

You Can't Train Them to Care: Perceptions of Florida's Young Farmers and Ranchers Leadership Group on Necessary Skills for High School Graduates to Gain Entry-Level Employment

Authors

Heather L. Young
University of Florida
heather.young@ufl.edu

R. G. (Tre) Easterly III
University of Florida
tre.easterly@ufl.edu

Amy M. C. Brown
University of Florida
amybrown@ufl.edu

James (J.C.) Bunch
University of Florida
bunchj@ufl.edu

Research Type: Qualitative

Research Priority Area: Teacher Education & School-Based Agricultural Education

Keywords: Agricultural industry trends; Florida agriculture; high school agricultural education; employability; focus groups

You Can't Train Them to Care: Perceptions of Florida's Young Farmers and Ranchers Leadership Group on Necessary Skills for High School Graduates to Gain Entry-Level Employment

Abstract

There has been an overall shortage of skilled workers in today's workforce. Employers expect graduates to possess skills such as problem-solving, decision-making, analyzing, using logic, making informed judgments and conclusions, and maintaining strong leadership qualities, such as written and oral communication and attention to detail. Board members of the Florida Young Farmers and Ranchers (YF&R) Leadership Group participated in a focus group. They shared their perceptions of the skills necessary for high school graduates to gain entry-level employment. As representatives of the agricultural industry, the YF&R population provides insight into challenges associated with hiring graduates into the workforce. We concluded a general frustration about finding and keeping committed employees was present. Agricultural producers also noted that job applicants lacked the necessary skills for employment in industry operations. Findings suggested that school-based agricultural education programs focus on teaching and practicing essential skills, such as critical thinking, communication, time management and prioritization, willingness to learn, and building confidence. The study informs outcomes of secondary agricultural education programs to meet industry needs and boost student success.

Introduction

The demands of the global labor market have been at odds with the skills the workers possess (Cappelli, 2015). This mismatch in skills was evidenced by the 8.8 million job openings and the 6.3 million unemployed workers (Ferguson, 2023). Despite various calls for increases in skills in specific areas, predicting areas of employment need has been challenging (Capelli, 2015). The employee shortage in skilled trades has been noted (Alston et al., 2020; Capeilli, 2015; Parrella et al., 2023). High school career and technical education (CTE) programs have been positioned to give students the skills needed to meet industry demands in specialized areas (US Department of Education, 2019). For these programs to be successful, they must be in tune with the needs of the industry to prepare students. High school agricultural programs face a particular challenge in this area because of the disparate careers students can enter after graduation and the entrepreneurial nature of some of these careers (National Research Council, 1988).

The National Rural Education Association (NREA) Research Agenda (2016-2021) qualified career readiness as one of the rural education research priority areas. This identification was due in part to the growing global economy, ever-changing workforce needs, and educational equity (Bragg & Taylor, 2014; Hill & Turney, 2016; Lombardi et al., 2013; Mishkind, 2014; Monahan et al., 2020; Roberts & Grant, 2021.). Acknowledging the importance and severity of the changing workforce demands, Florida's Department of Education Strategic Plan specifically focused on career and technical education, including career clusters, industry certifications, and business partnerships, to produce more career-ready high school graduates (Licata, 2014).

Up-to-date needs assessments and job analyses detailing required skills for agricultural employees are a critical part of the curriculum design process in determining the content taught

in these programs (Dick et al., 2015). However, the literature was limited in describing specific skills desired by agriculture employers. The work of Slusher et al. (2011) and Easterly et al. (2017) provided insight into the technical skills needed by employers in the areas of animal science and agricultural communication, respectively. Ramsey and Edwards (2011) provided a detailed list of entry-level skills for agricultural employment. Although providing insight, the publications do not fully address the breadth of sectors within the industry and lack post-pandemic relevance to guide the curriculum decision-making process. Agricultural program advisory boards and curriculum review committees are likely informing this work (Masser et al., 2014); however, their work is unpublished and, therefore, inaccessible to a broader audience.

Theoretical Framework

The theoretical framework for this study was human capital theory (HCT). Human capital theory draws attention to the value educated and skilled employees bring to an organization (Becker, 1994; Mincer, 1962; Psacharopoulos & Woodhall, 1985; Schultz, 1961). Academics have conflicting perspectives on HCT; however, original definitions of the theory and the basis of this study complement each other. Schultz (1961) explained that education and training in developing knowledge and skills in employees is a form of capital. The capital is a product of purposeful investment and provides a return. HCT is also conceptualized as the use of education and schooling to prepare individuals for the workforce (Mincer, 1962). Untaught ability, education, school quality, training, and pre-labor market influences can affect human capital significantly. Becker (1994) emphasized “Education and training are the most important investments in human capital” (p. 17). Educators can increase the likelihood of students’ employment by investing early in education, training, and skill development. HCT was used to frame the research and examine the untaught ability and opportunities available to high school agricultural programs to better prepare graduates for the workforce.

Attention has been drawn to aligning school curricula with current industry needs (Morgan & Rucker, 2013; Webb, 2018). A suggested approach included clear communication between the industry and academia, marrying the expertise of both professions to inform future education (Morgan & Rucker, 2013). Being intentional in building relationships with industry stakeholders ensures the agricultural programs and curriculum remain in tune with each other’s needs (Easterly et al., 2017; Maiga et al., 2013). Cooperative research programs between the agricultural industry and the field of education allow students first-hand insight and experience, with educators remaining current on needs and advancements.

In 2013, the Virginia Department of Education implemented an updated “Strategic Review of Agriculture Education: Preparing Students for Successful Transition to College and Careers” in an effort to meet the needs of the current and future workforce (VDOE, 2013). Within this plan, there were five areas that focused on bringing the Virginia agricultural education programs and teachers up to date with the current industry standards and needs, through professional development workshops hosted by Virginia Tech’s Agricultural, Leadership, and Community Education Department (Webb, 2018). Virginia recognized that by keeping teachers up to date with industry skillset needs, regionally and globally, they were better able to prepare students to be successful in the workforce. Even the ever-changing needs and careers helped to develop critical thinking and problem-solving skills (Webb, 2018).

Erickson et al. (2018) acknowledged difficulties in the industry's ability to find proficient workers in the specific areas needing fulfillment, as different skills are necessary for different positions. A content-based model for teaching agriculture requires curricula to reflect the context of the industry's current needs by 'creating' skilled workers (Roberts & Ball, 2009; Slusher et al., 2011). Agricultural educators need frequent and consistent opportunities to stay current and ensure they are teaching relevant topics (Easterly et al., 2017; Roberts & Ball, 2009; Slusher et al., 2011; Talbert et al., 2007).

Educators can help increase the likelihood of their students becoming employed by investing early in their lives such as education, training, and skill development. Within agriculture, Roberts and Ball (2009) discussed the purpose and value of agricultural education programs and CTEs in the development and preparation of students for employment within the industry and related workforce. Kitchen et al. (2002) supported the importance of hands-on, practical experiences where students could practice the necessary skills. Attention to the need for instructors to be familiar with and competent in the systems and processes they teach has also been supported (Hurst et al., 2015; Kitchen et al., 2002; Webb, 2018). Slusher et al. (2011) reported that specific skills needed to be incorporated in high school curriculum designs for animal systems and cross-connected with college animal systems pathways to ensure that enrolled students are provided opportunities to learn entry-level skills that employers desire. See Table 1. As mentioned by Easterly et al. (2017), students need to practice communication skills throughout their academic careers. See Table 2. Similarly, they recognized that student-instructor relationships were stronger when the instruction was more technical and hands-on (Kitchen et al., 2002).

Table 1

Entry-level Technical Skills Needed in Animal Industries

Animal health, husbandry, & nutrition	Business, marketing, & data management	Production agriculture	Operation & maintenance of tools & machinery
Understand animal needs & value animal health	Basic math skills	Understand selected aspects of production agriculture	Execute general farm safety practices
Identify & monitor unhealthy animals	Record & maintain relevant data	Demonstrate work experience in livestock industry	Operate equipment safely
Understand basic animal reproduction & anatomy	Basic accounting skills	Understand basic elements of plant & soil sciences	Read and follow equipment operating procedures
Feed livestock	Follow basic laws, policies, & legalities		Use basic mechanical tools

Understand basic animal handling (i.e., understanding of behaviors & points of balance)	Perform cost/benefit analysis to determine potential costs, profit, & losses	Perform general welding practices
Understand proper use & administration of antibiotics & vaccinations	Operate Microsoft Office	
	Create career development documents	
	Perform basic marketing skills	
	Create & send emails	

Note: See Slusher et al. (2011) for the full table

Table 2

Industry Perceived Important Personal and Leadership Skills

Dependable	Critical thinking	Strategic planning	Clear communication
Active listening	Problem-solving	Assertivenss	Receptive to change
Innovative	Flexible	Focused	Open to feedback
Positive attitude	Organized	Confidence	Team work
Emotional intelligence	Self-motivation		

Note: See Easterly et al. (2017) for the full table

Purpose and Research Question

The purpose of this study was to understand the agriculture industries desired skills of high school graduates to inform existing secondary agriculture curricula. The study was guided by the overarching question: What skills do high school graduates need to seek entry-level employment upon completing courses in agricultural career pathways within Florida?

Methods

We used a case study design to explore the entry-level competencies needed by agriculture professionals (Stake, 1995). A case study was selected to understand the experiences of a group bound within a select case. The study population was young, emerging professionals in the Florida agricultural and natural resource industry. A convenience sample was drawn using the

Florida Farm Bureau Young Farmers and Ranchers (YF&R) organization, specifically the board of officers ($n = 16$). They have recently experienced career entry and have navigated the challenges of finding suitable candidates to work on their operations. These officers, who serve two-year terms, were apprised of current talent pools due to maintaining contact with their high school post-graduation as a source of job candidates or interns. Participants in the study identified as males and females who were early- to mid-career and were under 35 years of age. Pseudonyms were created using ChatGPT. Professions included commodity producers, farm store managers, ranch administrative assistants, and extension agents. Specific industries included dairy, beef, timber, potato, row crops, sugar, off-farm occupations, and feed and lumber stores. See Table 3 for an in-depth description of the participants.

Table 3

Description of the Participants' Occupation, Experience, and Involvement in the Hiring Process

Participant	Commodity/ specific position	Professional years of experience	Involvement in hiring process
Emily	Agronomy Former Extension Agent	5-10 years	Training & Operations
Daniel	Beef Former Ag & Nat Res Extension Agent	6 years	Hiring, Training, Operations
Megan	Beef	8-10 years Born & raised in industry	Training & Human Resources
Rachel	Beef	10-12 years Raised in industry	Training
Samantha	Beef	Born in industry	
Andrew	Beef, Citrus, Sugar Cane	10 years in sugar cane Middle/High School–beef/citrus College–sugar cane	Hiring, Training, Internship Management, Human Resources
Ethan	Beef	Part-Time Raised in industry	Hiring, Training, Operations
Jessica	Citrus, Aquaculture, Forestry, Beef	15 years Born into citrus industry High school – aquaculture Professionally – timber	Hiring, Training, Operations
Alex	Dairy, Cheese Production	6 years Born & raised on farm	Hiring, Training, Operations, Internship Management, Human Resources

Table 3 (cont.)

Participant	Commodity/ specific position	Professional years of experience	Involvement in hiring process
David	Feed & Lumber, Beef Division Manager	Feed/lumber, full-time 15 years in beef, part-time	Hiring, Training, Operations, Management
Lauren	Fertilizer/Agrochemicals	10 years Born & raised in industry	Hiring, Training, Operations
Nathan	Forestry Consulting	9 years Raised in industry	Hiring, Training, Operations
Brandon	Land Management Procurement	12 years	Operations
Joshua	Row Crop, Dairy	6-8 years in dairy industry	Hiring, Training, Operations
Michael	Row Crop, Ag Equipment, & Beef (cow/calf)*	12 years (row crop/beef) & 7 years (ag equip service manager)	Hiring, Training, Operations
Sarah	Sugar Cane, Rice Farm & Research Manager	15 years	Hiring & Training

Note. * = This participant specifically stated that their operation was cow/calf; other participants stated that they were in the beef industry without specification.

The focus group questions were semi-structured to determine the challenges of hiring within various agricultural and natural resource industries due to the lack of skilled and well-prepared applicants (Erickson et al., 2018; Slusher et al., 2011). For example, participants were asked to describe their hiring processes related to the candidate pool (i.e., range in work, educational experiences, qualifications) and the interview process. Participants shared skills they looked for in candidates (i.e., skills essential to the operation), skills candidates were expected to be fluent in, the willingness to teach and train candidates, and any other desired skills that were not demonstrated in candidates. Finally, we asked for participants' opinions and suggestions regarding opportunities for high schools to develop the skilled laborers needed in the industry.

Data were collected from the sample in July 2022 in a one-hour-long focus group. The focus group was an appropriate method to allow participants to share ideas and experiences, building off each other's perspectives for a more comprehensive understanding of the current hiring environment. The session concluded at the point of saturation across the 16 focus group members. We supported data saturation with one group when they were learning nothing new despite asking additional probing questions (Saldaña & Omasta, 2022). The focus group size was larger than the recommended six to 12 people (Holloway, 2005; Masadeh, 2012; Prince & Davies, 2001). However, due to their familiarity with YFAR and the greater agricultural community, the comfort level between participants reduced the risk of intimidation, which would

limit the sharing of thoughts and opinions (Holloway, 2005; Saldaña & Omasta, 2022; Somekh & Lewin, 2005).

Audio recordings of the focus group were transcribed using Microsoft Word (version 16.72). The documents were screened to ensure participant anonymity, and files were saved on a password-protected server. The transcripts were coded in two phases. First, open, inductive *in vivo* coding fracturing the data while maintaining participants' perspectives and language (Saldaña, 2021). The second round used meta-coding, or pattern coding, organizing data into nodes or clusters to compare and condense data until distinct categories emerged (Saldaña, 2021). The coding process was guided using hand-written memos, which were reviewed in regular peer debriefing exercises.

Multiple strategies were used to establish rigor and trustworthiness (Ary et al., 2018; Harrison et al., 2001; Lincoln & Guba, 1985). Credibility was ensured through peer debriefing amongst multiple reviewers following transcription and throughout data analysis (Lincoln & Guba, 1985). The focus group was the only source of data for this study; therefore, multiple sources could not be triangulated following the recommendation of Stake (1995). Participants' personal contact information was kept private. To provide an additional layer of credibility, a deliberate effort was made to establish credibility through member checking, guided by an additional notetaker not involved in conducting the interview. Participants were given ample time to share their perspectives. Before concluding the focus group, we encouraged sharing any final thoughts that may not have been heard or clarifying points already made. Thick, rich descriptions of the participants and their experiences related to the industry provides evidence for transferability (Lincoln & Guba, 1985). Research team members utilized triangulation with notes from the day of, transcriptions, and amidst each other to verify patterns that emerged in the coding process, increasing dependability (Lincoln & Guba, 1985). However, three separate times, researchers who attended the focus group confirmed the accuracy of the peer debriefing exercises and reviewed the transcript, our notes from the focus group, and the open codes to ensure the accuracy of emergent themes (Lincoln & Guba, 1985).

The study's dependability was enhanced with the documentation of the coding process in extensive analytical memos and practicing reflexivity to sustain awareness of researcher bias throughout the process (Attia & Edge, 2017; Edge, 2011). One researcher has an extensive personal and professional background in the dairy industry. Two others are employed as agricultural education professors at a southern agricultural university (Creswell, 2013; Lincoln & Guba, 1985). Note-taking was also employed during the focus group and reviewed through the analytical process.

Findings

Participants shared their experiences in employee management within agricultural operations during the focus group. There was a specific emphasis on skills needed by employees. Through the inductive coding process, three major themes emerged. The first theme was related to human relations challenges and tradeoffs faced by employers. The second theme was a skill gap between the available workforce and the needs of the employers. The third theme was employees' awareness of the value they can bring to an agriculture organization. Additionally,

the findings explored the specific technical skills desired by employers. The following explanation addresses how themes emerged and provides details through participants' voices.

Human Relations

The first theme explains the human relations tradeoff employers have to make because of employees' availability, reliability, and attention to detail. Employers were left filling in the capability and availability gaps. Nathan explained before hiring a new employee, they ask themselves: "Is the investment in another employee even worth it? Is that person going to allow you to do enough work to really justify the opportunities from a revenue standpoint or the added headaches?" The tradeoff of completing the work themselves or putting in extra effort for those they could hire was difficult because recruiting and retaining employees was already challenging. Alex noted, "...hav[ing] to deal with 23 full-time people all of the time, there's constant issues...." This seemed to be one of the most challenging areas for their operations. Many participants shared recent experiences of not being able to find suitable employees or hiring them to work for only a brief time. Some participants' frustration stemmed from being unable to find and keep employees in lower-wage and hourly positions. Alex shared, "We can only afford a certain clientele of folks." Alex also noted that his interview process was as simple as, "Can you be here at 7:00? Do you have a truck? Does it run?"

Because they are hiring lower-wage employees with a limited skillset and reliability issues, the participants experienced frustrations in how much they can accomplish operationally. Rachel reported feeling "...held hostage by our employees..." because of what they could accomplish throughout the day. The constraints surpassed what could otherwise be accomplished and impacted how they could operate and grow their business. Alex is in the dairy industry and he considered limiting the size of his business to avoid the need for hiring additional employees. He stated, "I think I'd rather shrink my business to the point where I could do it all by myself, even if that means seven days a week than deal with the 23 employees I constantly have."

Several participants noted the difficulties of working in the agricultural and natural resource industry that also influence employment challenges. The seasonality of the job and long days during specific times of the year were difficult for employees to manage. Some participants noted that the nature of the work was more desirable in other fields; therefore, competition with other low-skill labor opportunities presented a challenge. Lauren, who works in the fertilizer industry shared of a recent hire who left after one day because the work was too complicated and "...they could make more money at Popeye's." Andrew, who is a row-cropper, added that he does not know what he will do when one of his long-time grader operators decides to retire. "...I can't afford to pay \$60 an hour or whatever it is going to take me to find a grader operator running graders seven days a week all year long." The group also noted the difficulty in offering a competitive wage. Daniel stated, "You can't get employees [to run equipment] because construction is so hot right now." They recognized this was in spite of the fact agriculture jobs remain steady, whereas roles in construction fluctuate being dependent on the economy.

The frustration extended beyond the lower wages and seasonal employees. Some participants noted similar challenges in their employees who are college graduates and individuals with prior work experience. David noted frustrations when hiring from this pool, "those hires have been just as challenging in a very limited pool than even our hourly positions." Participants stated

applicants with those backgrounds typically served in supervisory roles. These supervisors tend to leave and find other jobs because they lack the skills to manage lower-skilled workers. According to Andrew, "They spend most of their day babysitting instead of farming." This theme of frustration stems from a lack of basic agricultural knowledge and a commitment to success in the operation. Megan recognized they could do a better job of training the employees at their operation.

Based on this theme, opportunities existed to improve onboarding, training, and school-based agricultural programs. There was evidence of a cyclical nature of employment patterns. With other sectors, like construction and food service, that also draw from this pool of applicants, it could be necessary for employers in agricultural fields to modify their employment practices to recruit and retain employees.

Gap in Necessary Skills for Employment

The second theme that emerged was applicants lacked the necessary skills for gainful employment in their operations. Multiple participants recalled their recent hiring experiences and suggested applicants lacked soft and technical skills. Daniel noted,

They don't have the practical side; you know, they can't take what they've learned and actually go out and apply it; they just know the theory behind it, and that's fine and dandy, but if you're going to be on the actual farm you got to be able to apply that as well.

Some participants were looking for applicants to come to the interview already having a specific skill set and ready to go to work. Megan noted, "For our ranch, a lot of the times we're hiring day workers, and we're hiring people that know what they're doing." Other participants expressed their openness to train employees in areas they were lacking. Regardless, participants noted their disinterest in investing time in developing employees who would not stay. Nathan shared, "...if you say you want to be autonomous, but you really clearly can't be, then I don't want to invest much in you, right? [Be] 'cause I know you're not going to be around that long."

Nathan further explained his interview process to provide insight on the applicant's skill set,

We'll interview someone as many times as we think we need to... I'll have several face-to-face interactions with them. We just have a casual conversation and just see, 'In these types of situations and your previous experiences, what did you do here? How did you handle that?' And then I kind of get a read for them as how they're going to perform, what's their dedication level to their job, how do they handle those types of stressful situations?

Nathan also stated his organization was in a growing phase, which heavily impacted hiring decisions.

I don't have to have somebody today. I'm 'getting them today for tomorrow' type of deal, so I can be a little more selective in that I'm not in a crisis of I've got to have a tractor driver today.

He also shared how they questioned the applicant during the interview to gauge their intentions, "...how much do we want to invest in this person, or are they just going to leave in a few years, and we're going to train them up for our competition...so that's a big concern."

Megan shared that often, "we're hiring day workers...people that know what they are doing... [and then we're] hiring kids right out of high school just to feed cows in the feedlots [only asking] 'Are you afraid of cows? Are you going to show up?'" Additionally, Sarah shared certain skills are not a "make-or-break" situation when hiring. She also considers an open mindset or an applicant's willingness to learn and try new things. "If someone is willing to listen to you and actually do it, I'm willing to teach them whatever, if they have that right attitude. I'd rather hire somebody willing to learn [the] certain skills I'm looking for."

When probed about the specific technical skills they want in employees, the group shared a restricted-use pesticide license and running, fixing, or servicing equipment. Participants expected employees to identify sick animals, read syringes, complete conversions and fractions, and read tape measures. They felt employees should be capable of applied math, basic computer skills, and understanding basic finance.

Participants wanted specific soft skills in employees. They mentioned communication, forward-thinking, troubleshooting, critical thinking, problem-solving, adaptability, time management, prioritization of workload and tasks, accountability, drive, confidence, and willingness to learn. These representatives of the agricultural industry noted this was not an exhaustive list of required skills but would provide a leg up for employees entering the industry. The discussion also centered around applicants' levels of experience. Some participants welcomed prior experience, while others favored applicants without existing habits. These preferences varied on the specific industry segment and vacancy.

Again, an absence of skills was not unwelcome if it was paired with the ability to learn. Alex noted, "I'd rather you not have experience...I would rather have a kid, 18 years old, show up that's willing to work. I can train them the right way...." Andrew expressed the importance of work ethic because "you can train somebody day in and day out, but you can't pay somebody, and you can't train somebody to care." Participants were open to investing time and effort into training applicants if they possessed an open mindset and willingness to learn.

Another burden on the operation's productivity was the resources required for training. Andrew explained "I'm hiring that person because I need that person as another operator. Well, to train that person, I have to take an experienced operator from what he's doing to train this person." Other participants recognized as long-time industry experts that applicants may not have been taught specific tasks, like how to use a ratchet strap or to shut a gate when they walk through one; it did not negate them from helping others learn those skills. Megan said, "...we must be forgiving, understanding educators when they come onto our property. We have to take the initiative to teach them." Agricultural programs are practical opportunities for graduates to learn these essential skills. The group agreed with Andrew's statement: "You can train somebody day in and day out, but you can't pay somebody, and you can't train somebody to care."

Awareness of value and impact of actions

A third theme to emerge from this focus group was applicants seem to lack an overall awareness of the value they bring and how their actions impact the operation's day-to-day business. Nathan noted, "They don't understand where [they] fit into the whole process for what they're doing and how it affects them." David shared, "They are just there to collect a check." This lack of buy-in produces specific and general influences from distracted employees unable to make simple cost-benefit analysis decisions and focus on essential tasks to being a contributing member of a successful operation. Andrew shared a story about an employee refueling a tractor. He said, "The kid is in the cab, on their phone, with diesel fuel spilling out. He doesn't even know that's money pouring out on the ground! And he's like, 'Oh, oops, sorry.'"

Employees who lack attentiveness and practice poor decision-making hurt the business. Andrew shared another example about an employee who was distracted on their phone while running equipment in a "field [that] was just laser leveled at \$125 an acre and dug a hole 100 yards into the field" from a lack of awareness. This was not only frustrating and costly but also dangerous. Participants stressed the need for applicants to be focused and present, not distracted by their phones or thoughts of after-work activities. Daniel tries to limit as many distractions as possible, so

When we're in the thick of it, I don't answer my phone. I'm the one running things. I don't answer my phone; I'm focused on the task at hand, and I feel like, a lot of times, they're focused on what they're going to do at 5 o'clock. They're not focused on right now, being present in what we're doing, critically thinking, being involved. They're focused on what they're doing when they get off work.

Most employers realize mistakes and accidents will happen but become frustrated because a lack of reporting worsens mistakes. Alex shared,

A kid that I had mowing hay for me backed into a limb and busted out the back window of the tractor. Instead of calling me and telling me that, he mowed the rest of the day, and then he parked the tractor with that broken back window. I had my bailer monitor in there, and it rained the next few days. That \$1,000 bailer monitor is now fried. If the kid had told me he backed into a limb, I probably would have talked to them a little bit about paying attention, but we'd gone along, and I'd have pulled that bailer monitor out of there, and we'd been fine.

Producers also noted frustration when employees do not report issues or problems they notice. Alex noted when milkers in the parlor failed to report a sick animal. He continued by saying,

I'm not expecting you to treat that cow, I'm not expecting you to cut that cow out, but I need to know that cow's sick. If I don't know about it and we don't see her not come to the feed trough, then she's going to go three or four days without treatment.

A few participants recognized that the level of respect and attention increased when they changed how they conversed with their employees and applicants. When the conversation became more inclusive, Michael noticed "[employees] feel like they're part of the whole

operation rather than just a, you know, tool." Ethan believed the lack of applicant understanding was because "...they didn't grow up in it, so they don't know the costs that are involved and the time commitment that it actually is...." Joshua shared, "I worked until midnight last night on something that I sure as heck didn't want to be doing, but I love what I do, and I love the company. I know it's beneficial for them and part of my job." Andrew noted,

We have a season, and during that season, there is no start-stop time; it's we go until the job gets done. I feel like a lot of these, like whether it's a high school graduate or college graduate, that concept is not really instilled in them throughout their collegiate or high school career...[when] it's busy season, we may be there before the sun comes up and well after the sun goes down. So, then you do that a couple of days in a row, and they want to drag up...but it's just that eight-month stint is too much for most people.

These feelings stemmed from applicants' unawareness of the required hours during critical harvest times when the fields, crops, or livestock often cannot wait.

Conclusions, Discussion, and Recommendations

The findings present challenges with finding and keeping committed employees and applicants needing more skills for gainful employment in industry operations. This supported the work of Slusher et al. (2011). Represented by this population, the industry does not see recent graduates who confidently demonstrate the necessary basic skills, which has created recruitment challenges. These skills include communication and problem-solving skills (as seen in Knight & Yorke, 2003; Robinson & Garton, 2008; Sargent et al., 2003; Shaw et al., 2020; Whorton et al., 2017), as well as accountability, adaptability, communication, confidence, critical thinking, drive, forward-thinking, respect, commitment, troubleshooting, time management, task prioritization, willingness to try and learn new skills or techniques related to agriculture and other aspects of life. See Table 4.

Table 4

Potential Skills for Agricultural Education and CTE Programs to Focus On

Accountability	Adaptability	Commitment	Communication	Confidence
Critical thinking	Drive	Forward-thinking	Problem-solving	Respect
Task prioritization	Time management	Troubleshooting	Willingness to try	

We know high school graduates lack relevant skills (Slusher et al., 2011). High school agricultural programs can be a conduit for skilled agricultural labor by providing students with the above entry-level skills needed in these operations. Agricultural educators who stay in touch with industry trends can best fulfill this need. To start, increased exposure to introductory technical skills common across agricultural operations, such as reading tape measures, doing dilutions with water and food coloring, and using common computer programs, would be helpful in preparing graduates. High school agricultural teachers can easily incorporate these skills into their existing lesson plans. Addressing the skill sets identified by industry professionals can help address the need for ready-made graduates (Association of American Colleges and Universities,

2011; Bean, 2011; Brooke, 2006; Brown, 2003; Herreid & Schiller, 2013; Huba & Freed, 2000; Marin & Halpern, 2011; McDade, 1995; Popil, 2011). The specificity of these skills should be the focus of further inquiry.

The research conducted by Webb (2018) and further supported by Wells and Hainline (2021) demonstrated student performance benefits due in part to teachers participating in professional development opportunities. Tying back to human capital theory, Becker (1994) shared that "...learning on and off the job has the same kind of effects on observed earnings as formal education, training, and other investments in human capital" (p. 246). Therefore, when schools and industries invest in their teachers, the teachers become more effective and competent educators, which transfers to their students, providing an investment in human capital (Wells & Hainline, 2021). Schools should work to organize professional development sessions for their teachers, whether it be conferences, workshops, or collaborative professional learning communities. In addition to formal professional development opportunities and teacher collaborations, agricultural education teachers should develop or better utilize existing partnerships with the local industries. Fostering relationships with local agribusinesses, farms, or cooperatives can provide teachers with the necessary real-world insights by 'getting a finger on the pulse' of the local and regional industry. Relationships for students can be fostered by bringing in guest speakers, going on farm tours, and advocating for internship or mentorship opportunities for students in the agricultural and natural resources industries. By providing more frequent and routine interactions with current industry members, students and teachers will remain in tune with the industry and its needs.

Our findings indicated that job prospects lack awareness of the value they offer operations and how their actions directly impact a business's profitability (Mincer, 1962). Clarifying students' influence on the operation's productivity is valuable to reinforce in the classroom or through SAE programs that connect students to professionals through long-lasting relationships (Crawford et al., 2011; Easterly et al., 2017). Programs such as those mentioned above can correct the lack of buy-in identified by researchers. Relationships with job prospects to foster value and connection could be enhanced from the industry's professional side. Training and professional development related to building a cohesive team and similar leadership competencies can be helpful for these producers.

Aggregating the present findings with previous studies on student workforce preparedness creates a baseline for the relevant student-focused knowledge in agricultural education programs. Based on the findings of this study, there is an opportunity for diagnosing agricultural industry problems and formulating reasonable solutions. This study used qualitative methodologies and non-generalizable sampling techniques; therefore, practice caution when implementing the findings. We recognize the limitation of the convenience sampling method and recommend replicating the study with additional Florida agricultural professionals. We also recognize there are potential research opportunities beyond state lines to explore various states' SAE programs in the preparedness of their students for the workforce. This study informs agricultural education and CTE curriculum development through agricultural leaders' view of the challenges faced by producers and the necessary skillset for employee success.

References

- Alston, A. J., Roberts, R., & English, C. W. (2020). Toward a holistic agricultural student recruitment model: A national analysis of the factors affecting students' decision to pursue an agricultural related degree. *Journal of Research in Technical Careers, 4*(1), 1–23. <https://doi.org/10.9741/2578-2118.1071>
- Attia, M., & Edge, J. (2017). Be(com)ing a reflexive researcher: A developmental approach to research methodology. *Open Review of Educational Research, 4*(1), 33–45. <https://doi.org/10.1080/23265507.2017.1300068>
- Ary, D., Jacobs, L. C., Sorensen, C. K., & Walker, D. A. (2014). *Introduction to research in education* (9th ed.). Wadsworth, Cengage Learning.
- Bean, J. C. (2011). *Engaging ideas: The professor's guide to integrating writing, critical thinking, and active learning in the classroom* (2nd ed.). Jossey-Bass.
- Becker, G. S. (1994, January). *Human capital: A theoretical and empirical analysis with special reference to education* (3rd ed.). The University of Chicago Press. <https://www.nber.org/books-and-chapters/human-capital-theoretical-and-empirical-analysis-special-reference-education-third-edition>
- Bragg, D. D., & Taylor, J. L. (2014). Toward college and career readiness: How different models produce similar short-term outcomes. *American Behavioral Scientist, 58*(8), 994–1017. <https://doi.org/10.1177/0002764213515231>
- Brooke, S. L. (2006). Using the case method to teach online classes: Promoting Socratic dialogue and critical thinking skills. *International Journal of Teaching and Learning in Higher Education, 18*(2), 142–149. <https://www.isetl.org/ijtlhe/pdf/IJTLHE58.pdf>
- Brown, K. L. (2003). From teacher-centered to learner-centered curriculum: Improving learning in diverse classrooms. *Education, 124*(1), 49–55. <https://content.ebscohost.com/ContentServer.asp?T=P&P=AN&K=11046940&S=R&D=slh&EbscoContent=dGJyMNxb4kSeqLA4y9fwOLCmsEuep7RSsKa4SraWxWXS&ContentCustomer=dGJyMPGut1C1qbNJuePfgex43zx>
- Cappelli, P. H. (2015). Skills gaps, skills shortages, and skill mismatches: Evidence and arguments for the United States. *ILR Review, 68*(2), 247–463. <https://doi.org/10.1177/0019793914564961>
- Crawford, P., Lang, S., Fink, W., Dalton, R., & Fielitz, L. (2011). *Comparative analysis of soft skills: What is important for new graduates?* Association of Public and Land-grant Universities. https://www.researchgate.net/publication/282853470_Comparative_Analysis_of_Soft_Skills_What_is_Important_for_New_Graduates
- Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five traditions*. Sage Publications.

- Easterly, R. G., Warner, A. J., Myers, B. E., Lamm, A. J., & Telg, R. W. (2017). Skills students need in the real world: Competencies desired by agricultural and natural resources industry leaders. *Journal of Agricultural Education*, 58(4), 225–239. <https://doi.org/10.5032/jae.2017.04225>
- Erickson, B., Fausti, S., Clay, D., & Clay, S. (2018). Knowledge, skills, and abilities in the precision agriculture workforce: An industry survey. *Natural Sciences Education*, 47, 1–11. <https://doi.org/10.4195/nse2018.04.0010>
- Ferguson, S. (2023, October 16). *Understanding America's labor shortage*. U.S. Chamber of Commerce. <https://www.uschamber.com/workforce/understanding-americas-labor-shortage>
- Florida Farm Bureau. (2022). *Program details: Young farmers and ranchers: Leadership group*. Retrieved October 5, 2022, from <https://www.floridafarmbureau.org/programs/young-farmers-and-ranchers/>
- Herreid, C. F. & Schiller, N. A. (2013). Case studies and the flipped classroom. *Journal of College Science Teaching*, 42(5), 62–66. <https://www.jstor.org/stable/43631584>
- Hill, J. & Turney, J. S. (2016). National Rural Education Association (NREA) research agenda – 2016-2021. *The Rural Educator*, 37(3), v–vii. <https://doi.org/10.35608/ruraled.v37i3.236>
- Holloway, I. (Ed.). (2005). *Qualitative research in health care*. McGraw-Hill Education.
- Huba, M. E. & Freed, J. E. (2000). *Learner-centered assessment on college campuses: Shifting the focus from teaching to learning*. Allyn & Bacon.
- Hurst, S. D., Conner, N. W., Stripling, C. T., Blythe, J., Giorgi, A., Rubenstein, E. D., Futrell, A., Jenkins, J., & Roberts, T. G. (2015). An exploration of the formal agricultural education system in Trinidad and Tobago. *Journal of Agricultural Education*, 56(1), 141–154. <https://doi.org/10.5032/jae.2015.01141>
- Kitchen, N. R., Snyder, C. J., Franzen, D. W., & Wiebold, W. J. (2002). Educational needs of precision agriculture. *Precision Agriculture*, 3, 341–351. <https://doi.org/10.1023/A:1021588721188>
- Knight, P. T., & Yorke, M. (2003). Employability and good learning in higher education. *Teaching in Higher Education*, 8(1), 3–16. <https://doi.org/10.1080/1356251032000052294>
- Licata, P. B. (2014). *21st century workforce readiness skills: How are students being prepared* [Doctoral dissertation, Lynn University]. SPIRAL. <https://spiral.lynn.edu/etds/210>
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage.

- Lombardi, A. R., Conley, D. T., Seburn, M. A., & Downs, A. M. (2013). College and career readiness assessment: Validation of the key cognitive strategies framework. *Assessment for Effective Intervention*, 38(3), 163–171. <https://doi.org/10.1177/1534508412448668>
- Maiga, A. A., Cartmell, D. D., Edwards, M. C., & Robinson, J. S. (2013). Competencies needed by graduates of agricultural communications in Mali: Implications for developing countries. *North American Colleges & Teachers of Agriculture Journal*, 57(3), 139–145. <https://www.proquest.com/docview/1445180847/8C49914F58C641BEPQ/25?accountid=10920>
- Marin, L. M., & Halpern, D. F. (2011). Pedagogy for developing critical thinking in adolescents: Explicit instruction produces greatest gains. *Thinking Skills and Creativity*, 6(1), 1–13. <https://doi.org/10.1016/j.tsc.2010.08.002>
- Masadeh, M. A. (2012, December). Focus group: Review and practices. *International Journal of Applied Science and Technology*, 2(10), 63–68. https://ijastnet.com/journals/Vol_2_No_10_December_2012/9.pdf
- Masser, D. T., Falk, J. M., & Foster, D. D. (2014). Level of agricultural education advisory council implementation in Idaho secondary agricultural education programs. *Journal of Agricultural Education*, 55(3), 116–131. <https://doi.org/10.5032/jae.2014.03116>
- McDade, S. (1995). Case study pedagogy to advance critical thinking. *Teaching of Psychology*, 22(1), 9–10. https://doi.org/10.1207/s15328023top2201_3
- Mincer, J. (1962, October). On-the-job training: Costs, returns and some implications. *Journal of Political Economy*, 70(5), 50–79. <https://www.jstor.org/stable/1829104>
- Mishkind, A. (2014). *Overview: State definitions of college and career readiness*. American Institutes for Research. https://ccrcenter.org/sites/default/files/CCRS%20Defintions%20Brief_REV_1.pdf
- Monahan, J. L., Lombardi, A., Madaus, J., Carlson, S. R., Freeman, J., & Gelbar, N. (2020). A systematic literature review of college and career readiness frameworks for students with disabilities. *Journal of Disability Policy Studies*, 31(3), 131–140. <https://doi.org/10.1177/1044207320906816>
- Morgan, A. C., & Rucker, K. J. (2013). Competencies needed by agricultural communication undergraduates: An academic perspective. *Journal of Applied Communication*, 97(1), 50–65. <https://doi.org/10.4148/1051-0834.1103>
- National Research Council. (1988). *Understanding agriculture: New directions for education*. The National Academy Press. <https://doi.org/10.17226/766>
- Parrella, J. A., Leggette, H. R., Murphrey, T. P., Esquivel, C., & Bates, A. (2023). Investigating students' career-readiness in the agricultural sciences: A phenomenological case study. *Journal of Research in Technical Careers*, 7(1), 20–44. <https://doi.org/10.9741/2578-2118.1115>

- Popil, I. (2011). Promotion of critical thinking by using case studies as teaching method. *Nurse Education Today*, 31, 204–207. <https://doi.org/10.1016/j.nedt.2010.06.002>
- Prince, M., & Davies, M. (2001). Moderator teams: An extension to focus group methodology. *Qualitative Market Research: An International Journal*, 4(4), 207–216. <https://doi.org/10.1108/EUM0000000005902>
- Psacharopoulos, G., & Woodhall, M. (1985). *Education for development: An analysis of investment choices*. Oxford University Press. <http://documents.worldbank.org/curated/en/477701468137718173/Education-for-development-an-analysis-of-investment-choices>
- Ramsey, J. W., & Edwards, M. C. (2011). Entry-level technical skills that agricultural industry experts expected students to learn through their supervised agricultural experiences: A modified Delphi study. *Journal of Agricultural Education*, 52(2), 82–94. <https://doi.org/10.5032/jae.2011.02082>
- Roberts, J. K., & Grant, P. D. (2021). What we know and where to go: A systematic review of the rural student college and career readiness literature and future directions for the field. *The Rural Educator*, 42(2), 72–94. <https://doi.org/10.35608/ruraled.v42i2.1244>
- Roberts, T. G., & Ball, A. L. (2009). Secondary agricultural science as context and content for teaching. *Journal of Agricultural Education*, 50(1), 81–91. <https://doi.org/10.5032/jae.2009.01081>
- Robinson, S. J., & Garton, B. L. (2008). An assessment of the employability skills needed by graduates in the College of Agriculture, Food, and Natural Resources at the University of Missouri. *Journal of Agricultural Education*, 49(4), 96–105. <https://doi.org/10.5032/jae.2008.04096>
- Saldaña, J., & Omasta, M. (2022). *Qualitative research: Analyzing life* (2nd ed.). SAGE.
- Saldaña, J. (2021). *The coding manual for qualitative researchers* (4th ed.). SAGE.
- Sargent, S. D., Pennington, P., & Sitton, S. (2003). *Developing leadership skills through capstone experiences* [Paper presentation]. Association of Leadership Educators International Conference, Anchorage, AK. <https://files.eric.ed.gov/fulltext/ED480969.pdf>
- Schultz, T. W. (1961). Education and economic growth. In N. B. Henry (Ed.), *Social forces influencing American education*. University of Chicago Press.
- Shaw, A., Liu, O. L., Gu, L., Kardonova, E., Chirikov, I., Li, G., Hu, S., Yu, N., Ma, L., Guo, F., Su, Q., Shi, J., Shi, H., & Loyalka, P. (2020). Thinking critically about critical thinking: Validating the Russian HEIghtenâ critical thinking assessment. *Studies in Higher Education*, 45(9), 1933–1948. <https://doi.org/10.1080/03075079.2019.1672640>
- Slusher, W. L., Robinson, J. S., & Edwards, M. C. (2011). Assessing the animal science technical skills needed by secondary agricultural education graduates for employment in

- the animal industries: A modified Delphi study. *Journal of Agricultural Education*, 52(2), 95–106. <https://doi.org/10.5032/jae.2011.02095>
- Somekh, B., & Lewin, C. (2005). *Research methods in the social sciences*. Sage.
- Stake, R. E. (1995). *The art of case study research*. Sage.
- Talbert, B. A., Vaughn, R., Croom, D. B., & Lee, J. S. (2007). *Foundations of agricultural education*. Professional Educators Publications, Inc.
- U.S. Department of Education. (2019, September). *Bridging the skills gap: Career and technical education in high school*. <https://www2.ed.gov/datastory/cte/index.html>
- VDOE. (2013). A Strategic Review of Agricultural Education Preparing Students for Successful Transition to College and Careers, The Changing Face of Virginia Agriculture. Richmond, Virginia: Virginia Department of Education.
- Webb, R. C. (2018). *A case study of how modern agricultural education programs may be designed to support innovative agricultural content* [Doctoral dissertation, Virginia Polytechnic Institute and State University]. <http://hdl.handle.net/10919/96756>
- Wells, T., & Hainline, M. S. (2021). Examining teachers' agricultural mechanics professional development needs: A national study. *Journal of Agricultural Education*, 62(2), 217–238. <https://doi.org/10.5032/jae.2021.02217>
- Whorton, R., Casillas, A., Oswald, F. L., & Shaw, A. (2017). *Critical skills for the 21st century workforce*. In *Building Better Students: Preparation for the Workforce* (J. Burrus, K. D. Mattern, B. Naemi, & R. D. Roberts, Eds., pp. 47–72). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199373222.003.0003>