

DEVELOPING THE FUTURE AGRICULTURAL WORKFORCE IN ALABAMA



Agriculture, more than putting seeds in the ground.

Celebrating Alabama's Progress

Certified Public Manager Program
CPM Solutions Alabama 2022



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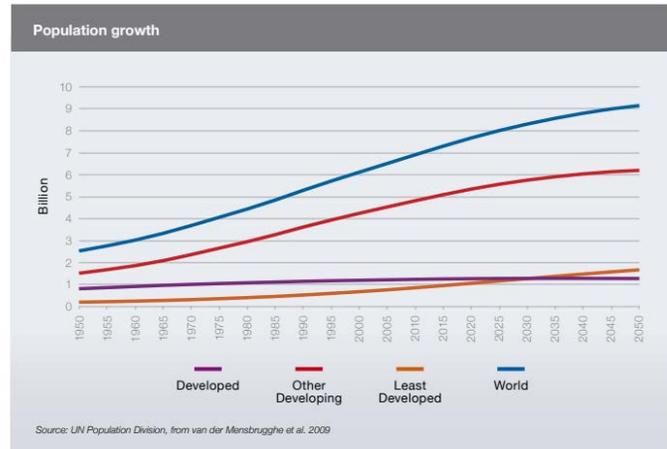
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Introduction

The agricultural industry will face many challenges in the 21st century. These challenges include producing the food needed for a growing population with a smaller rural labor force, while adopting more efficient and sustainable production methods. The world population is predicted to increase by 2.3 billion people between 2009 and 2050. (Food and Agriculture Organization of the United Nations, n.d.) The United Nations Food and Agriculture Organization anticipates the world to need 70% more food by 2050. (Food and Agriculture Organization of the United Nations, n.d.) To begin to tackle this challenge, the world must acknowledge that agriculture is at the heart of the solution of the sustainability issue. Farming as our forefathers have done would be disastrous on our natural resources. We can sustainably increase crop production by utilizing various techniques that are more in tune with ecosystems by minimizing the use of external inputs. (Silva, 2012)



The agriculture industry in Alabama plays a significant role in meeting this challenge. The state has more than 43,000 farms spread across 8.9 million acres averaging about 206 acres in size. The Yellowhammer State flaunts its strength in agriculture. In fact, agriculture and forestry are two of the top industries. One out of every 4.6 jobs are related to agriculture, and the industry contributes approximately \$70.4 billion to Alabama's annual economy. The top commodities include poultry, cattle and calves, greenhouses and nurseries, cotton, and soybeans. The state makes its mark nationally, ranking second in the country in broilers, catfish, and quail; third for forestland, peanuts, and sod; and sixth for pecans. Forestry is an important part of the state's agriculture sector. Alabama boasts the third most timber acreage in the U.S., behind only Georgia and Oregon. In 2021, nearly 18 percent of the nation's economy and 29 percent of all American jobs were linked to agriculture (John Bode 2022). With Alabama being ranked nationally in many sectors of agriculture, there are avenues to increase its standings by increasing the workforce.

The *Developing the Future Agriculture Workforce in Alabama* CPM Solutions Project team will examine Alabama's effort to strengthening the agricultural workforce by:

- Identifying and highlighting the initiatives implemented by Alabama to bring awareness and celebrate its agricultural industry.
- Reviewing current collaborative efforts that are working to recruit, retain, and prepare today's youth for careers in agriculture.
- Discovering what other states are doing to attract labor into the agricultural industry.
- Identifying the challenges Alabama faces when considering recruiting, retaining, and engaging talent for the agricultural industry.
- Offering recommendations that allows Alabama to strengthen the agricultural workforce.

Agricultural Initiatives to Celebrate

Our Solutions Alabama team project highlights several collaborative efforts discovered in our research, initiated by stakeholders that are advancing agriculture in Alabama. These initiatives include Sweet Grown Alabama, Down to Earth, agritourism, Operation Grow, and irrigation initiatives, which highlight the statewide and national impact of Alabama's farmers.

Sweet Grown Alabama

Sweet Grown Alabama is a nonprofit organization that links local famers with retailers and consumers. It allows local farmers the opportunity to discover new marketing possibilities for their products. Farmers that



become members of the organization are allowed to use the Sweet Grown Alabama branding on their products. This signifies to consumers that they are purchasing local products. Some of the partners in the program include Greer's Markets in South Alabama, Piggly Wiggly Birmingham Group, Renfroe's Markets in Central Alabama, WM Grocery in East Alabama, and Mitchell Grocery Corporation in North Alabama. These companies represent 70 stores and nearly 200 distribution partners. Agriculture contributes an astonishing \$70 billion dollars annually to

Alabama’s economy. Studies show that for every dollar spent locally, 60 cents is reinvested into the community. (Sweet Grown Alabama News, 2022)

To strengthen the Sweet Grown Alabama program, Alabama’s legislators passed Act No. 2022-291 (SGA Act). The SGA Act also known as the Sweet Grown Alabama Act, was initially enacted in April of 2019. It removes sales tax requirements for produce and value-added products such as jams or jellies produced and sold by the grower. The products can also be sold by immediate family members or employees who assisted in growing the product. The SGA Act also decreases the farmers operating expenses by reducing the cost and time associated with collecting and remitting those taxes on behalf of the customer. These exemptions span from October 1, 2022, until September 20, 2027. (Sweet Grown Alabama Blogs, 2022)

Down to Earth – Agriculture Sustains Alabama

Down to Earth (DTE) is a yearlong collaborative public education campaign by several Alabama agricultural stakeholders to educate the public and consumers about the sustainability and conservation practices of the forestry and agricultural industries in Alabama that have been



Caitlin Wooden at the 2022 DTE campaign kickoff

voluntarily implemented for generations. The agriculture and forestry industries have been good stewards of the lands in on which they have earned their living for generations. Solid sustainability and conservation practices ensure the land and forests are available for Alabama’s agricultural industries to thrive and make a positive



economic impact in the future. (About Down to Earth, 2022)

The DTE campaign kickoff held March of 2022 was well attended by several students from various schools in the area. One of those students in attendance was 13-year-old, Caitlin Wooden. She attends one of the local private schools that does not have an agriscience curriculum. When she was asked what she thinks about the campaign and all the information provided at the event, this was her response,

“There’s a lot of really neat stuff that I didn’t know. I’ve learned so much about where my food comes from”. (Wooden, 2022) When asked what would be three take aways from today’s event, she said “They would be that farming is important because that is how we eat, taking care of the earth is important, and everyone is talking about the need to keep farming.” (Wooden, 2022) With spending only two and a half hours in an agricultural environment, Caitlin was introduced to various opportunities to learn more about the agricultural industry and the careers it offers. This type of exposure is invaluable because Caitlin’s generation will live in the 2050 challenge concerning food shortage.

Agritourism

Agritourism is defined as a form of commercial enterprise that links agricultural production and/or processing with tourism to attract visitors onto a farm, ranch, or other agricultural business for the purposes of entertaining and/or educating the visitors while generating income for their farms, ranch, or business owner. (Agritourism - An Overview, n.d.) Agritourism is a great opportunity to diversify and increase revenues. Revenues are created by providing a direct experience such as performing tasks like gathering eggs, an indirect experience as in a hayride or corn maze, or a passive experience like a wedding or event venue. The main benefit for entering the agritourism industry is the opportunity to earn more revenue. One concern for operators is minimizing liability associated with operating an agritourism business. Alabama recognized this concern and enacted Act 2012-520. The law removes the threat of lawsuits, allowing the operators to direct more attention to providing a safe and pleasurable experience.

Whether it is taking pictures in the sunflower fields in Autauga County or picking strawberries at any of the nine U-pick strawberry farms across the state, Alabama has excitingly entered this sector with the expectations of capitalizing on the many benefits of agritourism. (Velasco, 2022) In a May 19, 2022, article written by David Rainer with the Alabama Department of Conservation and Natural Resources entitled “Black Belt's Hunting and Fishing Impact Celebrated” Alabama



Sunflower Field in Autauga County

Governor Kay Ivey was quoted while visiting one of the Black Belt’s famous hunting lodges as saying, “Another huge economic driver in this area that we simply can’t do without is hunting and fishing.” She went on to say “Here in Alabama, hunting and fishing has a \$3 billion, that’s with a B, economic impact and supports more than 25,000 jobs. In the Black Belt alone, it produces more than \$1.4 billion in economic impact and pumps in a whopping \$28 million to the state’s education budget. Y’all, that’s big” (Rainer, 2022)

Operation Grow

This is a program created to train and assist veterans in agriculture. It is a partnership between the Alabama Cooperative Extension system and the Alabama Department of Agriculture and Industries. Operation Grow provides “training, networking, and sustainable support” for veterans



interested in beginning farming operations. (Majumdar, Alabama Cooperative Extension System, 2022) Operation Grow offers veterans training in person, at a farm, and through their digital footprint. The training occurs on farms

and includes instruction on how to properly operate farm equipment. Another useful tool in the process is an application that Alabama Cooperative Extension System has developed that connects their digital information to the public. The name of the application is Farming Basics. This application allows a farmer to gather information about crops, insects, diseases, and other data including financial feasibility calculators. The application includes pictures for various diseases, pictures of crops, links to various social media items, and information on how to connect with regional extension agents. Operation Grow links veterans together as they work to become successful farmers, allowing them to experience community and provide support to other team members in their new endeavor. (Majumdar, 2022) Due to the overwhelming cost of large farm equipment, the program is looking for opportunities to provide equipment for veteran farmers.



Irrigation Incentives

Getting the right amount of moisture at the right time can be a challenge if farmers are relying solely on rainfall to water their crops. Irrigation is one solution to this challenge. Irrigation is the process of providing a defined amount of water to land for agricultural purposes. Needing irrigation is not something normally thought of as a problem in Alabama because Alabama receives its fair share of rainfall each year, but it does not always come when it is needed. Eric Hall, an Auburn University graduate, is a third-generation farmer in South Alabama. He and his family understand the unpredictable nature of Alabama weather, and the benefit of irrigation for producing crops. Mr. Hall does not own an irrigation system; he solely relies on the weather to receive the proper amount of moisture needed.

Compared to our neighboring state Georgia, which has over 1.5 million acres of irrigated land, Alabama has approximately 150,000 acres of irrigated farmland. Fortunately, Alabama is addressing this issue by encouraging farms to innovate and invest in irrigation equipment by offering tax credits. Eligible farmers may receive one credit of 20% of the cost for qualifying irrigation equipment purchased and installed or one qualified reservoir for all tax years beginning on or after January 1, 2023, and afterwards. (Income Tax Incentives, n.d.) Mr. Hall believes the tax incentives are great for large farm owners, but he leases a large portion of the land he farms and will not be taking advantage of tax incentives. It would not be economically beneficial to invest between \$60,000 and \$80,000 for an irrigation system on land he does not own. However, he encourages larger operations to take advantage of these irrigation tax incentives. The credit could equal up to \$10,000. This is not just a huge win for the farmers but for Alabama as well. It is estimated that for every \$1 of tax credit, this legislation will generate \$70 to \$80 of direct economic income within the first 10 years. (Hollis, 2012) Additionally, if Alabama farmers increase the number of irrigated crops, they could increase their yields resulting in increased revenue. This could allow Alabama to reduce the amount of grain imported and be more competitive with Midwestern farmers. (Hollis, 2012) Producing more grain requires creating more jobs which is great news for Alabama.

Alabama also assists farmers in managing drought through the Alabama Irrigation Initiative (AII) and the Watershed Protection and Flood Prevention Program (Watershed). The AII provides financial assistance through the Soil and Water Conservation Committee (SWCC). The \$8 million

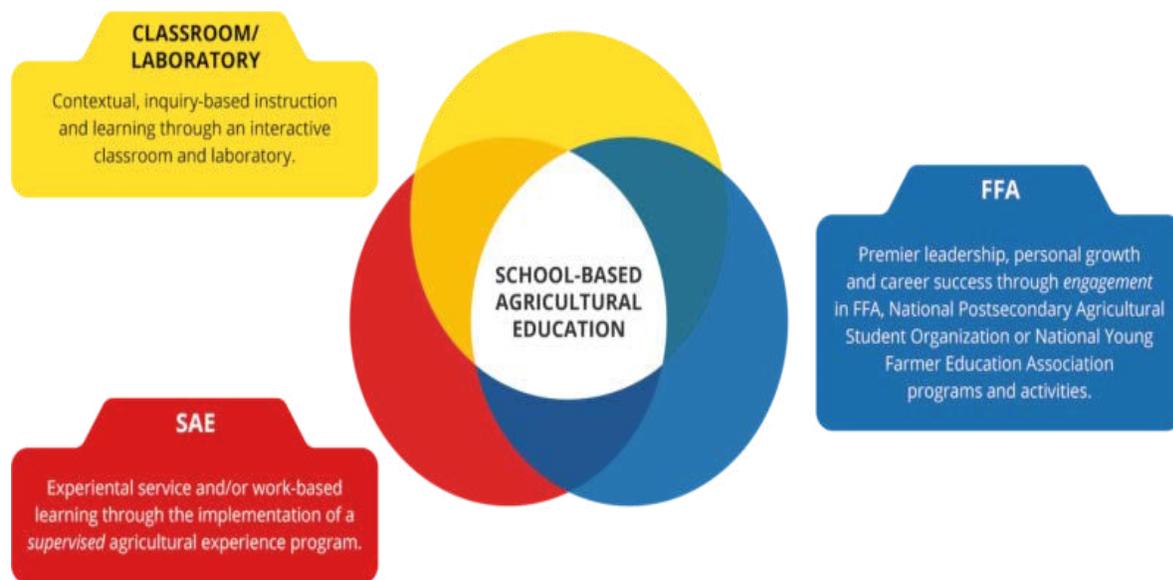
will purchase water and energy efficient irrigation systems to increase on-farm irrigation. (Davis, 2020) Farmers with approved projects will receive a three-year irrigation water management subscription and associated equipment. A professional irrigation specialist will provide advice on irrigation scheduling through a computer program. The cost-share assistance is capped at \$200,000 per application. According to the Alabama Farmers Federation's Mitt Walker "Access to reliable water at critical times during the growing season can mean the difference between a good harvest and a total loss." Much like AII, the Watershed, funded through the Public Law 83-566, assists farmers in irrigating Alabama's cropland. The ACES Water Program team along with the ALSWCC and the National Resources Conservation Service (NRCS) use this first-of-its kind program to assist farmers in converting rain-fed farmland to irrigated farmland in select Alabama watersheds. A watershed is commonly known as a drainage basin which is an area of land where rain drains into a common outlet like a river. (Curl, 2022) Approved farmers cost-shared amount to install irrigation infrastructure varies between criteria for socially disadvantage farmers, historically underserved farmers, and all others. The percentages are 65%, 90%, at least 50% respectfully. (Curl, 2022) The total funding through the Watershed program thus far is approximately \$30 million.

Alabama's efforts toward irrigation are on the rise. Partnering with federal, state, and local agencies has proven advantageous. Many times, the benefits extend beyond the farmer. Consideration is always given to the community, the business, the environment, and of course sustainability. Collaboration among Alabama agriculture stakeholders have produced amazing results for our farmers.

Developing the Future Agricultural Workforce in Alabama

K-12 Educational System

Alabama depends on its K-12 educational system to prepare today's youth for a life-long successful career in the agricultural industry. Many of today's farmers were introduced to agriculture by their local schools. Career technical education (CTE) along with the National Future Farmers of America Organization (FFA) and the Supervised Agricultural Experience (SAE) are the three pieces of K-12 agricultural education.



Career Technical Education (CTE)

Alabama Department of Education (ALSDE) ensures Alabama’s CTE has an extensive agriscience education curriculum designed to empower students to meet the challenges of the twenty-first century with the work-readiness skills needed for success. Its agriscience education teaches students about agriculture, food, and natural resources. Over the years, agriscience education has expanded from the basics of farming to the key components of agribusiness. Alabama students in grades 6 through 12 can select agriscience as an elective course of study. There are 45 agriscience courses available for grades 9 through 12. For grades 6 through 8, two courses are offered for each grade. (Adcock, 2022) The information gained in CTE provides a solid foundation for Alabama’s future agricultural workforce. Collin Adcock, Agriscience Education Specialist and Alabama FFA State Advisor, was asked what efforts were being made by Alabama to promote agriscience. He stated, “Alabama Department of Education employs three full-time Education Specialists to help ensure all agriscience teachers in Alabama have the resources and support necessary to develop the next generation of agricultural leaders.” ALSDE also is promoting agriscience education in Alabama with its Agriscience Education Extended Year Grant that provides funding for travel expenses related to ALSDE and FFA sanctioned activities. The grant could also be used for teachers who are currently 220-day contract or less to work with students throughout the summer months. This is a competitive grant that supports about 80 teachers each year. (Dyess, 2022)

National Future Farmers of America Organization (FFA)

FFA is a national intra-curricular student organization founded by a group of young farmers in 1928 for those interested in leadership and agriculture. Alabama FFA was established in 1929 and holds the title of 36th chartered association. (About FFA, n.d.) FFA is one of three components of school-based agriculture education. Their mission statement is “FFA makes a positive difference in the lives of students by developing their potential for premier leadership, personal growth and career success through agricultural education” (About FFA, n.d.). FFA will accept any student enrolled in agriculture education and plays an integral part in preparing students for a career in science, business, and technology in agriculture. Alabama FFA has a strong network of chapters with members being developed to accept the challenges of feeding a growing population. The number of FFA chapters has remained consistent over the last six years. The number of FFA teachers were at its highest during 2020. There has been a slight decrease in teachers that could be contributed to the Coronavirus Pandemic and retirements. Despite seeing some decline in teachers, FFA membership is at its highest with 16,262 members, which is great news for Alabama.

Future Farmers of America (FFA)						
	2017	2018	2019	2020	2021	2022
FFA Chapters/Programs	265-275	265-275	265-275	265-275	265-275	265-275
Number of FFA Teachers	310	302	317	319	317	295
FFA Membership	14,335	14,712	15,307	15,108	13,034	16,262

Jerad Dyess, FFA Executive Secretary, stated “Alabama will also be an affiliate membership state this year which means every student enrolled in agriscience education will be a member of the National FFA Organization. This should put our membership over 32,000 members. We are very proud of this as it will help create equity among our membership as we work to make all students feel welcome in our organization.” (Dyess, 2022) FFA continues to reach and empower students with the knowledge and skills to become leaders in the agricultural industry.

The ALSDE and FFA are implementing several strategies to increase awareness of agriscience and enrollment in its affiliated organizations. FFA offers Program Improvement Grants, along with monetary awards, and State Officer Scholarships to a post-secondary institution of the students’ choosing. Dyess stated, “We are the only career technical student organization in Alabama who has District Officers who serve within our three regions. In total, we have 24 officers across the state who make school visits and coordinate activities for students.”

ALSDE is providing professional development opportunities and additional resources to equip teachers for success in the classroom. Also, ALSDE is promoting FFA through social media and educational videos. Today's youth are connected to the world through technology, and this is a great avenue to deliver this information. For those students enrolled in agriscience education, ALSDE will provide them with an affiliate FFA membership. These strategies initiated by FFA ensures students are equipped to successfully enter the agricultural workforce.

Supervised Agricultural Experience (SAE)

In 1907, Rufus W. Stimson introduced a revolutionary idea to engage agriculture students in naturalistic inquiry opportunities outside of the traditional classroom. Stimson believed that student learning requires more than mere observation and that active participation during the learning process plays a major role in student success. He proposed that record keeping is an important component in the decision making of student progress.

SAE is part of the agricultural education program offered by the Alabama school system, which provides experiential and work-based learning for students. Students are given opportunities to apply academic and occupational skills in the workplace or simulated workplace environment. (SAE, n.d.) The students, rather than teachers, manage activities that take place in real world or virtual environments outside of the formal classroom instruction. (SAE, n.d.) These experiences allow the students to apply what they have learned as they prepare for college or the current workforce. Members of the FFA are required to participate in at least one SAE while in the agricultural education program. The FFA staff works to provide opportunities for students to be involved through contests, award applications, leadership workshops, and other efforts to strengthen agricultural learning.

The number of students participating in SAE has increased in the 2022-2023 school year. Data shows it is now the highest in the previous six years with 19,242 participating students. This data was collected from the Agricultural Experience Tracker (AET), an online record-keeping system funded by ALSDE, now utilized by teachers. AET will make it easier to gather more detailed and accurate information for decision making to improve the SAE.

Supervised Agricultural Experience (SAE)						
	2017	2018	2019	2020	2021	2022
SAE Students	18,881	18,613	18,561	18,649	16,916	19,242

The successful integration of SAE with CTE and FFA, results in a strong agricultural program that produces knowledgeable individuals who are prepared to be agricultural leaders or continue their learning of agriscience and/ or agribusiness through post-secondary institutions. Many educators believe the implementation of CTE and FFA without SAE reduces the effectiveness of the school based agricultural education program.

Agriculture in the Classroom (AITC)



Alabama Agriculture in the Classroom (AITC), known as Ag in the Classroom, is a special educational program sponsored by the Alabama Farmers Federation. This program is dedicated to fostering an understanding of the importance of the agricultural industry within the K-12 program.

The educational materials and programmatic activities provide a wealth of opportunities for students to receive exposure to careers in agriculture. The curriculum concentrates on promoting an appreciation for agriculture and the people involved in its production. The program offers a classroom summer institute for teachers in kindergarten through 6th grade. The workshop includes integrated agricultural activities and fieldtrips to active farms.

AITC realizes that agricultural issues can support the teaching of many academic principles. Thus, educators across Alabama and the United States who are effectively integrating agriculture into the classroom curriculum are eligible to receive an outstanding teacher award for their creative efforts to instill the importance of agriculture. The teacher selected receives a \$500.00 cash award and a trip to the national AITC Conference.

4-H Club

4-H, first known as “The Tomato Club” or the “Corn Growing Club”, started in 1902 as a youth program in Ohio to teach local youth about agriculture. (History, n.d.) 4-H Club is administered by US Department of Agriculture and is implemented by the Cooperative Extension system to serve youth in rural, urban, and suburban communities in every state across the nation. (Gregg, 2020) 4-H Club, which stands for Head, Heart, Hands, and Health, offers a wide variety of educational opportunities.



Alabama 4-H is open to all youth ages 9-18, which allows an opportunity to have hands-on learning over a nine-year period. (Gregg, 2020) Alabama recognizes the significance of the 4-H Club to its youth. This is reflected in the fact there is a 4-H Club located in every county in Alabama. The 4-H Club is the largest youth development program in the state with over 125,700 youth reached each year (Gregg, 2020) Alabama 4-H focuses on providing youth with opportunities to learn and explore the states natural resources. (Extension, 2022) It is these experiences and exposures that will assist in introducing youth to agriculture.

Post-Secondary Education

Alabama farmers introduced to farming by their local schools often want to expand on that knowledge and pursue an agriculture career. Alabama has three excellent post-secondary institutions: Alabama A&M, Auburn, and Tuskegee University.

Alabama A&M University, Huntsville, Alabama

Alabama Agriculture and Mechanical University (AAMU) was founded by a former slave Dr. William Hooper Council in 1875 and later became designated as a traditional 1890 land-grant institution. (aamu.edu.2022). AAMU is influential in developing future farmers and industry leaders by staying abreast of concerns and researching solutions to address those concerns.

AAMU is well known for its years of dedication to providing beneficial support for small farmers in Alabama. This support has continued through efforts of AAMU’s Small Farm Research Center (SFRC). The SFRC was awarded \$198,518 by the U.S. Department of Agriculture’s Risk Management Agency to educate underserved farmers on topics such as crop insurance, risk management tools, and strategies. The goal of this endeavor is for farmers to become more profitable and sustainable in the industry. SFRC expects to assist more than 300 people by

collaborating with Fort Valley State University and Alabama Cooperative Extension System-Auburn University. (News, 2022)

AAMU is home for the College of Agriculture, Life, and Natural Resources (CALNS). It currently offers eight undergraduate degrees and seven graduate programs. CALNS awarded a total of 25 different degrees for the 2020-2021 academic year (Alabama A&M university, 2022).

Alabama A & M College of Agricultural, Life and Natural Sciences Undergraduate Majors Program	Alabama A & M College of Agricultural, Life and Natural Sciences Graduate Degree Program
Bachelor of Science Biology	Ph.D. Plant and Soil Science
Bachelor of Science Plant Biotechnology	Master of Science in Plant and Soil Science
Bachelor of Science Forestry	Master of Science Biology
Bachelor of Science Environmental Science	Master of Urban and Regional Planning
Bachelor of Science in Urban Planning	Master of Science in Family and Consumer Sciences
Bachelor of Science Family & Consumer Sciences	Food Science (Master’s, PhD.)
Bachelor of Science Animal Bio-Health Sciences	
Bachelor of Science in Food Science	

The CALNS’ Forestry Program is the only professionally accredited program by a historically black college or university. The students benefit from a collaborative partnership with the U.S. Forestry Service. In addition, CALNS is the home of the FireDawgs, a student-led forest fire fighting team that receives the real-life experiences of working in forestry. The team is mobilized for wildfires, rescues, and to perform prescribed burns. The Forestry Program holds a successful job placement rate for graduates in their field of study of over 90%. (Undergraduate Studies, n.d.)

CALNS works closely with the Alabama Cooperative Extension System to bring outreach and resources to urban audiences in schools, community centers, and other places. Mobile education units, funded by USDA, can bring learning opportunities to youth and adults that may not otherwise have access to these programs. Another program that is offered is Livestock Youth Connect (LYC), an internship that teaches undergrad students animal care and farm management to encourage them to become the next generation farmer. (Products and Services, 2022) These types of programs are essential in the efforts to produce more farmers.

The AAMU is a leader in educating a diverse group of students for our future agricultural economy in the state. Through the collaboration of the faculty, students, and industry stakeholders,

AAMU will continue to educate and develop graduates who are committed to ensure the future sustainability of the agricultural industry.

Auburn University, Auburn Alabama

Auburn University's (Auburn) history in the agriculture industry dates to 1872 when it became the first land-grant college in the south named Agricultural and Mechanical College of Alabama. "Throughout its long history, the college has helped advance Alabama's agricultural economy while improving the nutrition, health, and standard of living for all citizens. (Timeline & History, n.d.) One way this was accomplished is through Auburn's College of Agriculture (COA), founded in 1872. COA focuses on the food, fuel, water, and natural resources that run the world by innovative research, academic rigor, and outreach programs. (Auburn University College of Agriculture, n.d.) COA provides a diverse group of courses and majors to its students. It currently offers 14 undergraduate majors and 23 graduate programs. Each of these majors and programs provide a qualified and diverse group of graduates with the preparation needed for a future in the agriculture industry. (See the listing of programs on the following page).

Auburn Agriculture Undergraduate Major Programs	Auburn Agriculture Graduate Degree Programs
Agricultural Business & Economics	Agriculture Economics (Master's)
Ag Communications	Animal Science (Master's, PhD)
Agricultural Science	Applied Economics (PhD)
Agriscience Education	Biosystems Engineering (Master's, PhD)
Animal Sciences <ul style="list-style-type: none"> • Animal & Allied Industries • Equine Science • Meat Science • ANSC Pre-Vet Med & Pre-Professional 	Crop, Soil & Environmental Sciences (Master's, PhD)
Applied Biotechnology	Crop & Soil Science (Grad Cert)
Biological & Agricultural Technology Management	Entomology (Master's, PhD)
Biosystems Engineering <ul style="list-style-type: none"> • Bioprocess Engineering • Ecological Engineering • Forest Engineering 	Fisheries, Aquaculture & Aquatic
Crop & Soil Sciences <ul style="list-style-type: none"> • Production • Science • Soil, Water & Land Use • Turfgrass 	Sciences (Master's, PhD)
Environmental Sciences	Food Science (Master's, PhD)
Fisheries, Aquaculture & Aquatic Sciences <ul style="list-style-type: none"> • Fisheries, Aquaculture & Aquatic Resource Management • Marine Resources Management • FAAS Pre-Vet Med & Pre-Professional 	Horticulture (Master's, PhD)
Horticulture <ul style="list-style-type: none"> • Fruit & Vegetable Production • Landscape Horticulture • Nursery & Greenhouse Science • Pre-Landscape Architecture 	Plant Pathology (Master's, PhD)
Poultry Science <ul style="list-style-type: none"> • Poultry Production • POUL Pre-Vet Med & Pre-Professional 	Poultry Science (Master's, PhD)
	Public Horticulture (Grad Cert)
	Rural Sociology (Master's)
	Turfgrass Management (Master's)

In fall 2021, COA hosted a total of 1,050 undergraduate students, which was a 5.1% decrease from the previous year. Even with the slight decrease in students enrolled, Alabama residents understand the value COA by accounting for 68% of that enrollment.

Feeding the world is a global issue and Auburn is acting. In fiscal year 2021 alone, Auburn awarded over \$25 million of research grants. (Auburn University College of Agriculture, n.d.) Research is conducted around the state on a variety of areas related to the agriculture industry. Through this research, discoveries are made to implement or improve current processes to strengthen agriculture production to yield a more profitable return, while addressing environmental concerns. These returns are not only beneficial to the farmers by increasing revenues, but to the business owners who will employ workers, and to consumers who will have a wide variety of products to purchase.

Auburn partners with others stakeholders such as Central Alabama Community College to provide a clear pathway into the COA for students meeting certain criteria. (Auburn University College of Agriculture, n.d.) Auburn also collaborates with Alabama Cooperative Extension System, and outreach organization, to ensure researched-based educational programs are available to Alabamians. It is with research and collaboration with agricultural stakeholders that results in a better quality of life for all.

COA awarded 337 degrees during the 2021-22 academic year. After graduation, COA students at Auburn, “posts nearly a 100% job-placement rate through several high-demand majors, such as food science, horticulture, and poultry science.” Auburn does its part in making Alabama’s agriculture industry nationally known. (Auburn Agriculture, n.d.)

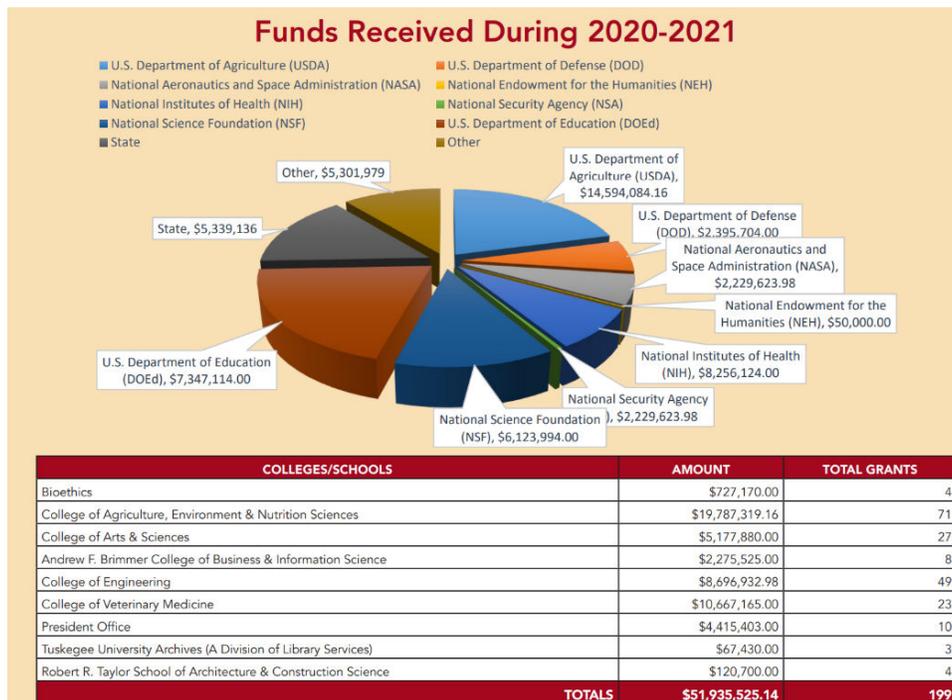
Tuskegee University, Tuskegee, Alabama

Tuskegee University (Tuskegee) was founded in 1871 as one of two land grant institutions in Alabama at that time. Tuskegee was formally known as the Negro Normal School in Tuskegee, the name was changed to Tuskegee Normal and Industrial Institute by legislation in 1892 and gained university status in 1985. Tuskegee is known for its contribution to agriculture. (History and Mission, n.d.) From the well-known George Washington Carvers’ discoveries to current research on low-temp plasma which also includes agricultural concerns, Tuskegee has made a sufficient impact of Alabama agricultural industry.

Through Tuskegee’s College of Agriculture, Environment and Nutrition Sciences (CAENS) students are prepared for careers in the agricultural, environmental, and nutritional sciences through course work along with internships, research, and outreach activities. (Tuskegee University, n.d.) The school offers three majors for undergraduate study and four minors.

Tuskegee Undergraduate Major Programs	Tuskegee Agriculture Graduate Degree Programs
Agribusiness	Agricultural and Resource Economics
Animal and Veterinary Sciences	Animal Sciences
Environmental, Natural and Plant Sciences	Environmental Management
	Environmental Science
	Plant and Soil Sciences

It would be difficult to discuss the role Tuskegee plays in Alabama’s agricultural industry without mentioning Tuskegee’s Division of Research and Sponsored Programs (DRSP). DRSP holds the reputation of being among the nation’s premiere minority research institutions. (Research and Innovation, n.d.) Since 1996, it has more than doubled its annual funding for research and other sponsored programs. The university concluded Fiscal Year 2020-2021 with a total annual funding of \$52 million, representing an increase of more than 25% over the last year. The largest amount



received in funds were allocated to CAENS for 71 grants totaling over \$19 million. (Research and Innovation, n.d.) This funding allows Tuskegee to consistently develop their faculty and students, while pursuing research to expand knowledge and develop solutions to benefit the agricultural industry.

Tuskegee also has the Tuskegee University Cooperative Extension Program (TUCEP) that has a history of bringing new innovative methods to tackle current and future issues. TUCEP assistance is received statewide, but high importance is given to areas that contain limited resources or are underserved as in the Black Belt region of the state. (Cooperative Extension Program, n.d.) The TUCEP has six areas of concentration for its outreach and educational services. The areas are (1) Global Food Security, (2) Natural Resource Conservation, Environmental Sustainability, and Climate Change, (3) Community Resource Development, (4) Family, Home, and Youth, (5) Nutrition and Wellness, and (6) Food Systems and Food Safety. (Cooperative Extension Program, n.d.) Each of these areas are woven into the fabric of our agricultural industry. By providing these types of services, Tuskegee is impacting the world of agriculture, whether it is by producing the future agricultural workforce, assisting current agricultural stakeholders, or educating the community on the importance of improving the environment. The positive impact is not only relevant in Alabama but the world.

Alabama's Efforts to Recruit, Retain and Engage Talent for the Agricultural Industry

A strong agricultural industry is necessary for recruiting, retaining, and engaging talent. Efforts to strengthen the agricultural community must focus on celebrating farmers, continuously improving technology, resources, and services that ensure families have vibrant communities to call home. It is important to generate excitement about becoming a first generation farmer and create a culture in Alabama where farmers are celebrated. The collaborative efforts below represent what Alabama offers to recruit, retain, and engage the workforce.

The Connect Alabama Act

In order to be successful, state leaders recognize that farmers need internet connectivity. Fast reliable broadband access enables farmers to make informed decisions on topics such as irrigation, erosion, crop rotation, and cultivation practices. The use of technology allows for reliable and efficient food production systems that increase the likelihood of success. With the average age of

Alabama farm owner being 58 (Price, 2021), there is a dire need for young farmers entering the workforce. The new generation of farmers have dramatically different needs, and technology plays an essential role. Incorporating the use of technology increases the likelihood of recruiting prospective farmers from Generation Y and Z.

The passage in 2021 of The Connect Alabama Act (Act 2021-465) provides a path for farmers to take advantage of cutting-edge technology through access of wireless broadband. According to data released by the U.S. Census Bureau, Alabama is currently ranked 47th in terms of broadband connectivity, and 73% of the state's population does not have access to an affordable broadband plan. Alabama is the only state in the southeast without an official broadband plan, which the Connect Alabama Act will rectify. (Connect Alabama Act Signed into Law, 2021)



The Connect Alabama Act created the Alabama Digital Expansion Authority (ADEA) to address the availability of high-speed broadband access in rural and underserved areas in the state. The authority is comprised of the Alabama Department of Economic and Community Affairs Director, Alabama Digital Expansion Division Chief, and nine designees from state leaders. This is key to creating an environment that allows farms to grow and utilize technology to increase profitability (Ross, 2021). Providing reliable internet access will improve the quality of life in every aspect.

On August 27, 2022, Governor Ivey announced the award of more than \$26 million in state funds to broadband providers in the state to help expand broadband. The nine grants were administered through the Alabama Department of Economic and Community Affairs from the Broadband Accessibility Fund allocated by the Legislature. These grants will help expand broadband service to about 15,000 additional households, businesses, and public facilities, including schools, police departments and fire departments. Governor Ivey stated “Alabama continues to make strides in providing reliable high-speed internet services for families and businesses throughout Alabama. I extend my thanks to legislators who realize the importance and the huge impact that access to broadband services mean for Alabama. I also thank the service providers for their willingness to be a part of this mission to change the lives of Alabamians.” (Newsroom, 22)

Outdoor Recreational Activities

Today, workers want a work-life balance that includes a high quality of life. Alabama has many offerings to afford enjoyable activities that allow farmers to reenergize and connect with the agricultural community. Alabama offers a vast array of natural resources from the mountains of north Alabama to the white sandy beaches of south Alabama. In between, we have numerous rivers, parks, and forest land. The Alabama Innovation Commission's report dated October 2021 suggested that Alabama's outdoor recreation and related tourism assets should be better leveraged as a tool to attract and retain workforce talent.

The Alabama Legislature enacted Act 2021-326 which is a proposed constitutional amendment that was approved by a statewide vote on May 24, 2022 authorizing the issuance and sale of general obligation bonds of the State of Alabama of up to \$85,000,000 for the purposes of the improvement, renovation, equipping, acquisition, provision, construction, and maintenance of Alabama state parks under the jurisdiction of the Department of Conservation and Natural Resources and public historical parks under the jurisdiction of the Alabama Historical Commission. The Legislature enacted Act 2021-409 which will implement the Constitutional amendment by providing for \$80,000,000 for state parks and \$5,000,000 for historical parks. In addition, funds can be given to the Alabama Forestry Commission to improve, renovate, acquire, provide, construct, equip and maintain state forests. As a result of this funding, the state will be able to invest further in its outdoor recreational infrastructure, with the benefit of attracting prospective agricultural workers.

Legislative Efforts

In the effort to develop the agricultural workforce, Alabama's legislators have worked to discover and eliminate obstacles that prevent successful recruiting, retention, and engagement of agricultural talent. As previously mentioned, the Sweet Grown Alabama Act and the Irrigation Initiatives Bill have had tremendous success. Through legislation, Alabama has also made strides in closing the technology gap in its rural areas.

As costs rise, farmers must become more profitable in order to strengthen retention. The 2022 Legislative session passed legislation directly benefiting the profit of Alabama farmers. One bill that passed in the session was Act 2022-296, which allows the farmer to sell products at places

such as the farmer's markets without purchasing a county license or fee for operating. This legislation is critical for small family farmers who generate most of their revenues at farmers markets and their farm stands. The legislation also plays a major role in farmers becoming more visible as they sell their products at different markets across state. Before this legislation, the farmers would be burdened with the liability of paying all the fees associated with obtaining a business license for operating in those counties. The farmers can now reduce the costs associated with selling their products to the customers.

Another act is Act 2022-295 which clarifies exemptions relating to all grain bins and parts used when preparing grain for market as exempt from ad valorem tax. Ad valorem tax is charged by a state or local governments and is based on the assessed value of a product or property. (Team, 2020) Many owners or operators of farms have grain bins. Grain bins play a significant role in production by storing, holding, drying, preserving, and preparing grain for the market. Farmers can also store excess products in the grain bins for future sale without the fear of reducing their profits by the ad valorem tax associated with owning a bin.

Also through legislative efforts, additional funding was secured for Alabama's Farm to School, FFA, and 4-H programs. Alabama's Farm to School is a program that links farmers directly to local schools and allows the farmer to sell their products to those schools. This program received \$300,000.00 for continued advancement and support. FFA received additional funding of \$275,000 for membership dues of agriscience students. The 4-H program received additional funding of \$125,000 for a youth agriculture and animal science specialist. Also, funding was made available for a forestry economic development specialist in the amount of \$200,000. All the funds allocated will enhance the benefits provided by these programs. Often, great programs do not reach its full potential due to the lack of funding. These allocations ensure that Alabama continues to make its mark in the industry.

Other States' Initiatives to Develop the Future Agricultural Workforce

As Alabama continues to discover ways to assist its farmers, it is advantageous to research how other states are handling the same or similar issues. Our team researched Florida, Texas, Virginia, and Georgia to discover their workforce initiatives.

Florida - Challenge 2050 Project

The challenge of feeding the growing population in 2050 is not just an Alabama problem. The burden of producing 70% more food is placed on every farmer in every state and in every country, which underscores the need for our team project. To help meet this need, the University of Florida is participating in the Challenge 2050 Project which addresses the challenge of producing enough food to meet the needs of the projected increase in population by the year 2050. The project pairs students with industry professionals and policymakers to discuss and seek solutions to the issues that will arise due to the increase in agricultural production. The four-course program collects students from 10 of the school's 11 undergraduate colleges and represents 29 different majors. (Giles, 2015).

Texas - School Grants

Texas ranks first in the nation for the total number of farms with just over 248,000, which accounts for more than 127 million acres of agricultural land (managing almost 74 percent of the state's 268,581 square miles). Texas agriculture contributed nearly \$25 billion to the economy in products sold in 2017. (USDA, n.d.) Texas leads all other states in number of farms and ranches.

The state of Texas approaches retention in several ways. The Texas Department of Agriculture provides grants for agricultural projects in urban elementary and middle schools. The Agriculture Commissioner Sid Miller encourages every eligible school to apply for the Urban Schools Agricultural Grant Program to help educate Texas' children in agriculture and how it is intertwined with almost all facets of daily life. His main objective is to teach kids where their food comes from and how it is made. This program is a great opportunity to support the future of agriculture through hands-on activities. This is a great way to teach fun and exciting lessons about the vast world of agriculture that surrounds all of us. (Texas Department of Agriculture, n.d.)

In addition, Texas Farm Bureau and Ag in the Classroom's Learning from the Ground Up Garden Grant Program was created to support schools that strive to help students understand the source of their food, fuel, and fiber, and to help Texas school children gain a greater understanding and appreciation of agriculture. The Garden Grant Program seeks to connect small-scale gardening to farming operations, so students understand food production (TexasFarmBureau.org, 2022). The grant will be used to improve an existing gardening project or fund a new one. These projects will

allow students to increase their agricultural knowledge through experimental learning. Examples of qualifying projects would include any aquaponic or hydroponic systems if they are used to teach students about food production.

Texas recognizes the cost-of-living increases that force farmers to raise prices on their goods. One way Texas provides financial relief is by eliminating groceries from sales taxes. Texas imposed 6.25 percent sales and use tax on all retail sales, excluding food. Other municipalities within the state can also impose their own sales and use tax at a maximum of 2 percent for a combined rate of 8.25 percent. (Nati, 2022) The farmers save at least the state's portion, 6.25 percent, on taxes. In 2011, the total sales tax exemption granted on food products for home consumption amounted to \$1.47 billion. (Agriculture Taxes in Texas, 2021) This savings goes beyond the farmers. It is a positive impact for the entire state.

Virginia - Graze 300 VA Initiative

The Graze 300 VA Initiative was created in 2015 by a small team of Virginia Cooperative Extension agents, farmers, and representatives from state and federal conservation agencies from Northern Piedmont and Northern Shenandoah Valley. This initiative was created to enable Virginia farmers to achieve 300 days of livestock grazing per year by facilitating better pasture management and environmental stewardship. (Animal Health, 2021) A majority of farmers graze from spring to fall, accounting for nearly 220 days per year. The latter four winter months are supplemented with hay. The cost of hay for these four months can contribute to over 50% increase in production cost. Currently, only a few farmers in Virginia consistently reach a 300-day grazing season. Research has shown, if 20% of Virginia farmers adopt better grazing management practices and extend their grazing season to 300 days per year, Virginia farms could see a profitability increase of more than \$6 million per year. (Animal Health, 2021)

Georgia - Farm Passport

Georgia Farm Bureau Farm Passport was created to help people discover Georgia, support local farms, and experience fresh foods. (Outreach, n.d.) The passport guides Georgia travelers to discover where their food comes from, meet the people who grow it, and to experience the diversity of agricultural products across the state. As the travelers visit each site, their passport is stamped, earning them prizes. The passport is in its fourth year of circulation and has doubled in

participation each year. To be listed in the passport, farmers pay a fee to help cover printing and marketing expenses for the program. This fee is recovered quickly due to the higher volume of traffic they receive from participating. The passport lists 93 farms that have been certified by the state. The passport gives Georgia an opportunity to bring the consumer to the farm and raise awareness of the amount of labor needed to bring food to the consumer. (Thompson, 2021).

Challenges for Recruiting and Engaging Talent for the Agricultural Industry

The need to generate an interest in today's youth in agricultural technology and careers is paramount for ensuring Alabama continues to see economic growth and to foster environmental stewardship. To do so, the state must recognize and resolve some of the challenges. Our team identified four challenges to be addressed. They are as follows:

1) Small rural labor force

One obstacle limiting the number of people interested in agriculture is urbanization, the mass movement of populations from rural areas to more populated urban settings (Kuddus, Tynan, McBryde, 2020). Those originally living in rural communities sought better job opportunities, higher quality of healthcare, more educational and entertainment options, and an increase of services and conveniences not readily available in rural living. According to a May 2021 Alabama Department of Public Health report, almost 57% of Alabamians lived in urban areas. (At A Glance, 2021) If this trend is to be reversed, an economic agenda for rural America must include a plan to safeguard key services and ensure high quality jobs are created. The contributions of rural America's agricultural production are invaluable to the economy, but must be reimaged to circulate wealth through these communities and to promote vibrant, sustainable local economies. (Ajilore & Willingham, 2020) Policies must be enacted that help preserve open space, protect air, and water quality, provide places for recreation, and create tourist attractions. (Smart Growth, n.d.)

In Alabama, Governor Ivey has led the charge in revitalizing our rural areas. She used \$17 million from the Alabama Broadband Accessibility Fund to help expand rural broadband access and signed the Connect Alabama Act of 2021. (News, 2022) Modern farms need high speed broadband to adequately function. Broadband access allows people to telecommute, operate a home business, and decreases the digital divide for rural students. (3 Things You Can Do to Boost The Rural Economy, 2021)

The U. S. Department of Agriculture has joined Alabama's effort to revitalize our rural communities. The Department is investing more than \$18 million to help rural businesses. Rural Development Alabama State Director, Nivory Gordon Jr., said "By investing in businesses who choose to locate and stay in our communities, USDA, is helping businesses in rural Alabama to create jobs, grow, and find new and better markets for the items they produce. Rural Alabama is wide-open for business, and USDA stands ready to help". (Burroughs, 2022) These actions are needed for Alabama to stimulate growth in our rural areas and provide an available and viable agricultural workforce.

2) Efficient and sustainable production methods

Alabama is making progress in the agricultural industry, but there are areas that warrant attention when it concerns our environment and sustainability. With Alabama being number two in the nation for poultry production, the state has an ample supply of fertilizer from chicken manure. Chicken manure runoff can lead to potentially devastating consequences in local ecosystems or streams. When chicken manure is not used properly to fertilize the crops, it washes into streams causing alga blooms, which are the rapid increase or accumulation of algae in water systems, that release toxin into drinking water and can deplete oxygen in the water killing the fish. In the article *Transforming Farming Practices in Alabama & Beyond* (February 6, 2019) it emphasizes teaching farmers about improving their farming practices to become sustainable especially when using chicken manure to fertilize crops. The article discusses taking the "4-R Nutrient Stewardship" into consideration when using chicken manure as fertilizer. The 4-Rs are the right source, right rate, right time, and right placement. This practice helps to minimize runoff into streams and water sources. By sharing this knowledge with farmers, it will help prevent damage to Alabama's water sources, improving the overall water quality for the state.

Another area of concern is providing Alabama's farmland with adequate water to yield a successful crop. Annually, farmers in Alabama plant more than 1.3 million acres of row crops, but the use of irrigation to support those crops is one of the lowest in the Southeast. (Lawrence, 2021) While Alabama has created legislation to help, more help is needed. Many farmers do not own the land they farm and will not take advantage of the legislation. Irrigation equipment is very expensive, and many farmers feel investing large amounts of money on land they do not own is risky. Research has proven the many benefits of irrigating crops. More legislation is needed focusing on

landowners. Farm owners who lease their land would receive some direct benefit that could be passed on to the farmer.

3) Youth interest in agricultural technology

The younger generation's perception of farming has been a barrier to recruiting for agricultural jobs. Some youth in rural areas do not pursue a career in agriculture because they have witnessed the struggle against unfavorable markets and environmental factors, capturing very little profit for hard physical toil. (Avetisean, 2016) Modern farms and agricultural processes operate vastly different than those decades ago. The primary reason for the change is technology advancement. (National Institute of Food and Agriculture, n.d.) There has been a misconception amongst those not in the industry, that farming consists of hard physical labor with little or no technology use. However, future generations must understand agricultural jobs include more than labor intensive responsibilities on a farm. Opportunities also lie in areas of engineering, management, science, and business. Those interested in engineering might embrace the positions of a water resource engineer and biostatistician. Additionally, one may pursue an opportunity in robotics or become a farm or operations manager if they possess the skills. Those interested in science might find their niche as a food technologist, environmental scientist, or an ecologist. Finally, if business is their goal, then the field of agribusiness would be a great fit. Agriculture will be viewed as attractive by youths when jobs appear profitable and have less of a physical demand. (News, 2019) Hence, it is pivotal they are knowledgeable about the current agricultural industry and all the numerous opportunities, and the benefits associated with each.

4) Average age of farmers is 58

It is imperative Alabama effectively exposes more youth to the benefits of having a career in farming. Worldwide, the percentage of people who work in the agricultural industry has plummeted from 44% in 1991 to 26% in 2020, according to data from the International Labor Organization. Part of the decrease is due to the growing use of agricultural technology, but it also indicates a larger problem; many people do not want to work on farms anymore. (Booth, n.d.) According to the 2017 Census data, the average age of a farmer in the state of Alabama is 58 years old. (Publications, n.d.) Many of those farmers will need to be replaced in the coming years.

Without a transition plan to transfer ownership of these farms to the younger generation in a timely manner, many farms may be lost.

Recommendations

Our report is full of exciting things Alabama is doing in its agricultural industry; however, there continues to be a labor shortage in the agricultural industry. So, what are the keys to attracting and retaining high caliber and talented people to this industry? Our team wanted to explore creative ways to attract talent for the state's agricultural industries. With much consideration for the information gathered and analyzed, the team would like to offer the following recommendations:

- expand access to broadband throughout the rural areas,
- eliminate sales taxes on food,
- expand the Sweet Grown Alabama program,
- create beneficial legislation and partnerships for the agricultural industry,
- introduce students to agriscience at an earlier age
- launch a robust marketing campaign to promote agriculture across the state

Expand Access to Broadband throughout the Rural Areas

Research has shown high-speed broadband access is a must in the current agricultural industry. Reliable internet access is crucial for farmers to utilize the more innovative agricultural equipment that requires internet access for operation. Alabama has made progress in this area with the passage of the Connect Alabama Act creating the Alabama Digital Expansion Authority (ADEA) to oversee the expansion and availability of high-speed broadband throughout the state. However, until every household, business, and farm in Alabama has affordable access to high-speed broadband, there will be a need for improvement. Having access will make it easier to recruit people to live and work in rural areas. Internet access has become a valuable tool for not only farmers, but for business and students. Expanding high speed broadband in the rural areas will assist in the economic development of those areas.

Eliminate Sales Taxes on Food

Alabama is one of only 13 states that taxes all food items. Alabama is one of only three states that applies the same tax rate to food as other goods and services according to the Center on Budget

and Policy Priorities. (Hinh, 2022) Sales tax is usually a regressive type of tax. A regressive tax is often flat in nature, which means the same rate applies to everyone regardless of income. Therefore, lower income families may face a higher tax burden than higher income families purchasing the same amount of food (Tax Basis Glossary, n.d.) The mere cost of food is rising at an alarming pace. The US Bureau of Labor Statistics is reporting the annual rate of inflation for food is 10.9% over the past 12-months ending July of 2022. (Economic Release, 2022) As our research findings from Texas revealed, revising the current tax codes to eliminate sales tax on food would be advantageous to the state in a manner that will assist in recruiting and retaining employees by reducing their cost of living. Alabama would not automatically lose all the revenue associated with eliminating the sales tax on food. Some of the saved income could be used to purchase other services and products that are taxable.

Expand the Sweet Grown Alabama Program

Sweet Grown Alabama (SGA) is drawing attention to our local farmers, and this effort should be expanded to incorporate ideas discovered from Georgia's Farm Passport. We recommend SGA develop a virtual passport that takes advantage of quick response (QR) codes, geo-fencing, and a mobile application that lists all certified farms, as well as the other agritourism locations throughout the state. With each site visit, their passport would be virtually stamped, which would convert to earning discounts or prizes. We recommend the development of a prize system to award larger prizes for more visits with the goal of consumers discovering new markets for the products they consume. The new expanded SGA program should inform consumers through a robust marketing campaign focusing on discovering Alabama's diversity of farm products, supporting local farms, and experiencing fresh foods. The expansion of SGA will expose more people to the diversity of Alabama farm products and provide opportunities to engage with farmers.

Create Beneficial Legislation and Partnerships for the Agricultural Industry

“Coming together is the beginning. Keeping together is progress. Working together is success.” This quote by Henry Ford illustrates the importance of stakeholders working together to implement beneficial strategies. As we learned from Virginia's Graze 300 Initiative, along with Alabama's collaborative efforts, when stakeholders work together, great progress can be achieved. To further assist farmers, we recommend incentivizing investment in workers' training and education by state sponsored seminars and continuing educational opportunities through coordinated efforts by state

agencies, agricultural colleges, universities, and technical schools. This should also include grants for out of state training in targeted areas as well. Operation Grow is a great example of how targeted recruitment can have long term benefits by attracting veterans to become new farmers. Also, we recommend further collaboration between agricultural stakeholders and leaders in Alabama's K-12 and post-Secondary educational systems, to develop an extensive plan directing actions to continuously produce future farmers. We also recommend continued legislation to expand tax credits for irrigation, grain bins, and any other targeted investments that keep Alabama farmers profitable and competitive in the industry.

Introduce Students to Agriscience at an Earlier Age

With the average Alabama farmer being 58, there is a need for future generations to not only fill these positions but obtain more farmers to be able to tackle the future population increase. As we learned from our research of Texas agricultural initiatives, introducing and engaging children at a young age leads to a higher interest in agriculture. We recommend providing young altruistic students with information about farming and the opportunities that exist in agriculture by introducing agriscience into more private schools, expanding agriscience in public schools, and placing more emphasis on the importance of the Supervised Agricultural Experience, Future Farmers of America, and 4-H programs. Investing in children at an early age allows more time for discovering, learning, and mastering their trade. With all the new innovative technology being utilized in the agricultural industry, there is an opportunity to engage many youth that otherwise would not have been exposed to agriculture.

Launch a Robust Marketing Campaign to Promote Agriculture Across the State

When you examine Alabama's agricultural industry, amazing things are happening that must be shared through effective marketing strategies. Whether it is frequently running commercials, multiple large billboards, or a catchy jingle, providing a robust marketing campaign to promote agriculture across the state would spread the great news about Alabama agricultural industry. The wide range of opportunities the agricultural industry provides is unknown by many living in Alabama. Therefore, as we learned about the benefits of effective marketing strategies from Georgia, we recommend a robust marketing plan to promote agriculture. Marketing campaigns that encourage citizens to visit local farms to participate in agritourism, buy products from locally owned farmers, understand legislative actions that benefit the industry, and invest in young people

to become farmers, would raise awareness of the significance of the agricultural industry while supporting and celebrating Alabama's farmers.

Conclusion

There is much to celebrate when it comes to Alabama's agricultural industry. Its educational system produces students equipped to be leaders in the agriculture field. Programs and legislation exist to support local farmers while ensuring the environment is available for future farmers. Federal, state, and local governments partner with the local cooperative extension systems, schools, colleges, and universities to provide funding for research and outreach programs to train individuals on best practices utilized in the agriculture industry. All of these efforts have a positive effect on Alabama's agricultural industry. But there are challenges that must be addressed. With the average Alabama farmer being 58 and the growing need for the food required to meet future population growth, innovative ways are needed to recruit, retain, and engage talent for Alabama's agricultural industry. By implementing the recommendations mentioned in the report, Alabama will become more successful in increasing the number of farmers, retaining a high-quality workforce, and assisting current farmers in areas of concern.

Alabama has an awarding history in farming and feeding our nation. The agricultural industry has evolved into so much more than putting seeds in the ground. It supports our family, our state, our country, our world. The accolades are well deserved and the results have been achieved over decades of dedication and hard work. It is that dedication and hard work that will continue to allow Alabama to be recognized nationally as having a positive impact in the agricultural industry.

References

- (n.d.). Retrieved from Auburn University College of Agriculture: <https://agriculture.auburn.edu/>
- (n.d.). Retrieved from Food and Agriculture Organization of the United Nations: https://www.fao.org/fileadmin/templates/wsfs/summit/wsfs_issues_papers/wsfs_feeding_e.pdf
- (n.d.). Retrieved from Tuskegee University: <https://www.tuskegee.edu/programs-courses/colleges-schools/caens>
- (n.d.). Retrieved from USDA: <https://www.usda.gov/>
- (n.d.). Retrieved from Texas Department of Agriculture: <https://www.texasagriculture.gov/>
- (n.d.). Retrieved from National Institute of Food and Agriculture: <https://www.nifa.usda.gov/topics/agriculture-technology>
- (2022, June 24). Retrieved from Extension: <https://www.aces.edu/blog/topics/about-4-H/impact-4-h-outdoor-education/>
- 3 Things You Can Do to Boost The Rural Economy.* (2021). Retrieved from Genera: <https://generainc.com/3-things-you-can-do-to-boost-the-rural-economy/>
- About Down to Earth.* (2022). Retrieved from Down to Earth: <https://www.Downtoearthal.com/about-dte>
- About FFA.* (n.d.). Retrieved from FFA.org: <https://alabamaffa.org/about/>
- Adcock, C. (2022, August 4). (P. Wooden, Interviewer) Montgomery.
- Agriculture Taxes in Texas.* (2021, December 7). Retrieved from Texas A&M Agrilife Extension: https://agecoext.tamu.edu/wp-content/uploads/2013/08/ag_taxes_in_texas_e-143.pdf
- Agritourism - An Overview.* (n.d.). Retrieved from The National Agricultural Law Center: <https://nationalaglawcenter.org/overview/agritourism/>
- Ajilore, O., & Willingham, C. Z. (2020, September 21). *The Path to Rural Resilience in America.* Retrieved from American Progress: <https://www.americanprogress.org/article/path-rural-resilience-america/#:~:text= Policymakers%20must%20ensure%20that%20rural,high%2Dquality%2C%20sustainable%20jobs>

- Animal Health*. (2021, October 20). Retrieved from Beef :
<https://www.beefmagazine.com/beef/grant-beefs-grazing-initiative>
- At A Glance*. (2021, May 13). Retrieved from Alabama Department of Public Health:
<https://www.alabamapublichealth.gov/ruralhealth/at-a-glance.html#:~:text=55%20out%20of%2067%20of,population%20live%20in%20rural%20areas>
- Auburn Agriculture. (n.d.). *College of Agriculture Facts*. Retrieved from
<https://agriculture.auburn.edu/about/coa-facts/>
- Avetisean, A. (2016, September 30). *Blog*. Retrieved from Chemonics:
<https://www.chemonics.com/blog/how-can-we-get-youth-interested-in-agriculture/>
- Booth, A. (n.d.). *Future*. Retrieved from BBC: <https://www.bbc.com/future/bespoke/follow-the-food/the-reason-we-are-running-out-of-farmers/>
- Burroughs, C. (2022, May 26). *Newsroom*. Retrieved from Rural Development U.S. Department of Agriculture: <https://www.rd.usda.gov/newsroom/news-release/usda-invests-more-18-million-help-rural-businesses-across-alabama#:~:text=MONTGOMERY%2C%20May%2026%2C%202022%20%E2%80%933,jobs%20in%20seven%20Alabama%20counties>
- Cooperative Extension Program*. (n.d.). Retrieved from Tuskegee University:
<https://www.tuskegee.edu/programs-courses/colleges-schools/caens/cooperative-extension-program>
- Curl, A. N. (2022, July 13). *Watershed Planning*. Retrieved from Extension:
<https://www.aces.edu/blog/topics/watershed-planning/planning-for-sustainable-irrigation-expansion-in-alabama/>
- Davis, D. (2020, September 3). *News*. Retrieved from Alfa Farmers:
<https://alfafarmers.org/alabama-irrigation-initiative-funds-flowing-in-north-alabama/>
- Dyess, J. (2022, August 22). (P. Wooden, Interviewer)
- Economic Release*. (2022, August 10). Retrieved from United State Department of Labor:
<https://www.bls.gov/news.release/cpi.nr0.htm>
- Giles, F. (2015, October 15). *GrowingProduce.com*. Retrieved from Can American Agriculture save the world: <https://www.growingproduce.com/vegetables/can-american-agriculture-save-the-world/>
- Gregg, M. (2020, July 29). *About 4-H*. Retrieved from Extension:
<https://www.aces.edu/blog/topics/about-4-h/about-alabama-4-h/>

- Hinh, E. F. (2022, February 3). *Blog*. Retrieved from Center on Budget and Policy Priorities: <https://www.cbpp.org/blog/states-can-thoughtfully-implement-grocery-tax-reforms-to-help-families-and-improve-equity>
- History*. (n.d.). Retrieved from 4-H: <https://4-h.org/about/history/#!menu-builder>
- History and Mission*. (n.d.). Retrieved from Tuskegee University : <https://www.tuskegee.edu/about-us/history-and-mission>
- Hollis, P. (2012, July 16). *Farm Business*. Retrieved from Southeast Farm Press: <https://www.farmprogress.com/equipment/alabama-farmers-receive-tax-incentive-installing-irrigation>
- Income Tax Incentives*. (n.d.). Retrieved from Alabama Department of Revenue: <https://www.revenue.alabama.gov/tax-incentives/income-tax-incentives/>
- Lawrence, M. (2021). *Research Magazine* . Retrieved from Auburn University: <https://ocm.auburn.edu/research-magazine/2021-spring/articles/09-smart-irrigation-expansion.php>
- Majumdar, D. A. (2022, June 14). Retrieved from Alabama Cooperative Extension System: <https://www.aces.edu/blog/topics/farming/operation-grow-for-military-veterans/>
- Majumdar, D. A. (2022, August 10). (C. Harris, J. Herron, C. Taylor, J. Thrash, J. Wilson, & P. Wooden, Interviewers)
- Nati, M. (2022, January 26). Retrieved from Legal Beagle: <https://legalbeagle.com/6872751-texas-food-sales-tax-laws.html>
- News*. (2019, September 15). Retrieved from My Republica: <https://myrepublica.nagariknetwork.com/news/how-to-attract-young-people-to-farming/>
- News*. (2022, August 23). Retrieved from Alabama A&M University: <https://www.aamu.edu/about/inside-aamu/news/sfrc-usda-support.html>
- News*. (2022, April 20). Retrieved from AL: <https://www.al.com/news/2022/04/alabama-making-strides-on-broadband-access-infrastructure-in-the-black-belt.html#:~:text=in%20rural%20Alabama.%E2%80%9D-Gov.,have%20already%20started%20to%20help>
- Newsroom*. (22, August 26). Retrieved from The Office of Alabama Governor Kay Ivey: <https://governor.alabama.gov/newsroom/2022/08/governor-ivey-continues-advancing-broadband-access-across-state-awards-26-6-million-to-alabama-communities/>

- Outreach.* (n.d.). Retrieved from Farm Bureau Georgia: www.gfb.org/education-and-outreach/passport.cms
- Price, C. (2021, July 29). *Media.* Retrieved from US Department of Agriculture: <https://www.usda.gov/media/blog/2020/01/09/family-farms-flourish-sweet-grown-alabama#:~:text=What%20does%20the%202017%20Ag,higher%20than%20the%20national%20percentage.>
- Publications.* (n.d.). Retrieved from National Agricultural Statistics Service: https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_State_Level/Alabama/st01_1_0052_0052.pdf
- Rainer, D. (2022, May 19). *News.* Retrieved from Outdoor Alabama: <https://www.outdooralabama.com/articles/black-belts-hunting-and-fishing-impact-celebrated>
- Research and Innovation.* (n.d.). Retrieved from Tuskegee University: [https://www.tuskegee.edu/Content/Uploads/Tuskegee/images/Research%20and%20Innovation/70286_TU%20Annual%20Report%202021%20PROOF%203%20\(1\).pdf](https://www.tuskegee.edu/Content/Uploads/Tuskegee/images/Research%20and%20Innovation/70286_TU%20Annual%20Report%202021%20PROOF%203%20(1).pdf)
- Ross, S. (2021, May 19). *Yellowhammer News.* Retrieved from www.yellowhammernews.com
- SAE.* (n.d.). Retrieved from The Council : thecouncil.ffa.org/SAE
- Silva, J. G. (2012, June). *Chronicle Conversations.* Retrieved from United Nations: <https://www.un.org/en/chronicle/article/feeding-world/sustainably>
- Smart Growth.* (n.d.). Retrieved from United States Environmental Protection Agency: <https://www.epa.gov/smartgrowth/healthy-places-healthy-people>
- Sweet Grown Alabama Blogs.* (2022, June 09). Retrieved from Sweet Grown Alabama: <https://www.sweetgrwonalabama.org/post/2022/06/09/sga-act>
- Sweet Grown Alabama News.* (2022, July 24). Retrieved from Sweet Grown Alabama: <https://www.sweetgrownalabama.org/post/2022/07/24/sweetgrownalabamaday>
- Tax Basis Glossary.* (n.d.). Retrieved from Tax Foundation: [https://urldefense.com/v3/__https://taxfoundation.org/tax-basics/regressive-tax/__;!!I47Zg8fJQnY!ax4MqMqohSi24uOp7s5qX0KRKDFGN4BYFuML8hEBd2r6V8Qiyp3ZPOOEGBsn74dcnWiSJwpEj5ZLdsr76W-yPbDKRqZlgYKAeDw\\$](https://urldefense.com/v3/__https://taxfoundation.org/tax-basics/regressive-tax/__;!!I47Zg8fJQnY!ax4MqMqohSi24uOp7s5qX0KRKDFGN4BYFuML8hEBd2r6V8Qiyp3ZPOOEGBsn74dcnWiSJwpEj5ZLdsr76W-yPbDKRqZlgYKAeDw$)
- Team, C. (2020, June 21). *Resources.* Retrieved from Corporate Finance Institute: <https://corporatefinanceinstitute.com/resources/knowledge/other/ad-valorem-tax/>

TexasFarmBureau.org. (2022). Retrieved from Ag in the Classroom:

<https://texasfarmbureau.org/youth/ag-in-the-classroom/#groundup>

Thompson, K. (2021, March). *Visit Farms and Win Prizes with the Georgia Farm Passport*.

Retrieved from Explore Georgia: <https://www.exploregeorgia.org/things-to-do/blog/visit-farms-and-earn-prizes-with-the-georgia-farm-passport>

Timeline & History. (n.d.). Retrieved from Auburn Agriculture:

<https://agriculture.auburn.edu/about/timeline-history/>

Undergraduate Studies. (n.d.). Retrieved from Alabama A&M University :

<https://www.aamu.edu/academics/undergraduate-studies/bachelor-science-forestry.html>

Velasco, E. (2022, April 16). *Business*. Retrieved from Alabama News Center:

<https://rss.alabamane.wscenter.com/2022/04/16/from-south-to-north-here-are-9-alabama-u-pick-strawberry-farms-to-visit/>

Wooden, C. (2022, August). (P. Wooden, Interviewer)