held a bachelor's degree, 22.2% held a specialist degree, and 14.8% held a doctoral degree. No respondents selected "other" as their highest level of education. This data indicates that a majority of teachers hold at least one graduate-level degree, reflecting a highly educated population.

Teaching experience varied widely among participants. The largest proportion of teachers (37.0%) reported 11–15 years of teaching experience, while 22.2% had been teaching for 26

years or more. Smaller proportions reported 1–3 years (11.1%), 4–6 years (11.1%), 7–10 years (7.4%), 16–20 years (7.4%), and 21–25 years (3.7%) of experience. This range suggests that both early-career and veteran teachers are contributing to the development of Georgia's elementary agricultural education programs.

In terms of age distribution, 38.5% of teachers were between 31–40 years old, 30.8% were 51–60 years old, 19.2% were 41–50 years old, and 11.5% were 20–30 years old. No participants were over the age of 60. This age profile reflects a teaching population composed primarily of mid-career professionals.

The majority of participants were traditionally certified (80.8%), meaning they completed a collegiate agricultural education preparation program with a student-teaching component, while 19.2% were non-traditionally certified. The predominance of traditionally certified educators suggests that Georgia's elementary agricultural education programs are largely being led by individuals with formal training and experience in agricultural education pedagogy, which may positively influence program implementation and instructional quality.

Table 2.2

Community Characteristics(n=26)

Community Characteristics	*f*	*%*
Grade Level Taught		
Pre-K	2	7.4
Kindergarten	13	48.1
1st Grade	13	48.1
2nd Grade	11	40.7
3rd Grade	13	48.1
4th Grade	12	44.4
5th Grade	12	44.4
Combined Elementary	9	33.3
Community		
Rural	13	50.0

Urban	13	50.0

The community characteristics of Georgia's elementary agricultural education teachers provide important insight into the environments where agricultural instruction is being implemented. As shown in Table 2.2, a majority of participants (65.4%) reported teaching in rural communities, while 34.6% indicated that they taught in urban areas. This distribution suggests that elementary agricultural education programs are more prevalent in rural school districts, which aligns with traditional patterns of agricultural program development and accessibility across the state.

Participants reported teaching across a variety of grade levels, reflecting the flexible nature of program implementation at the elementary level. The largest population of teachers (42.3%) taught multiple grade levels rather than a single grade, which indicates that agricultural instruction is often delivered through integrated or rotating models, such as in related arts courses. Among those teaching specific grades, 19.2% taught at the second-grade level, 15.4% at third grade, and smaller percentages served in kindergarten (11.5%), first grade (7.7%), and fourth or fifth grades (3.8%). These findings suggest that most programs are introduced in early to middle elementary years, when foundational science and environmental awareness topics are emphasized.

Research Objective 2: What prior agricultural experiences and backgrounds do Georgia's elementary agricultural education teachers possess?

Understanding teachers' agricultural backgrounds provides essential context for interpreting their instructional approaches and perceptions of agricultural education standards. Teachers' prior experiences in the agricultural industry, formal education in agriculture, and areas of specialization influence how they integrate agricultural content into elementary

classrooms. Table 2.3 summarizes the prior agricultural experiences and backgrounds of Georgia's elementary agricultural education teachers, including their previous work experience in agriculture, highest level of agricultural education, types of agricultural experience, and self-reported agricultural knowledge levels.

Table 2.3

Participant Agriculture Background(n=26)

Agriculture Background	*f*	*%*
Previous Working Experience	16	80.0
Yes	4	20.0
No		
Highest Level of Formal Agricultural Education		
None	3	15.0
High school-level agricultural education	0	0
Undergraduate degree in agriculture or related field	7	35.0
Graduate degree in agriculture or related field	5	25.0
Non-degree certification or training in Agriculture	5	25.0
Types of Agriculture Experience		
Crop farming (e.g., grains, vegetables, fruits)	10	50.0
Livestock farming (e.g., cattle, poultry, swine)	9	45.0
Horticulture (e.g., landscaping, nurseries, flowers)	11	55.0
Forestry	6	30.0
Aquaculture	4	20.0
Mechanics	5	25.0
Agricultural Practices Knowledge		
Not at all knowledgeable	0	0
Slightly knowledgeable	2	10.0
Moderately knowledgeable	7	35.0
Very knowledgeable	9	45.0
Extremely knowledgeable	2	10.0

Participants reported a wide range of prior agricultural experiences, educational backgrounds, and areas of specialization, reflecting diverse exposure to the agricultural industry before entering the classroom. The majority of participants (80.0%) indicated having previous

employment experience in agriculture, while 20.0% reported no prior agricultural work. Participants demonstrated varying levels of formal agricultural education. A small portion (15.0%) reported no formal agricultural education, while 35.0% completed agricultural coursework or earned a degree at the undergraduate level. Additionally, 25.0% of respondents held a graduate degree in agriculture or a related field, and another 25.0% had obtained a non-degree certification or specialized training in agriculture. No respondents indicated participation limited solely to high school-level agricultural education. This distribution shows that nearly all participants have pursued some form of postsecondary agricultural education or training, underscoring the depth of content knowledge within this emerging teaching population.

Teachers also reported diverse experiences across multiple agricultural sectors. More than half of respondents (55.0%) identified experience in horticulture, such as landscaping, nursery production, or floriculture, while 50.0% reported experience in crop farming and 45.0% in livestock farming. Additional areas of involvement included forestry (30.0%), mechanics (25.0%), and aquaculture (20.0%). This range of experiences illustrates the scope of agricultural expertise represented among teachers, suggesting that many are equipped to expose students to various agricultural systems, processes, and career pathways.

When asked to self-rate their overall agricultural knowledge, none of the participants reported being not at all knowledgeable, while 10.0% rated themselves as slightly knowledgeable, 35.0% as moderately knowledgeable, 45.0% as very knowledgeable, and 10.0% as extremely knowledgeable. This distribution suggests a strong collective self-perception of agricultural competence, with the majority identifying at or above moderate knowledge levels.

Conclusions, Implications, and Recommendations

This study examined the demographic, educational, and professional characteristics of

Georgia's elementary agricultural education teachers to establish a baseline understanding of this emerging elementary agricultural educator population. The expansion of elementary agricultural education programs across the state has created a unique group of teachers responsible for introducing agriculture to young learners. The findings revealed a predominantly female and White teaching population, which mirrors national trends in both elementary and agricultural education (National Center for Education Statistics [NCES], 2023; Roberts et al., 2020). Most teachers held advanced degrees, were traditionally certificated, and reported prior experience in agricultural education or related disciplines. These results illustrate a highly educated but demographically homogenous workforce guiding the foundational development of agricultural literacy in Georgia's elementary schools.

The findings suggest that Georgia's elementary agricultural education teachers bring strong academic preparation and a range of professional experiences to their classrooms. A majority held at least a master's degree and had several years of teaching experience, reflecting a level of professional maturity that may contribute positively to program development and curriculum alignment. Similar to findings from Shoulders and Myers (2013) and Roberts and Dyer (2004), teachers with formal agricultural education training likely enter the classroom with greater confidence in their content knowledge and pedagogical skills. Their preparation may enable them to effectively adapt agricultural content for younger audiences and to model, reinforce, and facilitate learning experiences that build student confidence and competence, consistent with Bandura's (1986) Social Cognitive Theory. However, despite strong professional qualifications, limited diversity in race and background may influence the inclusivity of program perspectives and the cultural relevance of agricultural content delivered to students (LaVergne et al., 2011).

From a statewide perspective, the presence of traditionally certified educators in most positions indicates that teacher education programs have been successful in supplying qualified personnel to meet Georgia's growing demand for elementary agricultural education. Yet the small total population underscores both the infancy of these programs and their vulnerability to turnover and funding shifts. The limited number of teachers also constrains opportunities for mentorship, collaboration, and professional networking. Prior research shows that professional isolation can hinder teacher efficacy and retention, especially within new program areas. Building support structures for this emerging group of educators will therefore be essential for sustaining long-term program stability (Luesse et al., 2022).

The results have several implications for university teacher preparation programs. Given that many of Georgia's elementary agricultural educators hold advanced degrees but varied undergraduate training, preservice curricula should ensure that foundational agricultural concepts are contextualized for younger learners. Incorporating coursework and practicum experiences specifically focused on teaching agriculture in early childhood and elementary contexts could strengthen alignment between teacher preparation and classroom practice (Barrick et al., 2011; Darling-Hammond et al., 2020). Programs should also emphasize culturally responsive pedagogy to prepare educators to engage increasingly diverse student populations while maintaining agricultural relevance (Miller, Clemons, McKibben, Cletzer, & Lindner, 2025; Miller, Clemons, McKibben, & Lindner, 2025; Smith et al, 2024). Furthermore, the findings point to a need for increased exposure to agriculture-specific experiential learning opportunities during teacher preparation. As Kolb (1984) and Dewey (1938) emphasized, direct experience forms the foundation of meaningful learning. By providing field-based experiences such as school-garden management, local farm partnerships, and agricultural literacy outreach, teacher educators can

help preservice teachers develop both confidence and competence in facilitating hands-on agricultural instruction. These experiences are particularly valuable for candidates entering agricultural education through alternative or elementary-focused certification pathways who may lack prior agricultural experience.

Professional learning opportunities must also address the varying backgrounds and experiences of Georgia's current elementary agricultural educators. Teachers without agricultural degrees or industry experience may require targeted content training to build foundational knowledge in plant, animal, and environmental systems. Regional or state-level professional development programs can provide structured support through workshops, webinars, and site visits designed around the Georgia Standards of Excellence in Agricultural Education. Collaborative learning communities and mentoring relationships with secondary agricultural educators can promote cross-level consistency and resource sharing. Because many participants reported teaching in rural settings, state agencies and university extension programs have an opportunity to expand localized partnerships. These partnerships can enhance teachers' access to agricultural resources and provide authentic learning contexts for students. For educators in urban or suburban schools, tailored professional development that emphasizes urban agriculture, food systems, and sustainability can help make agriculture relevant to their community context (Russ & Gaus, 2021). By aligning professional development with teachers' geographical and experiential realities, stakeholders can ensure that all students—regardless of setting—receive meaningful exposure to agriculture.

At the policy level, the small but growing population of elementary agricultural education teachers requires sustained institutional and financial support. Continued investment from the Georgia Department of Education and the Georgia Agricultural Education program will be

crucial for expanding positions, providing curriculum resources, and maintaining professional networks. Policymakers should consider allocating funds specifically for elementary agricultural education initiatives, including teacher recruitment incentives, resource development, and statewide professional learning opportunities. Additionally, because elementary agricultural education represents an intersection of early childhood education and agricultural literacy, coordination between divisions within the state's education system is essential. Integration with science, STEM, and environmental education initiatives can help strengthen agricultural education's place in the elementary curriculum. Such alignment can also facilitate the sharing of best practices and resources among disciplines that rely on experiential and inquiry-based learning (Akkermans et al., 2020).

Given that this study provided the first descriptive profile of Georgia's elementary agricultural education teachers, future research should build on this foundation by examining longitudinal trends in teacher demographics, preparation, and retention. Replicating this study in subsequent years would allow researchers to identify changes in workforce composition as programs expand statewide. Comparative studies across states with established elementary agricultural education initiatives could also illuminate common challenges and best practices for teacher recruitment and professional support. Qualitative research would complement the quantitative findings by exploring teachers lived experiences, motivations, and perceptions of their roles. Interviews and focus groups could reveal how educators navigate the dual demands of teaching both agricultural content and early elementary pedagogy. Additionally, examining the relationship between teacher background characteristics and student learning outcomes could provide empirical evidence linking teacher preparation to agricultural literacy development among young learners.

Overall, this study offers an initial and essential overview of the individuals shaping Georgia's elementary agricultural education programs. The results depict a highly educated, predominantly female, and mid-career level population who are committed to advancing agricultural literacy at the foundational level. Their collective qualifications and enthusiasm represent a promising start for the state's initiative. However, limited diversity, small program scale, and varying degrees of agricultural experience highlight areas for continued investment and research. By prioritizing comprehensive teacher preparation, differentiated professional development, and sustained policy support, Georgia can strengthen the foundation of its elementary agricultural education system. Doing so will ensure that the state not only retains qualified educators but also provides every student with an early, accurate, and engaging introduction to the world of agriculture.

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Chapter 3: Perceptions of Georgia's Elementary Agricultural Education Teachers Toward Agricultural Systems, Natural Resource Systems, and Foundations of Agriculture Standards

Abstract

Elementary agricultural education programs were first introduced in Georgia in 2022 following the passage of House Bill 1303, which expanded agricultural instruction to the elementary level. This study utilized a quantitative descriptive research design to examine Georgia's elementary agricultural education teachers' perceptions of the importance of standards within the domains of Agricultural Systems, Foundations of Agriculture, and Natural Resource Systems. A Qualtrics questionnaire was distributed to all 62 elementary agricultural education teachers in the state, resulting in 20 usable responses. Overall, participants indicated that all three standard areas were important or extremely important, reflecting strong support for integrating agricultural literacy and experiential learning concepts into elementary education. Statistical analyses, including Mann–Whitney U and Spearman's rank-order correlation tests, revealed no significant differences in teacher perceptions based on rural versus urban classification or self-reported agricultural knowledge. These findings suggest a consistent understanding and value of agricultural education across diverse teaching contexts. Recommendations for continued curriculum development, enhanced professional learning, and increased support for early agricultural educators are presented.

Keywords: Elementary Agricultural Education, Teacher Perceptions, Agricultural Literacy

Introduction and Review of Literature

Agricultural education serves as a critical platform for preparing students to understand food, fiber, and natural resource systems while promoting agricultural literacy and career awareness (Cano, 2009). Traditionally, School-Based Agricultural Education (SBAE) programs have been implemented at the middle and secondary levels, where instruction emphasizes leadership, technical skill development, and experiential learning (Phipps & Osborne, 1988; Roberts & Ball, 2009). However, recent efforts have expanded agricultural instruction to elementary schools, introducing foundational agricultural concepts to younger learners (Brune et al., 2020). In Georgia, this shift was formalized through the development of elementary agricultural education pilot programs initiated by the Georgia Department of Education (GaDOE) in 2018. These programs aimed to promote agricultural literacy and expose students to agricultural systems, environmental stewardship, and essential employability skills (GaDOE, 2023). Agricultural literacy "is the awareness and understanding [of] food, fiber, natural resources, and animal health and its relationship to the public and environment." (Clemons, et al. 2018, p. 248.) Following the passage of House Bill 1303 in 2022, elementary agricultural education became an official component of the state's curriculum, with established Georgia Standards of Excellence (GSE) encompassing Agricultural Systems, Natural Resource Systems, and Foundations of Agriculture.

The development of these standards reflects the experiential philosophy at the core of agricultural education, connecting academic knowledge to real-world experiences through learning-by-doing (Dewey, 1938; Kolb, 1984). Through this framework, students explore how agriculture impacts daily life, identify environmental interdependencies, and build foundational agricultural knowledge. Previous research supports that early exposure to agriculture positively

influences student attitudes toward science, environmental issues, and food systems (Hendrix et al, 2024; Wang & Knobloch, 2018). And further work shows that science learning in agriculture can affect students' understanding and exploration of those concepts (Roberts & Ball, 2009). As Georgia's elementary programs continue to expand, understanding how teachers perceive and prioritize these standards is essential for maintaining consistent and effective instruction across schools.

Teacher perceptions play a vital role in determining the quality and focus of curriculum implementation (Darling-Hammond et al., 2020; Ray et al, 2022; Faulk et al, 2024). Studies in agricultural education have shown that teacher characteristics such as age, years of experience, education level, and prior agricultural background can influence instructional choices and the perceived importance of curriculum areas (Roberts et al., 2020). Teachers with strong agricultural or technical experience may emphasize applied systems, while those with general education backgrounds may focus on scientific literacy or environmental awareness. Understanding these perspectives can help to identify how instructional emphasis varies across programs and provide insight into how early agricultural instruction is evolving statewide (Solomonson et al., 2022).

Despite the increasing number of programs, limited research exists examining the characteristics and perceptions of Georgia's elementary agricultural educators. A clearer understanding of how teachers interpret and value standards related to Agricultural Systems, Natural Resource Systems, and Foundations of Agriculture will help ensure that instructional practices align with state goals and student needs. This study explores how Georgia's elementary agricultural education teachers perceive the importance of these three key domains, providing insight into the implementation of agricultural literacy and foundational concepts within this

developing level of agricultural education (Peake, Rubenstein, & Byrd, 2020).

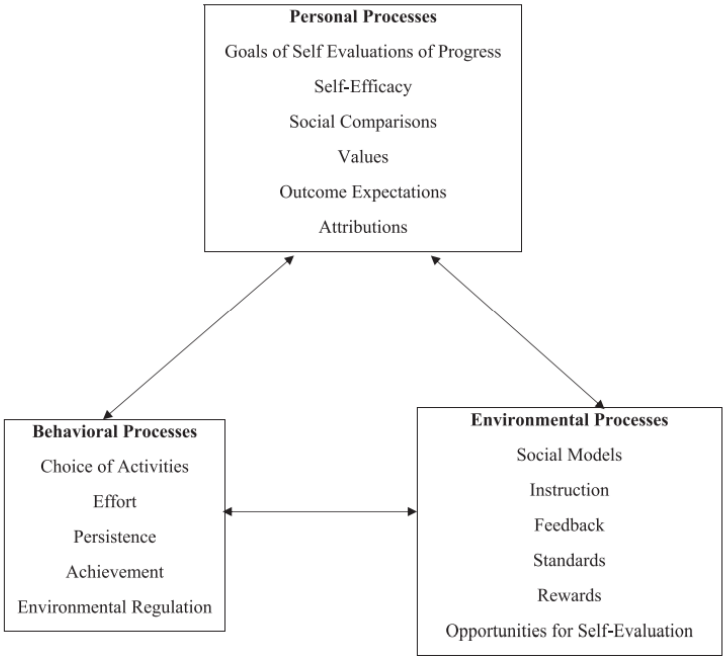
Theoretical Framework

This study was structured around Social Cognitive Theory (SCT) (Bandura, 1986), which emphasizes the interaction between personal factors, behaviors, and environmental influences in shaping human learning and motivation. According to Bandura, individuals learn not only through direct experience but also by observing others, reflecting on those observations, and regulating their behavior based on perceived outcomes and self-efficacy beliefs. Within this framework, learning is viewed as a reciprocal process in which cognition, behavior, and environmental conditions continually influence one another. SCT provides a meaningful foundation for agricultural education, where teachers' confidence, experiences, and environmental supports influence how they design and implement standards-based instruction (Schunk, 2012).

In the context of this study, Social Cognitive Theory served as the foundation for examining how Georgia's elementary agricultural education teachers perceive the importance of standards within the domains of Agricultural Systems, Natural Resource Systems, and Foundations of Agriculture (Shoulders, Blythe, & Myers, 2013). Teachers' perceptions of these standards may vary based on their self-efficacy, prior experiences, and contextual supports, as these factors shape how they interpret curriculum frameworks and prioritize specific content areas. SCT illustrates how teachers' beliefs about their capabilities, coupled with their agricultural and educational experiences, influence their instructional decisions, perceptions of program value, and understanding of how young learners develop agricultural literacy within these core domains.

Figure 2.1

Overview of Social Cognitive Theory



Note. Adapted from "Motivation and Social Cognitive Theory" article (Schunk & DiBenedetto, 2020).

Purpose and Objectives

The purpose of this study was to examine Georgia's elementary agricultural education teachers' perceptions of the importance of standards within the domains of Agricultural Systems, Natural Resource Systems, and Foundations of Agriculture. This study aimed to identify how educators value and prioritize these content areas within their instruction and to determine whether professional or agricultural backgrounds influence their perceptions of the standards they teach. The questions that guided this study were:

1. How do Georgia's elementary agricultural education teachers perceive the importance of standards related to Agricultural Systems?
2. How do Georgia's elementary agricultural education teachers perceive the importance of

standards related to Foundations of Agriculture?

3. How do Georgia's elementary agricultural education teachers perceive the importance of standards related to Natural Resource Systems?
4. How do teacher characteristics influence their perceptions of Agricultural Systems, Natural Resource Systems, and Foundations of Agriculture Standards?

Methods

This study utilized a quantitative descriptive survey design to examine Georgia's elementary agricultural education teachers' perceptions of the importance of standards related to Agricultural Systems, Natural Resource Systems, and Foundations of Agriculture. A quantitative approach allows for the collection of numerical data that describes trends, relationships, and patterns among participants (Eck et al., 2021). The questionnaire, administered electronically through Qualtrics, collects data regarding teacher perceptions and background characteristics. The instrument was distributed via the Georgia Agricultural Education Listserv, which includes all identified elementary agricultural education teachers in the state.

Participants

The target population for this study consists of all Georgia elementary agricultural education teachers employed during the 2024–2025 academic year. According to the Georgia Agricultural Education Program Directory (2023), there are 62 teachers statewide. Due to the small size of this population, a census sampling method is used, ensuring that every identified teacher receives an invitation to participate via email. This method maximizes participation and ensures full representation of the population under study. Participants represent educators responsible for introducing agricultural literacy, systems-based learning, and environmental stewardship concepts to elementary students across Georgia. A total of 20 usable responses were

received.

Table 3.1

Participant Characteristics(n=20)

Personal Characteristics	*f*	*%*
Gender		
Male	6	30.0
Female	14	70.0
Not Listed	0	0
Ethnicity		
American Indian or Alaskan Native	0	0
Asian	0	0
Black or African American	0	0
Native Hawaiian or Pacific Islander	0	0
White	20	100.0
Not Listed	0	0
Years Teaching		
1-3	2	10.0
4-6	2	10.0
7-10	2	10.0
11-15	6	30.0
16-20	1	5.0
21-25	1	5.0
26+	6	30.0
Highest Level of Education		
Bachelor's Degree	7	35.0
Master's Degree	5	25.0
Specialist Degree	5	25.0
Doctoral Degree	3	15.0
Other	0	0
Community		
Rural	9	54.0
Urban	11	55.0

Table 3.2

Participant Agriculture Background(n=20)

Agriculture Background	*f*	%
Previous Working Experience		
Yes	16	80.0
No	4	20.0
Highest Level of Formal Agricultural Education		
None	3	15.0
High school-level agricultural education	0	0
Undergraduate degree in agriculture or related field	7	35.0
Graduate degree in agriculture or related field	5	25.0
Non-degree certification or training in Agriculture	5	25.0
Types of Agriculture Experience		
Crop farming (e.g., grains, vegetables, fruits)	10	50.0
Livestock farming (e.g., cattle, poultry, swine)	9	45.0
Horticulture (e.g., landscaping, nurseries, flowers)	11	55.0
Forestry	6	30.0
Aquaculture	4	20.0
Mechanics	5	25.0
Agricultural Practices Knowledge		
Not at all knowledgeable	0	0
Slightly knowledgeable	2	10.0
Moderately knowledgeable	7	35.0
Very knowledgeable	9	45.0
Extremely knowledgeable	2	10.0

Instrumentation and Data Analysis

A questionnaire was designed for this study. The questionnaire consisted of three sections designed to measure teachers' perceptions of the importance of Georgia's elementary agricultural education standards. Each section represented one of the three curriculum domains: Natural Resource Systems, Agricultural Systems, and Foundations of Agriculture. Within each section, participants rated multiple standards aligned with the Georgia Standards of Excellence. Each item asked teachers to indicate the degree of importance placed on specific standards using

a five-point Likert-type scale, where 1 = Not Important at All, 2 = Slightly UnImportant, 3 = Neither Important nor Not Important, 4 = Slightly Important, and 5 = Extremely Important. The questionnaire also included a section for personal characteristics, community characteristics, and background information to support subgroup comparisons among participants. These items captured years of teaching experience, the highest level of education, certification route, and agricultural background, along with the geographic classification of the school.

To ensure content validity, the questionnaire was reviewed by a panel of experts in agricultural education and survey research. Their feedback informed revisions to question structure, clarity, and sequencing. Cronbach's alpha was calculated for the perception items to assess internal consistency reliability, and the results indicated acceptable reliability (DeVellis & Thorpe, 2022) (Table 3.3). Data was collected through Qualtrics and analyzed using SPSS statistical software. For the purposes of interpretation of scaled items, Lindner and Lindner (2024) were used in determining that when five vague quantifiers are used, four scales are present.

To examine relationships between variables, a *Mann-Whitney U Test* was used to explore associations between rural versus urban classification and teacher perceptions. A Spearman's rank-order correlation was used to explore associations between self-reported agricultural knowledge and teacher perceptions. These analyses provided insight into whether teachers' backgrounds, contexts, and experiences influenced their perceived importance of the agricultural education standards across the three domains.

Table 3.3

Cronbach's alpha (α) calculated for each section

Standard Area	Item Count	α
Agricultural Systems	8	.873
Foundations of Agriculture	7	.895
Natural Resource Systems	7	.915

Findings

Research Objective 1: How do Georgia's elementary agricultural education teachers perceive the importance of standards related to Agricultural Systems?

The eight statements measuring teacher perceptions of Agricultural Systems standards were designed to assess how Georgia's elementary agricultural education teachers viewed the importance of this content area within the elementary curriculum. 100% of participants agreed that it is important for students to understand the basic needs of plants and animals and to recognize how agricultural systems provide food, fiber, and shelter (See Table 3.4). Likewise, 19 teachers (95%) rated understanding plant and animal life cycles as Extremely Important, while one respondent (5%) selected Important. A similar trend was found for the standard emphasizing agricultural safety, where 18 participants (90%) rated it as Extremely Important and two (10%) as Important.

Participants also expressed strong agreement with statements connecting agriculture to students' daily lives and communities. Nineteen respondents (95%) indicated that recognizing the role of agriculture in providing daily necessities was Extremely Important, while one respondent (5%) selected Important. For understanding agricultural production processes, 17 teachers (85%) rated the standard as Extremely Important, and three (15%) selected Important.

Standards addressing environmental stewardship and sustainable practices received comparable support, with 16 teachers (80%) indicating Extremely Important, three (15%) selecting Important, and one (5%) marking Moderately Important.

Slightly lower levels of agreement were observed for standards involving agricultural technology and mechanical systems, though responses remained positive overall. Fifteen participants (75%) rated these standards as Extremely Important, four (20%) as Important, and one (5%) as Moderately Important. Despite small variations in degree of importance, all twenty participants rated each Agricultural Systems standard at or above the Moderately Important level, suggesting consistent support for inclusion of this content within elementary agricultural education.

Table 3.4

Teacher Perceptions of Agricultural Systems Standards in Elementary Agricultural Education

Standard	Mode Vague Quantifier*	n
Understanding the importance of animals and plants in agriculture is essential for appreciating their roles in food systems.	Extremely Important	20
Recognizing the parts of plants and animals and their functions is crucial for agricultural education.	Slightly Important	3
	Extremely Important	17
It is important to connect life cycles of plants and animals to agricultural production processes	Slightly Important	2
	Extremely Important	18
Learning about the role of pollinators is vital for understanding agricultural ecosystems.	Slightly Unimportant	1
	Slightly Important	3
	Extremely Important	16
Practicing safety when using tools, equipment, and agricultural practices is critical for education and industry.	Neither Important nor Not Important	1
	Slightly Important	4
	Extremely Important	15
Understanding how to use simple machines in agricultural tasks is important for developing mechanical skills.	Slightly Unimportant	1
	Neither Important nor Not Important	1
	Slightly Important	8
	Extremely Important	10

Exploring how animals contribute to agriculture beyond food, such as through byproducts or as service animals, is essential.	Slightly Important	3
	Extremely Important	17

* note. Five vague quantifiers were available for response: Not Important at All, Slightly Unimportant, Neither Important nor Not Important, Slightly Important, Extremely Important. Items without responses were omitted from the table for space and clarity.

Research Objective 2: How do Georgia's elementary agricultural education teachers perceive the importance of standards related to Foundations of Agriculture?

All participants (100%) agreed that understanding the origins and uses of agricultural products is important for connecting them to daily life, with 19 respondents (95%) rating the standard as Extremely Important and one respondent (5%) selecting Slightly Important (See Table 3.5). Similarly, 19 teachers (95%) agreed that exploring how animals contribute to agriculture beyond food production is essential, with 17 (85%) rating it Extremely Important and 3 (15%) selecting Slightly Important. Recognizing the nutritional value of agricultural products also received strong support, with 16 respondents (80%) identifying it as Extremely Important, three (15%) as Slightly Important, and one (5%) as Neither Important nor Unimportant.

Standards addressing agriculture's historical, environmental, and economic roles were also highly rated. When asked about the importance of exploring the historical impact of agriculture and its innovations, nine participants (45%) rated the standard as Extremely Important, 10 (50%) as Slightly Important, and one (5%) as Neither Important nor Unimportant. For the standard linking weather, environment, and agricultural productivity, 15 respondents (75%) selected Extremely Important, three (15%) Slightly Important, one (5%) Slightly Unimportant, and 1 (5%) Neither Important nor Unimportant. The standard recognizing the role of government and community guidelines in supporting safe and ethical agricultural practices received strong agreement, with 12 participants (60%) rating it Extremely Important, 6 (30%)

Slightly Important, and 2 (10%) Slightly Unimportant. Similarly, understanding agriculture's economic role in local and global contexts was viewed as vital, with 14 respondents (70%) selecting Extremely Important, 3 (15%) Slightly Important, 2 (10%) Slightly Unimportant, and 1 (5%) Neither Important nor Unimportant.

Teachers also strongly supported the inclusion of standards recognizing the role of different types of farmers and agricultural workers. Seventeen participants (85%) rated this standard as Extremely Important, two (10%) as Slightly Important, and one (5%) as Slightly Unimportant. The lowest-rated but still highly supported item addressed the importance of understanding how to use simple machines in agricultural tasks; 10 respondents (50%) rated it as Extremely Important, eight (40%) as Slightly Important, and two (10%) as Slightly Unimportant.

Table 3.5

Teacher Perceptions of Foundations of Agriculture Standards in Elementary Agricultural Education

Standard	Mode Vague Quantifier*	n
Understanding the origins and uses of agricultural products is important for connecting them to daily life.	Slightly Important	1
	Extremely Important	19
Recognizing the nutritional value of agricultural products is essential for promoting healthy lifestyles.	Neither Important nor Not Important	1
	Slightly Important	3
	Extremely Important	16
Exploring the historical impact of agriculture and its innovations is crucial to understanding its evolution.	Neither Important nor Not Important	1
	Slightly Important	10
	Extremely Important	9
Identifying the connection between weather, the environment, and agricultural productivity is critical for sustainable practices.	Slightly Unimportant	1
	Neither Important nor Not Important	1
	Slightly Important	3
	Extremely Important	15
Recognizing the role of government and community guidelines is important for supporting safe and ethical agricultural practices.	Slightly Unimportant	1
	Neither Important nor Not Important	1
	Slightly Important	6
	Extremely Important	12

Understanding the economic role of agriculture in local and global contexts is vital for appreciating its significance.	Slightly Unimportant	1
	Neither Important nor Not Important	2
	Slightly Important	3
	Extremely Important	14
Understanding the role of different types of farmers and agricultural workers is essential for recognizing their contributions.	Slightly Unimportant	1
	Slightly Important	2
	Extremely Important	17

* note. Five vague quantifiers were available for response: Not Important at All, Slightly Unimportant, Neither Important nor Not Important, Slightly Important, Extremely Important. Items without responses were omitted from the table for space and clarity.

Research Objective 3: How do Georgia's elementary agricultural education teachers perceive the importance of standards related to Natural Resource Systems?

The seven statements assessing teacher perceptions of Natural Resource Systems standards were designed to evaluate how Georgia's elementary agricultural education teachers valued the inclusion of environmental and conservation-based topics in their instruction. As displayed in Table 3.6, all 20 participants (100%) indicated that identifying natural resources and their uses is an important concept for helping students understand their role in agriculture. Sixteen respondents (80%) rated this standard as Extremely Important, three (15%) as Slightly Important, and one (5%) as Neither Important nor Unimportant. Similarly, a strong majority of participants emphasized the importance of teaching conservation practices. When asked about learning best practices for conserving soil, water, and other natural resources, 15 teachers (75%) rated the standard as Extremely Important, four (20%) as Slightly Important, and one (5%) as Neither Important nor Unimportant.

Participants also expressed strong support for instruction that helps students recognize the environmental impacts of agricultural activities. Thirteen respondents (65%) rated exploring the impact of agricultural practices on forests, soil, and water systems as Extremely Important, six (30%) as Slightly Important, and one (5%) as Neither Important nor Unimportant. Likewise, the

standard focused on reducing, reusing, and recycling natural resources received uniformly positive responses, with 14 teachers (70%) selecting Extremely Important and six (30%) Slightly Important.

While still positive overall, slightly more variation appeared in responses to standards addressing alternative energy and biodiversity. For the statement on understanding the importance of alternative energy in agriculture, 10 teachers (50%) rated it as Extremely Important, five (25%) as Slightly Important, three (15%) as Neither Important nor Unimportant, and two (10%) as Slightly Unimportant. In addition, 13 participants (65%) rated appreciating biodiversity through the study of native plant and animal species as Extremely Important, four (20%) as Slightly Important, two (10%) as Neither Important nor Unimportant, and one (5%) as Slightly Unimportant. The highest level of agreement in this category was observed for recognizing the different uses of land to promote understanding of land management. Sixteen teachers (80%) rated this standard as Extremely Important, two (10%) as Slightly Important, and two (10%) as Neither Important nor Unimportant.

Table 3.6

Teacher Perceptions of Natural Resource Systems Standards in Elementary Agricultural Education

Standard	Mode Vague Quantifier*	n
Identifying natural resources and their uses is critical for understanding their role in agriculture.	Neither Important nor Not Important	1
	Slightly Important	3
	Extremely Important	16
Learning best practices for conserving soil, water, and other natural resources is vital for sustainability.	Neither Important nor Not Important	1
	Slightly Important	4
	Extremely Important	15
Exploring the impact of agricultural practices on forests, soil, and water systems is essential for environmental awareness.	Neither Important nor Not Important	1
	Slightly Important	6
	Extremely Important	13

Reducing, reusing, and recycling natural resources is an important practice in agricultural education.	Slightly Important	6
	Extremely Important	14
Understanding the importance of alternative energy in agriculture supports sustainable development.	Slightly Unimportant	2
	Neither Important nor Not Important	3
	Slightly Important	5
	Extremely Important	10
Appreciating biodiversity by studying native plant and animal species is critical for managing agricultural ecosystems.	Slightly Unimportant	1
	Neither Important nor Not Important	2
	Slightly Important	4
	Extremely Important	13
Recognizing the different uses of land (crop production, pasture, forestry, etc.) helps students understand land management.	Neither Important nor Not Important	2
	Slightly Important	2
	Extremely Important	16

* note. Five vague quantifiers were available for response: Not Important at All, Slightly Unimportant, Neither Important nor Not Important, Slightly Important, Extremely Important. Items without responses were omitted from the table for space and clarity.

Research Objective 4: How do teacher characteristics influence their perceptions of Agricultural Systems, Natural Resource Systems, and Foundations of Agriculture Standards?

Results indicated no significant differences between rural and urban teachers in their perceptions across any of the three standard areas (Table 3.7) For Agricultural Systems, the mean rank for urban teachers (M = 10.95) was slightly higher than that for rural teachers (M = 9.94), $U = 54.5$, $z = 0.389$, $p = .697$. Similarly, for Foundations of Agriculture, the mean rank for rural teachers (M = 11.55) was higher than that for urban teachers (M = 9.22), $U = 61.0$, $z = 0.897$, $p = .370$. In the Natural Resource Systems category, both rural and urban teachers demonstrated identical mean ranks (M = 10.50), $U = 59.5$, $z = 0.000$, $p = 1.000$, indicating identical distributions of perceptions between the two groups. These results show that both rural and urban elementary agricultural education teachers rated the standards within each area similarly, suggesting comparable levels of perceived importance for Agricultural Systems, Foundations of Agriculture, and Natural Resource Systems content across different community contexts.

Table 3.7

Mann–Whitney U Test Results Comparing Rural and Urban Teachers' Perceptions of Agricultural Education Standards

Standard Area	Group	*n*	Standard Deviation	Mean Rank	*U*	*z*	*p*
Agricultural Systems	Urban	11	0.402	10.95	54.5	0.389	0.697
	Rural	9		9.94			
Foundations of Agriculture	Urban	9	0.429	9.22	61.0	0.897	0.370
	Rural	11		11.55			
Natural Resource Systems	Urban	9	0.434	10.50	59.5	0.000	1.000
	Rural	11		10.50			

As shown in Table 3.8, the analysis revealed no statistically significant relationships between teachers' self-reported agricultural knowledge and their perceptions of the three standard areas. For Agricultural Systems, results showed a weak negative association ($\rho = -.111$, $p = .640$), indicating minimal connection between teachers' agricultural knowledge and their perceived importance of this content. The relationship for Foundations of Agriculture was insignificant ($\rho = -.014$, $p = .953$), reflecting an almost complete lack of correlation between the two variables. A moderate positive relationship was observed between agricultural knowledge and perceptions of Natural Resource Systems ($\rho = .368$, $p = .110$), though this result was not statistically significant at the threshold of $p < .05$.

Table 3.8

Correlation Between Agricultural Knowledge and Teacher Perceptions of Agricultural Education Standard Areas

Standard Area	ρ (Spearman's rho)	*p*
Agricultural Systems	-0.111	.640
Foundations of Agriculture	-0.014	.953
Natural Resource Systems	0.368	.110

Conclusions, Implications, and Recommendations

Teachers overwhelmingly perceived the Agricultural Systems, Foundations of Agriculture, and Natural Resource Systems standard areas as being important, demonstrating strong support for the inclusion of agricultural literacy concepts within elementary agricultural education. This consensus aligns with the long-standing philosophical foundation of agricultural education, which emphasizes experiential, real-world learning experiences that build student understanding of food, fiber, and natural resource systems (Dewey, 1938; Kolb, 1984; Phipps & Osborne, 1988). Teachers' responses demonstrated that agricultural concepts are not only relevant but valued across all areas of the elementary agricultural curriculum.

Across the three domains, participants consistently agreed on the importance of introducing agriculture to young learners. Within the Agricultural Systems standards, 100% of respondents recognized understanding plant and animal needs and identifying agriculture's role in providing food, fiber, and shelter as critical learning objectives. These results mirror previous findings that early exposure to agricultural education fosters positive student attitudes toward agriculture and environmental stewardship (Reilly & Crossley, 2022). Similarly, in the

Foundations of Agriculture category, nearly all participants rated standards concerning agricultural origins, production, and the economic importance of agriculture as important or extremely important. These findings align with Roberts et al. (2020) and Shoulders and Myers (2013), who emphasized the role of foundational agricultural knowledge in shaping agricultural literacy and connecting classroom learning to real-world contexts. In the Natural Resource Systems category, high agreement was also observed, particularly for standards addressing conservation, sustainability, and responsible use of resources. These results reinforce the notion that elementary agricultural instruction serves as an ideal foundation for developing environmental literacy and sustainability awareness in early education (Russ & Gaus, 2021).

Statistical analyses further supported the consistency of these perceptions. The Mann–Whitney U test revealed no statistically significant differences between rural and urban teachers, suggesting that geographic context did not meaningfully influence teachers' views of the importance of agricultural standards. This finding is noteworthy given that prior studies, such as Russ and Gaus (2021), found urban teachers often frame agricultural instruction through broader environmental or food systems perspectives. In contrast, the results of this study suggested that Georgia's elementary agricultural educators, regardless of community type, share a unified understanding of agricultural literacy and experiential learning. Furthermore, a Spearman's rank-order correlation revealed no significant relationships between teachers' self-reported agricultural knowledge and their perceptions of the standards, indicating that educators with varying levels of agricultural experience value these topics similarly. This outcome may be attributed to clear curricular frameworks and professional guidance provided through the Georgia Standards of Excellence (GaDOE, 2023), which ensure consistent expectations for agricultural content delivery statewide.

Together, these results established an important baseline for understanding how elementary agricultural educators in Georgia view their curriculum and professional responsibilities. Teachers' strong support across all domains highlights the successful early implementation of agricultural education at the elementary level, where agricultural literacy, systems-based thinking, and experiential learning are becoming core instructional principles. The findings also provide early evidence that agricultural education at the elementary level transcends traditional rural contexts, establishing itself as a versatile and inclusive discipline within public education.

The implications of this study extend beyond descriptive results. The strong consensus among teachers reinforces the argument that agricultural education is positioned to support academic development and real-world understanding simultaneously. These findings reflect Bandura's (1986) Social Cognitive Theory, which emphasizes the reciprocal relationship between personal factors, behaviors, and environmental influences in shaping learning and motivation. Teachers' emphasis on hands-on, applied instruction within the Agricultural Systems, Foundations, and Natural Resource standards demonstrates how modeling, guided practice, and environmental support contribute to building students' confidence, competence, and engagement in agricultural learning beginning at the elementary level. The lack of significant rural-urban differences also implies that agricultural literacy is increasingly viewed as a universal educational priority. As Roberts and Ball (2009) argue, agricultural education serves as a bridge connecting food and resource systems to students' daily lives, regardless of where they live. Maintaining this universality as programs expand is vital to ensuring equitable agricultural learning opportunities statewide.

Another critical implication of this study lies in the relationship between the teacher's

background and perception. Although prior research linked agricultural experience to self-efficacy and instructional confidence (Roberts et al., 2020), the results suggest that teachers without formal agricultural training can still recognize and value agricultural concepts when provided with clear standards and structured support. This demonstrates the importance of accessible professional development and robust curriculum design to ensure that all teachers, regardless of background, can effectively teach agricultural content. Furthermore, teachers' consistent emphasis on sustainability and resource management aligns with national trends emphasizing 21st-century skills, environmental responsibility, and global citizenship (Darling-Hammond et al., 2020). Through early exposure to these concepts, elementary agricultural education can help cultivate informed, environmentally literate citizens who are better prepared to engage in agricultural and natural resource careers later in life.

From this study, several recommendations can be made. Professional development opportunities should be strengthened to support teachers integrating agricultural systems, foundational, and natural resource concepts more effectively across curricula. Targeted training programs could emphasize experiential, inquiry-based learning strategies consistent with Kolb's (1984) learning model while fostering teachers' content confidence in areas such as plant systems, animal systems, and environmental conservation. Partnerships with universities, Cooperative Extension, and industry partners may help sustain this growth by offering specialized workshops and access to agricultural resources. Similarly, continued expansion of curriculum materials is essential. The Georgia Department of Education (GaDOE, 2023) could work collaboratively with agricultural educators to develop engaging, standards-aligned materials that integrate agriculture into core academic subjects while maintaining alignment with secondary-level agricultural programs.

Teacher preparation and certification pathways should also evolve to reflect the diverse backgrounds of elementary agricultural educators. Given that perceptions of agricultural standards were not influenced by agricultural experience, programs should remain open to both traditionally certified teachers and alternatively certified teachers who bring valuable perspectives from other disciplines. Incorporating foundational agricultural literacy training into all teacher preparation programs could strengthen instructional quality statewide and ensure alignment across elementary and secondary programs.

Future research should explore how teacher perceptions translate into classroom practice. Quantitative studies could be complemented with qualitative analyses—such as classroom observations or interviews—to examine how teachers operationalize agricultural standards and adapt them to their specific contexts. Longitudinal research could also explore whether early exposure to agricultural education influences student interest and participation in middle and high school agricultural programs or career pathways in agriculture, food, and natural resources.

Finally, community partnerships remain an essential aspect of sustaining elementary agricultural programs. Collaborations with local farms, agribusinesses, and environmental organizations could enhance student learning and provide authentic experiences that connect classroom instruction to real-world agriculture. These partnerships may be especially beneficial in urban and suburban settings, where students' exposure to agriculture is often limited (Russ & Gaus, 2021).

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Chapter 4: Perceptions of Georgia's Elementary Agricultural Education Teachers Toward Employability and Career Readiness Standards

Abstract

Elementary agricultural education programs in Georgia were developed to extend agricultural literacy and skill-building opportunities to younger learners. This study employed a quantitative descriptive research design to examine Georgia's elementary agricultural education teachers' perceptions of the importance of standards within the Employability and Career Readiness domains. A Qualtrics questionnaire was distributed to all 62 elementary agricultural education teachers in the state, yielding 20 usable responses. Overall, participants rated all standards as important or extremely important, emphasizing communication, teamwork, leadership, and problem-solving as foundational skills for early career readiness. Statistical analyses, including Spearman's rank-order correlation and Kruskal–Wallis H tests, revealed no significant differences in teacher perceptions based on education level or self-reported agricultural knowledge. These findings indicate a strong, unified commitment among teachers to the integration of employability and leadership skill development within elementary agricultural instruction. Recommendations for strengthening professional learning, enhancing curriculum materials, and expanding teacher preparation programs are presented.

Keywords: Elementary Agricultural Education, Teacher Perceptions, Employability Skills, Career Readiness

Introduction and Review of Literature

Preparing students for meaningful employment and lifelong career success has long been a defining purpose behind agricultural education. The discipline's three-component model—classroom instruction, experiential learning, and leadership development—works collectively to foster not only technical proficiency but also employability skills that extend beyond specific agricultural occupations (Phipps & Osborne, 1988; Roberts & Ball, 2009). As the agricultural industry evolves to meet global demands for sustainability, innovation, and adaptability, the ability to communicate effectively, collaborate with others, and demonstrate leadership has become as critical as technical knowledge itself (ACTE, 2020; Shoulders & Myers, 2013).

The Employability and Career Readiness Standards within Georgia's elementary agricultural education framework reflect this broader shift toward cultivating transferable life and career skills. These standards introduce students to the fundamental qualities valued in the workplace, such as responsibility, integrity, teamwork, and problem-solving, through hands-on agricultural contexts (Georgia Department of Education [GaDOE], 2023). Rather than focusing solely on career-specific training, they promote early exposure to the attitudes and behaviors that support future workforce success. Integrating these standards at the elementary level ensures that career readiness is viewed as a developmental continuum rather than a singular outcome of secondary education.

National frameworks such as the National Career Clusters Framework (Advance CTE, 2018) and the Framework for 21st Century Learning (Battelle for Kids, 2019) emphasize foundational skills such as critical thinking, collaboration, and communication in which agricultural education naturally reinforces through experiential learning. Agricultural programs, even at the elementary level, provide authentic learning opportunities that help students connect

classroom content to real-world challenges. By engaging in inquiry-based projects, students learn to set goals, manage their time, and take responsibility, which are behaviors that mirror expectations in the modern workforce (2023; Roberts et al., 2020).

At younger ages, employability and career readiness learning takes on a career awareness focus rather than technical specialization. Research by Myers et al. (2018) demonstrated that early exposure to agricultural topics enhances students' understanding of the world of work and fosters positive attitudes toward both agriculture and STEM disciplines. This awareness-building stage lays out the foundation for the later development of career-specific competencies in secondary and postsecondary agricultural education programs. Furthermore, connecting employability skills to experiential learning theory (Kolb, 1984) enables students to learn through doing by reflecting on their experiences and applying them to new situations, an essential component of lifelong skill development. Stafford et al. (2003) found that immediate reflections on real or vicarious experiences resulted in the most development.

Teachers play a pivotal role in determining how employability and career readiness standards are emphasized in the classroom. Their beliefs about the purpose of agricultural education directly influence whether lessons prioritize content mastery, career exploration, or personal development (Darling-Hammond et al., 2020). In elementary agricultural education settings, teachers' confidence and perceptions can directly shape how intentionally they incorporate and emphasize essential employability skills such as teamwork, leadership, and communication within their lessons. Educators with industry backgrounds may incorporate authentic problem-solving and real-world application, while those with limited agricultural experience might focus more on general life skills and classroom collaboration (Roberts et al., 2020).

Despite the national and state-level emphasis on workforce development, limited research has examined how elementary agricultural educators perceive and implement employability and career readiness standards. Most studies focus on secondary SBAE programs, where students engage in Supervised Agricultural Experiences (SAEs) and FFA activities that naturally reinforce leadership and soft skill growth (National FFA Organization, 2022). However, as Georgia continues to expand its elementary agricultural education programs following the passage of House Bill 1303 (2022), there is a growing need to understand how early educators interpret and deliver these employability-focused learning outcomes.

Theoretical Framework

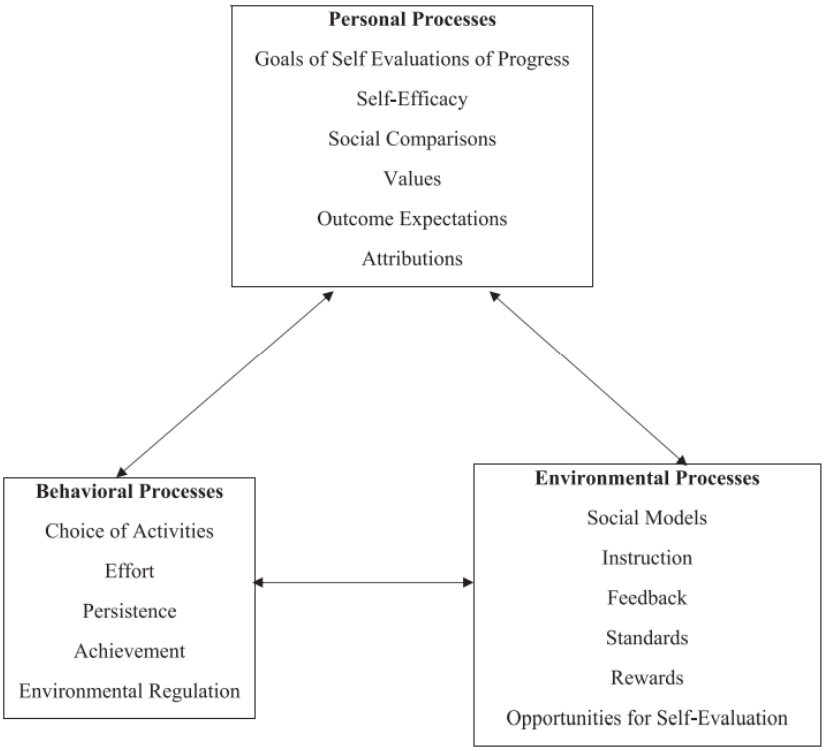
This study is structured around Social Cognitive Theory (SCT) (Bandura, 1986), which emphasizes the reciprocal relationship among personal factors, behaviors, and environmental influences in shaping human learning and motivation. SCT proposes that individuals learn through observational experiences, self-reflection, and reciprocal determinism, where both internal beliefs and external contexts interact to influence behavior (Bandura, 1997). Within this framework, learning and performance are strongly affected by self-efficacy, or the belief in one's ability to execute specific tasks successfully. SCT provides a relevant foundation for agricultural education, where teacher confidence, environmental supports, and modeled experiences influence how students acquire and apply essential workplace and leadership skills (Schunk, 2012).

In the context of this study, Social Cognitive Theory serves as the foundation for understanding how Georgia's elementary agricultural education teachers perceive the importance of the Employability and Career Readiness Standards, which emphasize the development of leadership, teamwork, communication, and problem-solving skills. These standards align with

SCT principles, as they rely on modeling, guided practice, and reinforcement to build student competence and confidence. Teachers' prior agricultural experiences, educational preparation, and perceived support systems influence how they interpret, value, and deliver instruction related to employability skills.

Figure 4.1

Overview of Social Cognitive Theory



Note. Adapted from "Motivation and Social Cognitive Theory" article (Schunk & DiBenedetto, 2020).

Purpose and Objectives

The purpose of this study was to examine Georgia's elementary agricultural education teachers' perceptions of the importance of standards within the domains of Employability and Career Readiness. This study aimed to identify how educators value and prioritize these content

areas within their instruction and to determine whether professional or agricultural backgrounds influence their perceptions of the standards they teach. The questions guiding this study were:

1. How do Georgia's elementary agricultural education teachers perceive the importance of Career Readiness and Leadership Skills standards?
2. How do Georgia's elementary agricultural education teachers perceive the importance of Employability Skills standards?
3. How do teacher characteristics influence their perceptions of employability and career readiness standards?

Methods

This study utilized a quantitative descriptive survey design to examine Georgia's elementary agricultural education teachers' perceptions of the importance of standards related to Employability and Career Readiness. A quantitative approach allowed for the collection of numerical data that describes trends, relationships, and patterns among participants (Eck et al., 2021). The questionnaire, administered electronically through Qualtrics, collects data regarding teacher perceptions and background characteristics. The instrument is distributed via the Georgia Agricultural Education Listserv, which includes all identified elementary agricultural education teachers in the state.

Participants

The target population for this study consists of all Georgia elementary agricultural education teachers employed during the 2024–2025 academic year. According to the Georgia Agricultural Education Program Directory (2023), there are 62 teachers statewide. Due to the small size of this population, a census sampling method was used, ensuring that every identified teacher received an invitation to participate via email. This method maximized participation and ensured

full representation of the population under study. Participants represent educators responsible for introducing agricultural literacy, systems-based learning, and environmental stewardship concepts to elementary students across Georgia. Agricultural literacy "is the awareness and understanding [of] food, fiber, natural resources, and animal health and its relationship to the public and environment" (Clemons, et al. 2018, p. 248).

A total of 20 usable responses were received. The characteristics of those respondents were predominately female (70%), exclusively white (100%), with representation of the four formal degree types, having mostly more than 10 years of teaching experience (70%), and primarily teaching in urban schools (55%) (Table 4.1).

Table 4.1

Participant Characteristics(n=20)

Personal Characteristics	f	%
Gender		
Male	6	30.0
Female	14	70.0
Not Listed	0	0
Ethnicity		
American Indian or Alaskan Native	0	0
Asian	0	0
Black or African American	0	0
Native Hawaiian or Pacific Islander	0	0
White	20	100.0
Not Listed	0	0
Highest Level of Education		
Bachelor's Degree	7	35.0
Master's Degree	5	25.0
Specialist Degree	5	25.0
Doctoral Degree	3	15.0
Other	0	0
Years Teaching		
1-3	2	10.0
4-6	2	10.0

7-10	2	10.0
11-15	6	30.0
16-20	1	5.0
21-25	1	5.0
26+	6	30.0
Community		
Rural	9	45.0
Urban	11	55.0

The respondents were of mixed backgrounds with regards to their agricultural experience, knowledge, and comfort levels, most having work experience within agriculture prior to teaching (80%), having a formal university degree in an agriculture field (60%), having had formal experience with horticulture (55%) or crop farming (50%), and reporting to be "very knowledgeable" of agriculture in general (45%) (Table 4.2). It is noted that few respondents had experience with forestry (30%), mechanics (25%), or aquaculture (20%).

Table 4.2

Participant Agriculture Background(n=20)

Agriculture Background	*f*	*%*
Previous Working Experience		
Yes	16	80.0
No	4	20.0
Highest Level of Formal Agricultural Education		
None	3	15.0
High school-level agricultural education	0	0
Undergraduate degree in agriculture or related field	7	35.0
Graduate degree in agriculture or related field	5	25.0
Non-degree certification or training in Agriculture	5	25.0
Types of Agriculture Experience		
Crop farming (e.g., grains, vegetables, fruits)	10	50.0
Livestock farming (e.g., cattle, poultry, swine)	9	45.0
Horticulture (e.g., landscaping, nurseries, flowers)	11	55.0
Forestry	6	30.0
Aquaculture	4	20.0

Mechanics	5	25.0
Agricultural Practices Knowledge		
Not at all knowledgeable	0	0
Slightly knowledgeable	2	10.0
Moderately knowledgeable	7	35.0
Very knowledgeable	9	45.0
Extremely knowledgeable	2	10.0

Instrumentation and Data Analysis

A questionnaire was designed for this study. The questionnaire consisted of two sections designed to measure teachers' perceptions of the importance of Georgia's elementary agricultural education standards. Each section represented one of the two curriculum domains: Employability and Career Readiness standards. Within each section, participants rated multiple standards aligned with the Georgia Standards of Excellence. Each item asked teachers to indicate the degree of importance placed on specific standards using a five-point Likert-type scale, where 1 = Not Important at All, 2 = Slightly Unimportant, 3 = Neither Important nor Not Important, 4 = Slightly Important, and 5 = Extremely Important. The questionnaire also included a section for demographics and background information to support subgroup comparisons among participants. These items captured years of teaching experience, the highest level of education, certification route, and agricultural background, along with the geographic classification of the school.

To ensure content validity, the questionnaire was reviewed by a panel of experts in agricultural education and survey research. Their feedback informed revisions to question structure, clarity, and sequencing. Cronbach's alpha was calculated for the perception items to assess internal consistency reliability, and the results indicated acceptable reliability (DeVellis & Thorpe, 2022). Based on each section of the instrument, it was determined that the internal validity was appropriate for analysis (Table 4.3). Data was collected through Qualtrics and

analyzed using SPSS statistical software. In interpreting scaled items, Lindner and Lindner (2024) determined that when five vague quantifiers are used, four scales are involved.

To examine relationships between variables, a Kruskal–Wallis H Test was used to explore used to explore associations between Education level and teacher perceptions. Spearman's rank-order correlation was used to explore relationships between self-reported agricultural knowledge and teacher perceptions. These analyses provided insight into whether teachers' backgrounds, contexts, and experiences influenced their perceived importance of agricultural education standards across the two domains.

Table 4.3

Cronbach's alpha calculated for each section

Section	Item Count	Cronbach's Alpha
Employability	6	.760
Career Readiness	6	.906

Findings

Research Objective 1: How do Georgia's elementary agricultural education teachers perceive the importance of Career Readiness and Leadership standards?

Participants were asked to rate their agreement with six statements related to leadership and career readiness standards. Results indicated consistently strong perceptions of importance across all items (See Table 4.4). All 20 respondents rated the development of leadership and interpersonal skills as either slightly important or extremely important, with 75% selecting extremely important. Similarly, 95% of teachers agreed that participating in youth leadership opportunities such as FFA and 4-H is essential for building agricultural career skills. All respondents agreed that exploring agricultural careers helps students understand pathways and

educational requirements, with 85% selecting extremely important.

Table 4.4

Teacher Perceptions of Leadership and Career Readiness Standards in Elementary Agricultural Education

Standard	Mode Vague Quantifier*	n
It is important for students to develop leadership and interpersonal skills to prepare for agricultural careers.	Slightly Important	5
	Extremely Important	15
Participating in youth leadership opportunities like FFA and 4-H is essential for building skills in agriculture.	Extremely Unimportant	1
	Slightly Important	5
	Extremely Important	14
Exploring agricultural careers helps students understand the pathways and education needed for these roles.	Slightly Important	3
	Extremely Important	17
Learning to set and achieve personal and career goals is vital for student development in agriculture.	Neither Important nor Not Important	3
	Slightly Important	5
	Extremely Important	12
Understanding teamwork and communication in agricultural settings is critical for workplace success	Neither Important nor Not Important	2
	Slightly Important	4
	Extremely Important	14
Engaging in projects and public speaking related to agriculture helps students develop confidence and advocacy skills.	Slightly Important	4
	Extremely Important	16

* note. Five vague quantifiers were available for response: Not Important at All, Slightly Unimportant, Neither Important nor Not Important, Slightly Important, Extremely Important. Items without responses were omitted from the table for space and clarity.

While perceptions remained overwhelmingly positive, slight variation appeared in responses addressing goal setting and teamwork. Sixty percent of participants rated learning to set and achieve personal and career goals as extremely important, while 40% rated it slightly important or neither important nor unimportant. Likewise, 70% of participants indicated that understanding teamwork and communication is critical for workplace success. Finally, 80% agreed that engaging in projects and public speaking enhances student confidence and advocacy in agriculture. One notable outlier rated participation in leadership activities as extremely

unimportant, which represents a rare deviation from the otherwise strong consensus supporting leadership and career readiness development among elementary agricultural education teachers.

Research Objective 2: How do Georgia's elementary agricultural education teachers perceive the importance of Employability Skills standards?

The Employability Skills standards also received high levels of support among respondents (See Table 4.5). Across all six items, 90–100% of participants rated each skill area as slightly important or extremely important, highlighting broad agreement that employability development is a vital aspect of elementary agricultural instruction. All teachers (100%) agreed that building effective communication skills is essential for success in agricultural careers, while 95% indicated that teamwork and problem-solving are key for collaboration in agricultural contexts. The majority (85%) of respondents rated demonstrating integrity, responsibility, and adaptability as extremely important for student career readiness. Similarly, the overwhelming majority of participants (90%) recognized the importance of organizational and time-management skills in promoting workplace productivity. The same proportion rated adaptability to new technologies and innovations as critical for student success in an evolving agricultural industry.

Table 4.5

Teacher Perceptions of Employability Skills Standards in Elementary Agricultural Education

Standard	Mode Vague Quantifier*	n
Building effective communication skills is essential for success in agricultural careers.	Slightly Important	3
	Extremely Important	17
Learning teamwork and problem-solving skills is important for collaborative work in agricultural settings.	Neither Important nor Not Important	1
	Slightly Important	2
	Extremely Important	17
Demonstrating integrity, responsibility, and adaptability is vital for career readiness in	Slightly Important	3
	Extremely Important	17

agriculture.

Recognizing the traits employers value helps students prepare for agricultural professions.	Neither Important nor Not Important	2
	Slightly Important	3
	Extremely Important	15
Understanding how to organize tasks and manage time is crucial for productivity in agricultural careers.	Neither Important nor Not Important	2
	Slightly Important	3
	Extremely Important	15
Adapting to new technologies and innovations is critical for thriving in a changing agricultural industry.	Neither Important nor Not Important	1
	Slightly Important	5
	Extremely Important	14

* note. Five vague quantifiers were available for response: Not Important at All, Slightly Unimportant, Neither Important nor Not Important, Slightly Important, Extremely Important. Items without responses were omitted from the table for space and clarity.

Research Objective 3: How do teacher characteristics influence their perceptions of employability and career readiness standards?

A Spearman's rank-order correlation was used to examine the relationship between self-ranked agriculture knowledge and perceptions of employability and career readiness standards. Results revealed no statistically significant correlations for either area (See Table 4.6). For Employability Skills, the correlation was weak and negative, $\rho = -.130$, $p = .582$, indicating minimal association between teacher characteristics and perceived importance. Similarly, for Career Readiness, the relationship was nearly nonexistent, $\rho = -.024$, $p = .916$.

Table 4.6

Spearman's Rank-Order Correlation Between Agriculture Knowledge and Perceptions of Employability and Career Readiness Standards among Georgia's Elementary Agricultural Educators

Standard Area	ρ (Spearman's rho)	*p*
Employability skills	-0.130	.582
Career readiness	-0.024	.916

A Kruskal–Wallis H test was conducted to explore whether teacher education level influenced perceptions of employability and career readiness standards. Results indicated no statistically significant differences across degree categories (bachelor's, master's, specialist, and doctoral)(See Table 4.6). For Employability Skills, $H(3) = 2.524$, $p = .471$, while for Career Readiness, $H(3) = 1.137$, $p = .768$. Mean ranks across all groups were highly consistent, suggesting consistent perceptions regardless of educational attainment.

Table 4.7

Kruskal–Wallis H Test to Determine the Relationship Between Education Level and Teacher Perceptions of Employability and Career Readiness Standards

Standard Area	*H*(df)	*p*	Mean Rank - Bachelor's	Mean Rank - Master's	Mean Rank - Specialist	Mean Rank - Doctoral
Employability Skills	2.524(3)	.471	10.75	9.65	11.20	10.40
Career Readiness	1.137(3)	.768	9.80	10.35	10.90	9.60

Teachers holding bachelor's degrees reported a mean rank of 10.75 for Employability Skills, while those with master's, specialist, and doctoral degrees reported ranks of 9.65, 11.20, and 10.40, respectively. For Career Readiness, mean ranks ranged from 9.60 to 10.90 across degree levels. These results demonstrate that perceptions of the importance of employability and career readiness standards remain stable across varying levels of formal education.

Conclusions, Implications, and Recommendations

The results of this study revealed that Georgia's elementary agricultural education teachers overwhelmingly viewed employability and career readiness standards as essential components of agricultural instruction at the elementary level. Across all measured items, the

majority of participants rated each standard as important or extremely important, indicating strong alignment with the philosophy of agricultural education that emphasizes the holistic development of students through experiential learning and skill application (Kolb, 1984; Phipps & Osborne, 1988). Teachers consistently ranked communication, leadership, problem solving, and teamwork as critical to preparing students for future academic and career success. These findings confirm that even at the elementary level, agricultural education is being recognized as a tool for developing both technical and life skills that extend beyond the classroom (Roberts et al., 2020; Darling-Hammond et al., 2020).

Responses from participants in Table 4.3 demonstrated near-unanimous agreement that leadership development, interpersonal communication, and participation in youth organizations such as FFA and 4-H are vital components of agricultural education. All participants indicated that leadership and interpersonal skill development were at least slightly important, with 75% rating them as extremely important. This strong consensus supports the long-standing emphasis within agricultural education on leadership as a cornerstone of student success (Roberts & Dyer, 2004; Shoulders & Myers, 2013). One notable exception was an outlier who rated participation in leadership activities as extremely unimportant, representing a rare deviation from the prevailing consensus. While this singular response did not affect overall results, it underscores the need for continued professional development to ensure all educators share a unified understanding of the role leadership plays in early agricultural instruction. As previous studies have shown, teacher beliefs about the purpose and value of agricultural education significantly shape classroom implementation and student outcomes (Darling-Hammond et al., 2020).

Teachers also emphasized the importance of helping students learn to set and achieve personal goals, understand teamwork, and engage in public speaking. Sixty percent of

respondents rated goal-setting as extremely important, while 70% rated teamwork and communication as critical for workplace success. These responses reflect a consistent belief among educators that agricultural instruction should extend beyond content knowledge to include soft-skill development, aligning with contemporary workforce demands and 21st-century learning frameworks (Darling-Hammond et al., 2020). Eighty percent of teachers agreed that engaging in projects and public speaking enhances student confidence and advocacy in agriculture—skills that not only support employability but also contribute to civic engagement and self-efficacy (Roberts & Ball, 2009).

The results in Table 4.4 revealed similarly strong agreement regarding employability skills, with all respondents rating communication, teamwork, problem solving, and adaptability as important for student success. Teachers identified integrity, responsibility, and adaptability as crucial for building career readiness, while 100% of respondents agreed that communication skills are essential to agricultural learning. These findings correspond with Roberts et al. (2020), who found that employability and leadership development have remained core elements of agricultural education across all instructional levels. The consistency of teachers' responses indicates that these concepts are deeply ingrained in the instructional philosophy guiding Georgia's elementary agricultural programs.

No significant differences were found in perceptions across demographic or professional characteristics. Kruskal–Wallis H tests showed no variation in teacher perceptions based on education level. Mean ranks across all groups were highly consistent, showing that teachers' valuation of employability and career readiness remains stable regardless of academic background. This uniformity aligns with Roberts and Ball (2009), who observed that although formal education may influence teaching approaches, it does not necessarily alter the

fundamental importance teachers place on experiential, student-centered learning.

The Spearman's rank-order correlation also showed no significant relationship between teachers' self-reported agricultural knowledge and their perceptions of employability and career readiness standards. This finding suggests that even teachers with limited agricultural backgrounds recognized the importance of employability instruction, reflecting the strength of Georgia's curriculum in providing clear and accessible standards for all educators (GaDOE, 2023). These results align with the conclusions of Roberts, Torres, and Harder (2020), who found that agricultural education's success depends more on teachers' ability to facilitate meaningful learning experiences than on the depth of their agricultural expertise. Similarly, Darling-Hammond et al. (2020) noted that professional growth and reflective practice contribute more to instructional effectiveness than prior content familiarity alone. The consistency of perceptions across varying levels of experience and knowledge indicates that elementary agricultural education teachers, regardless of background, share a unified commitment to preparing students with employability and leadership skills necessary for future success.

The implications of these findings extend to curriculum design, teacher preparation, and educational policy. The widespread agreement among teachers underscores agricultural education's capacity to address both academic and workforce readiness objectives simultaneously. By incorporating communication, problem solving, and teamwork into agricultural lessons, teachers are promoting essential competencies that align with broader educational goals outlined in national frameworks such as the Science of Learning and Development (Darling-Hammond et al., 2020). Furthermore, the lack of variation in perceptions across teacher demographics suggests that agricultural literacy and employability development are recognized as equally valuable in all school contexts, rural or urban. This universality affirms

that agricultural education contributes to a well-rounded educational experience that benefits students regardless of community type or socioeconomic status (Russ & Gaus, 2021).

However, the presence of even a single outlier response highlighted the importance of sustained professional support for teachers. Ongoing professional development can help educators deepen their understanding of how employability and career readiness skills align with agricultural literacy outcomes. Roberts and Dyer (2004) and Shoulders and Myers (2013) both emphasized that effective professional development strengthens teachers' self-efficacy and instructional consistency, leading to more robust student engagement. Workshops, coaching, and professional learning communities that emphasize leadership integration and project-based learning could further reinforce these competencies within elementary programs.

In addition to strengthening teacher professional learning, curriculum designers should continue developing grade-appropriate, standards-based instructional materials that embed employability skills within agricultural content. Project-based units, leadership simulations, and classroom-based entrepreneurship activities can provide students with authentic learning opportunities that connect agricultural topics to real-world applications (Kolb, 1984; Roberts et al., 2020). This type of instruction not only supports agricultural literacy but also cultivates critical thinking, communication, and adaptability—skills identified by both educators and employers as essential for success in the modern workforce (Darling-Hammond et al., 2020).

Future teacher preparation programs should also incorporate direct instruction in agricultural employability and leadership standards, ensuring that new teachers are equipped to implement these concepts effectively. For educators entering the field from non-agricultural backgrounds, exposure to agricultural contexts and experiential learning pedagogy during pre-service training could help bridge gaps in content familiarity and instructional confidence

(Roberts et al., 2020). Longitudinal research is recommended to explore how early exposure to employability and leadership instruction influences student motivation, self-efficacy, and participation in agricultural programs at later grade levels (Russ & Gaus, 2021).

In closing, strengthening partnerships between schools, local agribusinesses, and community organizations can reinforce classroom instruction by providing students with practical experiences that enhance employability skills. Engaging students in service-learning projects, field trips, and mentorship programs can extend agricultural education beyond the classroom and connect learning with authentic community contexts (Roberts & Ball, 2009; Darling-Hammond et al., 2020). As agricultural education continues to evolve, these collaborative efforts will ensure that students gain not only agricultural literacy but also interpersonal, problem-solving, and leadership skills essential for lifelong success.

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Chapter 5: Epilogue

This dissertation examined the development and implementation of Georgia's elementary agricultural education programs, focusing on teacher characteristics and demographics, perceptions of agricultural education standards, and the integration of employability and career readiness concepts within early agricultural instruction.

Summary of Findings by Study:

Article 1:

Research Objective 1: What are the personal, community, and educational characteristics of Georgia's elementary agricultural education teachers?

The responses revealed that Georgia's elementary agricultural education teachers represent a largely homogeneous demographic group. An overwhelming majority were female (77.8%) and all identified as White (100%), a pattern consistent with broader trends in both general elementary education and agricultural education. The teaching force was also highly educated: one-third of participants held a master's degree, while additional respondents reported specialist (22.2%) and doctoral degrees (14.8%), underscoring the advanced preparation common within this emerging field.

Most teachers were traditionally certified (80.8%), indicating that the majority completed formal agricultural education preparation programs rather than entering through alternative routes. In terms of experience, the largest segment had taught 11–15 years (37.0%), and another large group reported more than 25 years in the classroom (22.2%). These findings suggest that Georgia's elementary agriculture teachers are primarily experienced, mid-career educators. The distribution of programs across community types was evenly split, with half of respondents teaching in rural schools and the other half in urban settings. Teachers also reported serving

multiple grade levels most commonly across the full K–5 range.

Research Objective 2: What prior agricultural experiences and backgrounds do Georgia's elementary agricultural education teachers possess?

According to participant responses, most elementary agricultural education teachers in Georgia bring direct industry experience to their roles. Eighty percent reported having previous work experience in agriculture, while the remaining 20% entered the classroom without prior agricultural employment. Nearly all respondents had also engaged in postsecondary agricultural education. Over one-third held an undergraduate degree in agriculture (35%), one-quarter had earned a graduate degree in the field (25%), and another 25% reported completing non-degree agricultural certifications or training, demonstrating a broad range of formal and informal preparation.

Teachers' agricultural backgrounds reflected diverse industry sectors. The most frequently reported areas of experience included horticulture (55%), crop farming (50%), and livestock production (45%). Fields with lower expertise included forestry (30%), mechanics (25%), and aquaculture (20%). When evaluating their own agricultural knowledge, nearly half of participants (45%) rated themselves as very knowledgeable, and another 10% described themselves as extremely knowledgeable. Only a small portion (10%) reported feeling slightly knowledgeable. These responses suggest that the majority of Georgia's elementary agriculture teachers possess strong agricultural self-efficacy and confidence in their subject-matter expertise.

Article 2

Research Objective 1: How do Georgia's elementary agricultural education teachers perceive the importance of standards related to Agricultural Systems?

Participants overwhelmingly expressed strong support for the Agricultural Systems standards, with nearly all respondents rating them as important or extremely important. This consensus reflects a shared belief in the value of helping students understand how agriculture meets basic human needs. Every participant (100%) agreed that teaching students about the needs of plants and animals, as well as agriculture's essential role in producing food, fiber, and shelter, is of high importance.

Teachers also emphasized the significance of grounding instruction in real-world agricultural contexts. They highlighted the need to connect classroom lessons to authentic examples of food systems and production practices, reinforcing relevance and student engagement. Overall, the results indicate that educators view Agricultural Systems instruction as a cornerstone of agricultural literacy and a critical entry point for experiential learning in the elementary setting.

Research Objective 2: How do Georgia's elementary agricultural education teachers perceive the importance of standards related to Foundations of Agriculture?

According to responses gathered, nearly all participants rated the Foundations of Agriculture standards as important or extremely important, particularly those addressing agricultural origins, food production, and economic relevance. Findings revealed a strong agreement that students benefit from learning about agriculture's role in society, as well as the science and history behind food and resource systems. Teachers emphasized that introducing foundational content including where food originates, how it is produced, and how agriculture contributes to the economy, helps build early agricultural literacy.

Research Objective 3: How do Georgia's elementary agricultural education teachers perceive the importance of standards related to Natural Resource Systems?

Participants rated the Natural Resource Systems standards as highly important, especially placing emphasis on the standards involving conservation, responsible resource use, and environmental awareness. Teachers identified water, soil, and wildlife conservation as essential elements of elementary agricultural education, reflecting a strong commitment to integrating environmental literacy and sustainability into their agricultural instruction.

Research Objective 4: How do teacher characteristics influence their perceptions of Agricultural Systems, Natural Resource Systems, and Foundations of Agriculture standards?

Results from a Mann–Whitney U test showed no statistically significant differences between rural and urban teachers across any of the three standard domains, indicating that perceptions of the standards were consistent regardless of school context. Likewise, Spearman's rank-order correlation revealed no significant relationship between teachers' self-reported agricultural knowledge and their views on the importance of the standards. Together, these findings demonstrate that teachers, regardless of background, experience, or geographic setting, consistently value the core concepts of agricultural literacy.

Article 3

Research Objective 1: How do Georgia's elementary agricultural education teachers perceive the importance of employability standards?

Findings showed that participants overwhelmingly viewed employability skills as important or extremely important to the goals of elementary agricultural education. Teachers consistently emphasized the value of communication, teamwork, leadership, and problem-solving as essential components of agricultural instruction. A majority highlighted the

importance of personal development, with 60% rating goal setting and achieving personal and career goals as extremely important, while the remaining 40% viewed these skills as slightly important or neither important nor unimportant. Additionally, 70% of teachers reported that understanding teamwork and communication is critical for future workplace success.

Educators also stressed the role of experiential activities in building student confidence and readiness through their perceptions of the standards. Eighty percent agreed that participation in projects and public speaking opportunities helps students develop confidence and advocacy skills, reinforcing the value of hands-on and performance-based learning. Only one participant rated leadership participation as extremely unimportant, representing a rare deviation from the otherwise strong consensus regarding the importance of employability skill development in elementary agricultural programs.

Research Objective 2: How do Georgia's elementary agricultural education teachers perceive the importance of career readiness standards?

Participants strongly supported the inclusion of career readiness skills in elementary agricultural instruction, with all items in this category rated as important or extremely important. Teachers emphasized that standards highlighting personal responsibility, integrity, adaptability, and initiative are essential for fostering student development and preparing learners for future success. Respondents also noted that agricultural contexts naturally provide authentic opportunities for students to explore career concepts and engage in real-world decision-making at a developmentally appropriate level. Participants highlighted project-based and experiential learning activities as particularly effective methods for integrating career readiness content, allowing students to practice critical thinking, responsibility, and problem-solving through hands-on experiences.

Research Objective 3: How do teacher characteristics influence their perceptions of employability and career readiness standards?

Statistical analyses, including Spearman's rank-order correlation and Kruskal–Wallis H tests, revealed no significant relationships between teacher perceptions and characteristics such as education level or agricultural background. Teachers' self-ranked agricultural knowledge also showed no meaningful influence on how they viewed the importance of employability and leadership standards. These findings indicate that the value placed on these skills is consistent across educators, regardless of their personal experiences or preparation.

The uniformity observed across teacher characteristics suggests that Georgia's agricultural education curriculum and related professional development efforts have effectively fostered shared priorities among educators statewide. This consistency highlights a collective understanding of the importance of employability and leadership development within elementary agricultural programs, reinforcing a statewide commitment to preparing students with the skills necessary for future success.

Recommendations for Future Research

Future research in elementary agricultural education offers numerous opportunities to deepen understanding of how early exposure shapes students' knowledge, attitudes, and long-term engagement in agriculture. One important direction involves investigating how elementary students perceive agricultural instruction and determining whether learning experiences at this level influence their agricultural literacy and emerging career interests. Exploring parents' perceptions of agricultural education standards may further illuminate how family attitudes shape student engagement, support, and understanding of agriculture's role in daily life.

Research should also examine how teacher background characteristics such as certification route, agricultural experience, or years of teaching affect instructional practices and student outcomes. Qualitative case studies can provide valuable insight into how teachers implement key standards from Agricultural Systems, Foundations of Agriculture, and Natural Resource Systems in real classroom settings. Additional studies are needed to understand how educators incorporate employability and career readiness skills into daily instruction, particularly through experiential and project-based learning activities that bring agricultural concepts to life.

Another critical area involves evaluating the effectiveness of professional development for teachers with limited agricultural backgrounds. Understanding how rural and urban contexts influence access to resources, community partnerships, and overall program implementation can further highlight disparities and opportunities within elementary agricultural programs. Longitudinal research tracking students from elementary through middle and high school would reveal how early agricultural instruction shapes participation in School-Based Agricultural Education (SBAE) pathways over time.

Finally, future studies should identify barriers teachers encounter when implementing agricultural or employability standards and examine strategies for overcoming these challenges. Investigations into administrative and policy support will help determine what is needed for sustainable program growth at the state and national levels. Comparative studies between Georgia and other states may also uncover best practices, shared challenges, and the long-term impacts of early agricultural education, contributing to a clearer vision for the future of elementary agriculture programs nationwide.

Recommendations for Practice

Teacher Preparation Programs

Teacher preparation programs can be strengthened by incorporating coursework tailored to elementary agricultural instruction and child development, while also providing pre-service teachers with early field experiences that model age-appropriate, experiential learning strategies. Ensuring that teacher education programs integrate employability and career readiness standards alongside agricultural literacy will better equip future educators for the unique demands of elementary settings. Additionally, collaboration with state education agencies and agricultural organizations can help align curriculum frameworks and certification requirements with the evolving needs of elementary agricultural education.

Professional Learning Opportunities

Targeted professional development programs should be created to help current elementary agricultural education teachers effectively integrate Agricultural Systems, Foundations of Agriculture, and Natural Resource Systems standards into their instruction. Workshops and in-service training that emphasize experiential learning, project-based instruction, and leadership skill development can further support teachers in fostering meaningful learning experiences for young students. Providing mentoring and networking opportunities is especially valuable for educators entering the field from non-agricultural or general education backgrounds. Additionally, encouraging collaboration among elementary, middle, and high school agricultural educators can help establish a cohesive pathway for agricultural literacy and career exploration across grade levels.

Elementary SBAE Teachers

Teachers can enhance elementary agricultural education by incorporating hands-on, inquiry-based activities that connect agricultural standards with science, social studies, and literacy learning objectives. Emphasizing employability and career readiness through classroom projects,

leadership development, and community-based learning experiences further strengthens students' real-world skill development. Building partnerships with local agricultural industries, environmental organizations, and community stakeholders can provide students with authentic, meaningful learning opportunities. At the same time, teachers should continually reflect on their own agricultural knowledge and pursue professional learning that builds confidence and strengthens instructional effectiveness.

SBAE Leaders

Policymakers can support the growth of elementary agricultural education by securing funding and resources that enable continued program expansion across the state. Promoting policies that strengthen agricultural literacy initiatives and ensure equitable access for both rural and urban communities is essential for broadening student opportunities. Collaboration between state agencies, universities, and local districts can help sustain these programs and evaluate their long-term impact. Recognizing elementary agricultural education as a vital component of Career and Technical Education (CTE) pipelines further reinforces the importance of early exposure to agricultural and environmental careers. Additionally, providing incentives for schools and districts that implement comprehensive agricultural programs including those integrating employability and leadership skill development which can encourage widespread adoption and program excellence.

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Appendices

Appendix A: Questionnaire

Perceptions of Georgia Elementary Agricultural Education Standards.

Start of Block: Default Question Block

Q1 My name is Emily Courson, and I am conducting research as part of my doctoral degree at Auburn University. This research explores the views and perceptions of the importance of the Georgia elementary agricultural education standards. The results will help in better understanding what parents and teachers feel should be emphasized in Georgia's elementary agricultural education courses. By completing and returning the survey, you are indicating your informed consent to participate in the research. Thank you for VOLUNTEERING your help in this crucial research! Click {here} for more information on this research.

- **I am willing to help (1)**
- **I am not willing to help (2)**

End of Block: Default Question Block

Start of Block: Block 1

Q2 Gender:

- **Male (1)**
- **Female (2)**
- **Not Listed (3)**

Q3 What year were you born?

_____

Q4 What is your Ethnicity?

- **American Indian or Alaska Native (1)**
- **Asian (2)**
- **Black or African American (3)**
- **Native Hawaiian or Pacific Islander (4)**
- **White (5)**
- **Not listed (6)**

Q5 What is your highest level of education?

- **High School Diploma (1)**
- **Associates or Trade Degree/Certificate (2)**
- **Bachelor's Degree (3)**
- **Master's Degree (4)**
- **Specialist Degree (5)**
- **Doctorate Degree (6)**

Q27 Including this year, how many years have you been teaching in total?

- **<1 (1)**
- **1-3 (2)**
- **4-6 (3)**
- **7-10 (4)**
- **11-15 (5)**
- **16-20 (6)**
- **21-25 (7)**
- **>25 (8)**

Q28 What route did you take to obtain your initial teacher certification?

- ○ **Undergraduate degree with student teaching (1)**
- ○ **Graduate degree with student teaching (2)**
- ○ **Lateral entry from "industry" with no teaching degree (3)**
- ○ **Certificate program without a degree (4)**
- ○ **Other, Please describe (5)**

_____

Q32 What teaching certifications do you currently hold?

- ☐ **Elementary Education (or similar) (1)**
- ☐ **Agriculture Education (P - 5) (2)**
- ☐ **Secondary Agriculture (3)**
- ☐ **A Special Education or similar certificate or endorsement (any) (4)**
- ☐ **A CTE Specialization (not agriculture) (5)**
- ☐ **Other (please specify) (6)**

_____

Q30 Please select the grades you taught in this past year (2024-2025).

- ☐ **Pre-K (1)**
- ☐ **Kindergarten (2)**
- ☐ **1st grade (3)**
- ☐ **2nd grade (4)**
- ☐ **3rd grade (5)**
- ☐ **4th grade (6)**
- ☐ **5th grade (7)**
- ☐ **Combined grades (8)**
- ☐ **Elementary agriculture (9)**
- ☐ **Middle Grades (10)**
- ☐ **High School (11)**
- ☐ **Post-Secondary (12)**

Q9 What is your school's ZIP code?

End of Block: Block 1

Start of Block: Block 2

Q12 Please explain how much emphasis you place on the following agricultural systems standards, based on the following scale

	Not Important at All (1)	Slightly Unimportant (2)	Neither Important nor Not Important (3)	Slightly Important (4)	Extremely Important (5)
Understanding the importance of animals and plants in agriculture is essential for appreciating their roles in food systems. (1)	○	○	○	○	○
Recognizing the parts of plants and animals and their functions is crucial for	○	○	○	○	○

agricultural education. (2)					
It is important to connect life cycles of plants and animals to agricultural production processes. (3)	○	○	○	○	○
Learning about the role of pollinators is vital for understanding agricultural ecosystems. (4)	○	○	○	○	○
Practicing safety when using tools, equipment, and agricultural practices is critical for education and industry. (5)	○	○	○	○	○

Identifying and understanding agricultural biotechnology is key to exploring modern agriculture's impact. (6)	○	○	○	○	○
Understanding how to use simple machines in agricultural tasks is important for developing mechanical skills. (7)	○	○	○	○	○
Exploring how animals contribute to agriculture beyond food, such as through by-products or as service animals, is essential. (8)	○	○	○	○	○

Q14 Please explain how much emphasis you place on the following foundations of agriculture standards, based on the following scale:

	Not Important at All (1)	Slightly Unimportant (2)	Neither Important nor Not Important (3)	Slightly Important (4)	Extremely Important (5)
Understanding the origins and uses of agricultural products is important for connecting them to daily life. (1)	○	○	○	○	○
Recognizing the nutritional value of agricultural products is essential for promoting healthy lifestyles. (2)	○	○	○	○	○
Exploring the historical impact of agriculture and its innovations is crucial to understandi	○	○	○	○	○

ng its evolution. (3)					
Identifying the connection between weather, the environment, and agricultural productivity is critical for sustainable practices. (4)	○	○	○	○	○
Recognizing the role of government and community guidelines is important for supporting safe and ethical agricultural practices. (5)	○	○	○	○	○

Understanding the economic role of agriculture in local and global contexts is vital for appreciating its significance. (6)	○	○	○	○	○
Understanding the role of different types of farmers and agricultural workers is essential for recognizing their contributions. (7)	○	○	○	○	○

Q16 Please explain how much emphasis you place on the following leadership and career readiness standards, based on the following scale:

	Not Important at All (1)	Slightly Unimportant (2)	Neither Important nor Not Important (3)	Slightly Important (4)	Extremely Important (5)
It is important for students to develop leadership and interpersonal skills to prepare for agricultural careers. (1)	○	○	○	○	○
Participating in youth leadership opportunities like FFA and 4-H is essential for building skills in agriculture. (2)	○	○	○	○	○
Exploring agricultural careers helps students understand the pathways and education needed for these roles. (3)	○	○	○	○	○

Learning to set and achieve personal and career goals is vital for student development in agriculture. (4)	○	○	○	○	○
Understanding teamwork and communication in agricultural settings is critical for workplace success. (5)	○	○	○	○	○
Engaging in projects and public speaking related to agriculture helps students develop confidence and advocacy skills. (6)	○	○	○	○	○

Q20 Please explain how much emphasis you place on the following natural resource systems standards, based on the following scale:

	Not Important at All (1)	Slightly Unimportant (2)	Neither Important nor Not Important (3)	Slightly Important (4)	Extremely Important (5)
Identifying natural resources and their uses is critical for understanding their role in agriculture. (1)	○	○	○	○	○
Learning best practices for conserving soil, water, and other natural resources is vital for sustainability. (2)	○	○	○	○	○

Exploring the impact of agricultural practices on forests, soil, and water systems is essential for environmental awareness. (3)	○	○	○	○	○
Reducing, reusing, and recycling natural resources is an important practice in agricultural education. (4)	○	○	○	○	○
Understanding the importance of alternative energy in agriculture supports sustainable development. (5)	○	○	○	○	○

Appreciating biodiversity by studying native plant and animal species is critical for managing agricultural ecosystems. (6)	○	○	○	○	○
Recognizing the different uses of land (crop production, pasture, forestry, etc.) helps students understand land management. (7)	○	○	○	○	○

Q21 Please explain how much emphasis you place on the following employability skills standards, based on the following scale:

	Not Important at All (1)	Slightly Unimportant (2)	Neither Important nor Not Important (3)	Slightly Important (4)	Extremely Important (5)
Building effective communication skills is essential for success in agricultural careers. (1)	○	○	○	○	○
Learning teamwork and problem-solving skills is important for collaborative work in agricultural settings. (2)	○	○	○	○	○
Demonstrating integrity, responsibility, and adaptability is vital for career readiness in agriculture. (3)	○	○	○	○	○

Recognizing the traits employers value helps students prepare for agricultural professions. (4)	○	○	○	○	○
Understanding how to organize tasks and manage time is crucial for productivity in agricultural careers. (5)	○	○	○	○	○
Adapting to new technologies and innovations is critical for thriving in a changing agricultural industry. (6)	○	○	○	○	○

End of Block: Block 2

Start of Block: Agricultural Background

Q22 Do you have any experience working in the agricultural industry, outside of teaching?

- ○ **No (1)**
- ○ **Yes (2)**

Q25 What types of agriculture have you had experience with? (Check all that apply)

- ☐ **Crop farming (e.g., grains, vegetables, fruits) (1)**
- ☐ **Livestock farming (e.g., cattle, poultry, swine) (2)**
- ☐ **Horticulture (e.g., landscaping, nurseries, flowers) (3)**
- ☐ **Forestry (4)**
- ☐ **Aquaculture (5)**
- ☐ **Mechanics (6)**

Q26 How knowledgeable are you about general agricultural practices?

- ○ **A. Not at all knowledgeable (1)**
- ○ **B. Slightly knowledgeable (2)**
- ○ **C. Moderately knowledgeable (3)**

- **D. Very knowledgeable (4)**
- **E. Extremely knowledgeable (5)**

Q24 What is your highest level of formal agricultural education?

- **No formal agricultural education (1)**
- **High school-level agricultural education (2)**
- **Undergraduate degree in agriculture or related field (3)**
- **Graduate degree in agriculture or related field (4)**
- **Non-degree certification or training in agriculture (5)**

End of Block: Agricultural Background

Appendix BB: Recruitment Details

Request for Participation – Georgia Elementary Ag Ed Research
1 message

Emily Courson <ecourson@oconeeschools.org> Tue, Jun 17, 2025 at 9:05 PM
To: aged-elementary@listserv.uga.edu

Hi everyone!

My name is Emily Courson, and I'm working on research for my doctoral degree at Auburn University. I'm studying how parents and teachers view the Georgia elementary agricultural education standards, and what they feel should be emphasized in our elementary ag programs.

I would really appreciate it if you could take a few minutes to complete the survey. Also, if you don't mind, please share the link with other teachers at your school who might be willing to help too — the more input we have, the better!

By filling out the survey, you're giving your consent to participate.

Thank you so much for your help with this project — I greatly appreciate your time and support!

:Link to survey: https://auburn.qualtrics.com/jfe/form/SV_8i64JXVRUBijXxQ

Request for Participation – Georgia Elementary Ag Ed Research
1 message

Emily Courson <ecourson@oconeeschools.org> Wed, Jul 30, 2025 at 3:01 PM
To: aged-elementary@listserv.uga.edu

Hi everyone!

I hope that you have all had a wonderful summer and a great start back to your school year. My name is Emily Courson, and I'm working on research for my doctoral
degree at Auburn University. I'm studying how parents and teachers view the Georgia elementary agricultural education standards, and what they feel should be emphasized in our elementary ag programs.

I would really appreciate it if you could take a few minutes to complete the survey. Also, if you don't mind, please share the link with other teachers at your school who might be willing to help too — the more input we have, the better!

By filling out the survey, you're giving your consent to participate.

Thank you so much for your help with this project — I greatly appreciate your time and support!

Link to survey: https://auburn.qualtrics.com/jfe/form/SV_8i64JXVRUBijXxQ

Appendix CC: IRB approval

AUBURN UNIVERSITY
Institutional Review Board

EXEMPT DETERMINATION

May 21, 2025

Jason McKibben
Haley Center 5040
Aub-urn Univ, AL 36849
334844-4434
jdm0184@auburn.edu

Dear Jason McKibben:

On 5/21/2025, the IRB reviewed the following submission:

Protocol Information	Submission Details
Type of Review:	Initial Study
Title:	Exploring Stakeholder Views on Georgia's Elementary Agricultural Education Standards
Investigator:	Jason McKibben
IRB ID:	STUDY00000489
Funding:	None
Grant Title:	N/A
Grant ID:	None
IND, IDE or HDE:	None
Documents Reviewed:	• Protocol teachers, Category: IRB Protocol; • recruitment email teachers, Category: Recruitment Materials; • Splash letter for teachers, Category: Consent Form; • Teachers questionnaire about Elementary standards, Category: Survey/Questionnaire;

The IRB determined that this protocol meets the criteria for exemption from IRB review. This determination is valid through 5/21/2028. The IRB has implemented a three-year determination period for Exempt submissions to better manage the active research portfolio. In conducting this protocol you are required to follow the requirements listed in HRP-103 - INVESTIGATOR MANUAL.

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities impact the exempt determination, please submit a modification in the Endeavor system.

Sincerely,
IRB Administration
540 Devall Drive
Auburn, AL 36849
irbadmin@auburn.edu
(334) 844-5966