CHAPTER 2

Experiential Learning: SAE

Chapter Outcomes

After studying this chapter, you will be able to:

- Understand the history and purpose of a supervised agricultural experience (SAE).
- Compare and contrast the different types of supervised agricultural experiences.
- Understand the process of investigating, planning, and keeping records for supervised agricultural experiences.
- Describe proficiency awards and recognitions associated with supervised agricultural experiences.
- Describe the careers agricultural business manager and agricultural inspector.

Words to Know

agricultural literacy
Agricultural Proficiency Award
agriscience internship
apiculturist
biodiesel
career exploration
entrepreneurship SAE
exploratory SAE
improvement SAE
microgreen
placement SAE
research and experimentation SAE
service learning
Star Award
student interest survey
student resources inventory
supervised agricultural experience (SAE)
supplemental SAE
training agreement
training plan
vermicompost

Before You Read

As you read the chapter, record any questions that come to mind. Indicate where the answer to each question can be found: within the text, by asking your teacher, in another book, on the Internet, or by reflecting on your own knowledge and experiences. Pursue the answers to your questions.



While studying this chapter, look for the activity icon to:

- **Practice** vocabulary terms with e-flash cards and matching activities.
- **Expand** learning with the Corner Questions and interactive activities.
- **Reinforce** what you learn by completing the end-of-chapter questions.

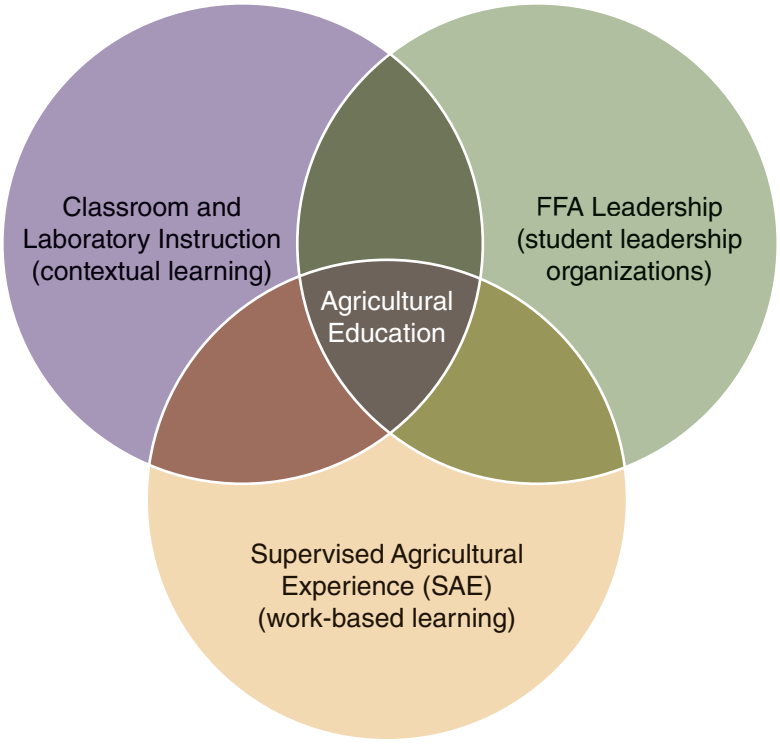
During your education, you have undoubtedly learned about the relationship of Pilgrims and Native Americans. Did you know that the Pilgrims owed a great deal of their agricultural accomplishments and survival to agricultural education? Squanto, a Native American translator, assisted the Pilgrims after their first winter in the New World. Squanto taught the Pilgrims how to fish and use the fish to fertilize the soil so that the crops would grow. This was most likely the first recorded instance of agricultural education in what is now the United States.

SAE and Agricultural Education

A supervised agricultural experience (SAE) is one of the three primary components of agricultural education, **Figure 2-1**. A ***supervised agricultural experience (SAE)*** is a student-developed project that involves hands-on learning in agriculture and natural resources. FFA and classroom instruction are the other two components of the agricultural education program.

Supervised agricultural experiences benefit students by allowing them to:

- Gain work experience.
- Explore agricultural industry careers.
- Develop skills in personal and financial recordkeeping.
- Experience differentiated and individualized instruction.
- Take part in community service.



Goodheart-Willcox Publisher

Figure 2-1. The three interlocking circles represent the integral parts of the agricultural education program, which include SAE, FFA, and classroom instruction.

SAEs are one of the most powerful educational tools of the agricultural education program. Students control their personal agricultural education experience and the outcome of their education. Each SAE is tailored to meet the specific objectives of each student.

SAE History

"Don't judge each day by the harvest you reap, but by the seeds that you plant."
—Robert Louis Stevenson

Near the time of the Civil War, Abraham Lincoln and the legislature passed the Morrill Act of 1862. This legislation established land-grant universities in every state of the United States. These institutions were founded to ensure agriculture was researched, studied, taught, and available to all American citizens. The Hatch Act of 1887 built upon the Morrill Act and established agricultural experiment stations. These stations acted as catalysts for agricultural education in public schools.

In the early 1900s, boys on farms across America practiced experiential learning. Agricultural students lived on farms and ranches and completed "home projects" that were entrepreneurial in nature and involved crops, livestock, and poultry. Student gardening was also encouraged in schools around the country and teachers used gardening as a medium for education.

Horticultural practices were also linked to consumer and family sciences. Girls' tomato canning clubs began to emerge, **Figure 2-2**. Club members were called "Tomato Club Girls," and ranged in ages from 10 to 20 years old.

USDA/National Archives and Records Administration

Figure 2-2. A canning club from 1925. Young girls were taught how to grow and preserve tomatoes. The club members sold their fresh tomatoes and preserves to earn money. Have you ever preserved fresh fruits or vegetables?

Corner Question

How many land grant universities are in the United States?

Each girl cultivated one-tenth of an acre of tomatoes and sold the fruit to community members. The girls also canned any additional fruit for later use. The Tomato Club Girls recorded data about their cultivation and yields into reports. These reports included hand illustrations and photographs, much like the reports that would be used for later supervised agricultural experiences.

In 1917, the Smith-Hughes Act, formally named the National Vocational Education Act, established the nation's first vocational education programs. The Smith-Hughes legislation funded agriculture courses in high schools. Section 10 of the Smith-Hughes Act reads, "…that such schools shall provide for directed or supervised practice in agriculture, either on a farm provided for by the school or other farm, for at least six months per year."

The Smith-Hughes Act determined that supervised agricultural education was an integral part of the agricultural education program. Since 1917, the home-based projects have evolved into today's SAE. SAEs can involve entrepreneurship, analytical or research-based scientific experiments, and agricultural community service. As schools and student populations change, the SAE progresses to meet the needs of its school, students, community, and the agricultural industry.

"The land-grant university system is being built on behalf of the people, who have invested in these public universities their hopes, their support, and their confidence."
—Abraham Lincoln

SAE Purpose

The SAE aids learning outside regularly scheduled classroom sessions. *Supervised* means that the teacher and partners in the SAE should help direct the students. *Agricultural* indicates that the experience involves the food, fiber, and fuel industries. *Experience* is everything that is observed and completed. Together these make up the SAE program, which includes project plans, activities, experiences, and records.

SAEs also provide an opportunity for communities to contribute to students' educational experiences. Working with parents, teachers, employers, and community members offers students the opportunity to build partnerships. These partnerships may involve a local farmer allotting land for a student experiment, a horticulturist employing a student for seasonal work, a parent purchasing materials to install a pond at home, or a teacher making room in the school's greenhouse for a new aquaculture operation, **Figure 2-3**. All these examples are forms of partnerships between adults and students. In a productive SAE, the project must be driven by the student—not the parent, teacher, or member of the community with whom they have a partnership.

stoonn/Shutterstock.com

Figure 2-3. An aquaculture operation can make a good SAE project if you have the space for such an installation. Is there space in your school's greenhouse to set up an aquaculture operation?

Throughout the course of the SAE process, you will gain valuable life skills and develop good work habits. These life skills will help you succeed throughout your formal education and compete in your future career.

Some of the skills and habits you will develop through your SAE projects include:

- Problem solving.
- Analysis.
- Informational literacy.
- Recordkeeping.
- Following instructions.
- Personal habits.
- Work habits.
- Interpersonal relationships.
- Communication.
- Leadership.

Types of SAEs

An important part of your SAE is that it allows you to create your own learning experience. You can decide which activities to include as part of your overall objective. The six types of SAE are entrepreneurship, placement, research and experimentation, exploratory, improvement, and supplemental. You may also include an enterprise, scientific literacy, career discovery, community service, or agricultural skill enhancement in your SAE.

"When everything seems to be going against you, remember that the airplane takes off against the wind, not with it."
—Henry Ford

Entrepreneurship SAE

An ***entrepreneurship SAE*** is a hands-on learning project in which you operate a business and are responsible for all financial risks, **Figure 2-4**. This type of SAE allows you to own, operate, and manage a business in a professional and, hopefully, profitable manner. This type of SAE also gives you the opportunity to earn money while enhancing your agricultural education.

Entrepreneurship SAEs

Animal	Agribusiness	Crop	Natural Resources
Aquaculture production	Animal boarding and care	Agronomic production	Compost production
Bee production	Animal feed service	Christmas tree production	Soil, water, and air conservation
Livestock production	Artificial insemination services	Floriculture production	Vermicompost production
Poultry production	Custom farm work	Forestry production	
Small animal production	Erosion control services	Fruit production	
	Garden service	Herb production	
	Large engine service	Mushroom production	
	Lawn service	Nursery production	
	Small engine service	Sod/Turfgrass production	
		Vegetable production	

Goodheart-Willcox Publisher

Figure 2-4. There are any number of projects that would qualify as an entrepreneurship SAE. If you decide to have an entrepreneurship SAE, you will own and operate the business while assuming all financial risks. How would you determine if there is a market for your products or services?

Thinking Green

Biodiesel

Biodiesel is a fuel manufactured from plants or animal fats that is a sustainable alternative to fossil fuels. Using biodiesel or a blend of biodiesel and conventional diesel fuel has several environmental benefits:

- It reduces greenhouse gas emissions because biodiesel produces less sulfur and carbon dioxide emissions than conventional diesel fuel.
- The emissions from biodiesel may be offset by the carbon dioxide absorbed by the plants grown to produce the fuel.
- Biodiesel produced from waste oils and animal fats prevents these materials from reaching landfills.
- It can be grown, produced, and distributed locally. This reduces transportation costs and the emissions and energy consumption associated with fuel transport.
- Biodiesel has an incredibly low toxicity. According to the EPA, biodiesel is less toxic than table salt and it biodegrades as quickly as sugar.
- As biodiesel production becomes less costly and more readily available, it will help reduce our dependence on fossil fuels.

chiqui/Shutterstock.com

Please note: *Biodiesel is available at gas stations around the country and can be used in most vehicles with little or no fuel system alterations. However, it is important to refer to your owner's manual or contact the manufacturer to ensure the use of biodiesel will not damage your vehicle or void its warranty. Also note that oils used to produce biodiesel must be processed before use as a fuel.*

In an entrepreneurship SAE, you may choose to manage a business in any area of the agriculture and natural resources industry. Examples of business activities are described below.

- **The production of crops for food, fiber, or beauty.** You may choose to become a producer and distributor of ***microgreens*** (recently germinated plants that are edible and used for food), shear alpacas for their fiber, or develop a cut flower business.
- **Raising livestock or poultry for meat and/or eggs.** You may choose to raise the animals conventionally or organically and develop a niche market product.
- **Converting diesel engines to operate on biodiesel.** ***Biodiesel*** is a type of fuel made from materials such as vegetable oils or animal fats. You could rebuild old diesel engines and modify them to work on biodiesel and then sell them for a profit.
- **Composting food and landscaping waste to produce soil amendments.** You may choose to start a worm composting venture and gather food scraps from local cafeterias or restaurants to feed the worms. ***Vermicompost*** is a type of compost in which worms, microbes, and bacteria turn organic matter into fertilizer that can be sold and used as a soil amendment, **Figure 2-5**.

wawritto/Shutterstock.com

Figure 2-5. Vermicompost and the worms used to create it can be sold. What types of organic matter should be used to feed the worms? What types should *not* be used?

Although most entrepreneurship SAEs involve raising and selling an agricultural commodity, it is not the only way to have an agribusiness venture. If you do not want to raise and sell an agricultural commodity but would like to have an entrepreneurship SAE, you could have an agribusiness in which you act only as the buyer and seller. In this type of SAE, you would purchase agricultural commodities and sell them for a profit. The commodities could include animals, animal products, crops, or services.

Corner Question

What is the difference between free-range hens and cage-free hens?

Placement SAE

A ***placement SAE*** is a hands-on learning project in which you have a paid or unpaid internship in the agriculture and natural resources industry. It may also be referred to as an *internship SAE*. A placement SAE provides an opportunity to work for someone and gain experience and knowledge. Recordkeeping for a placement SAE includes tracking the number of hours worked, the amount of income earned, expenses incurred, and the skills acquired. A placement could take place after school, on weekends, or during a school break. Regardless of whether or not you are paid for your placement SAE, the experience of learning from someone else is always valuable.

"The only way to do great work is to love what you do."
—Steve Jobs

A placement SAE could take place at a number of facilities such as a(n):

- Farm or ranch.
- Greenhouse or nursery.
- Agricultural company.
- Veterinary hospital or boarding facility.
- Florist.
- Pet store.
- Cooperative extension service, USDA, farm service, or forest service.
- Laboratory.

All these locations have professionals who are willing to help you gain skills that can be used for the rest of your life. Identify agricultural businesses in your community and consider contacting them for employment. If you have trouble compiling a list, consult with your teacher or search your state's department of agriculture website for agricultural businesses near you.

Once you have identified a possible placement site, you should let your teacher and parents or guardians know your intentions to pursue this as a site of employment. Your teacher will most likely give you what is called a ***training agreement*** or ***training plan***, **Figure 2-6**. This document is created by your teacher or state FFA to help guide you through the placement process. The training plan is a signed contract that helps you, your teacher, your parents or guardians, and the employers understand the objectives and goals of the SAE placement. You must discuss the expectations, wages or volunteer status, and a list of learning objectives with all parties involved in order to complete the training agreement. Once this document is filled out, the employer may continue with the interviewing and hiring process.

SAE Training Plan Placement (Internship)

Student Name: _____
Last First Middle
Date of Birth: _____/_____/_____ Phone Number: (_____) _____- _____
Student Address: _____
Street City Zip
Name of Placement (Employer): _____
Name of Supervisor: _____
Employer Address: _____
Street City Zip
Employer Telephone: _____
Starting Date of Employment: _____/_____/_____ Ending Date of Employment: _____/_____/_____

Initial Meetings with Employer, Advisor, and Student

Interview Date: _____/_____/_____
Wages:
Expectations of Employer (Date: _____/_____/_____):
Expectations of Student (Date: _____/_____/_____):
Expectations of Advisor (Date: _____/_____/_____):

1. Be timely
2. Be courteous
3. Ask questions

Student's Goals for Internship (Date: _____/_____/_____):

1.
2.
3.

Student's Objectives (Date: _____/_____/_____):

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

_____ Date _____/_____/_____
Student Signature
_____ Date _____/_____/_____
Advisor Signature
_____ Date _____/_____/_____
Employer Signature

Goodheart-Willcox Publisher

Figure 2-6. Your training agreement is a useful tool for keeping your SAE on track.

Career Connection

Bee Keeping

You can raise bees and rent their hives to landowners for pollination services. ***Apiculturists*** (people who study and maintain bees) are paid to bring the bees to the site and maintain the hives. Farmers can negotiate for honey, or the honey can be gathered solely by the apiculturist. Bees flourish, crops are pollinated, and honey is produced. Everyone wins with this green venture. It is best to learn from an experienced apiculturist. Find one near you, and you could have a great placement SAE.

Steve Oehlenschlager/Shutterstock.com

Your teacher may offer an opportunity for SAE placement. An ***agriscience internship*** is a job placement working in the school's agricultural education program, **Figure 2-7**. This type of placement SAE exposes you to the professional duties of an agricultural education teacher. In this program, you may help take care of the classroom, laboratory, greenhouse, garden, and animal facilities. Your teacher works with you to help you develop the skills needed to be an exemplary agriculture teacher. You may work before school, during free periods, or after school to complete your tasks. You may also have the opportunity to present a lesson or work with younger students to learn and practice presentation and teaching skills.

USDA/Alice Welch

Figure 2-7. Some schools allow students to work as interns to fulfill their agriscience internship. What types of intern positions does your school offer?

"Experience is the past tense of experiment."
—Gregory Alan Elliot

Thinking Green

Efficiently Tracking Your SAE Hours

Although modern chargers are designed to draw little or no power when your phone or tablet are not connected and charging, some still use a standby mode that draws a small amount of power. This small amount of power is often referred to as a *parasitic drain*. If you are using a phone or tablet to track your SAE hours, you can conserve energy by unplugging your phone, tablet, or computer cords when your device is not being charged.

Unplugging the cords may save between 10 to 15 cents per cord per month. This may not seem significant, but imagine how much energy could be saved on a daily basis if you and your friends and neighbors all made it a habit to unplug cords when they are not in use. Every little savings counts, and together they can add up to a substantial amount of energy savings.

Take your energy savings a step further and investigate other devices in your home that may be needlessly draining energy. How can you reduce or eliminate parasitic drain in your home?

A *Kaponia Aliaksei/Shutterstock.com*

B *Chris Hill/Shutterstock.com*

Figure 2-8. A—Researching and determining what the best type of wood to make a skateboard is qualifies as agriscience research. B—Another project that qualifies as agriscience research is determining what type of grass should be used for a lacrosse field and/or performing experiments to see what improves the field's conditions.

Research and Experimentation SAE

Have you ever wondered what type of wood is best for manufacturing a longboard skateboard or what type of turf is best for playing lacrosse? Are you are interested in the role moon cycles play in the reproduction rates of insects or the impact of certain chemicals on plant growth? Would you like to determine the best way to market your school's plants or livestock? The answers to these questions can be answered through agricultural research and could all qualify as a research and experimentation SAE. A ***research and experimentation SAE*** is a hands-on learning project in which you conduct research or use the scientific method to solve a problem related to agriculture, **Figure 2-8**.

Are you a curious person? Do you have questions that need answers? Do you find yourself searching the Internet looking for facts to prove your friends wrong? If you answered yes to one of these questions, then research and experimentation is your SAE answer. Scientific experimentation requires you to pose a question followed by research and/or experiments. You must record data, analyze the information, and illustrate conclusions and recommendations for future experiments similar to what was performed.

A research and experimentation SAE may also be used as the basis for an FFA Agriscience Fair project. Agriscience fairs are held at local, state, and national levels and qualifying projects compete at the National FFA Convention each fall. The FFA recognizes students who are studying scientific principles and technologies while conducting research projects. Some student experiments may prove enough validity or stir enough interest that professionals in the agricultural industry or academia may further the study.

Agricultural research and experimentation can take place anywhere. Research can be conducted at schools, homes, farms, jobs, or research facilities in industry. This original research can be another way to build partnerships in the community. Scientists at your high school, local businesses, or colleges and universities may be willing to mentor you as you do this research and help you find the equipment and facility you need.

Acquiring research skills is important for many careers. Employers look for individuals who are able to do research, solve problems, and think critically while on the job.

Corner Question

Who was one of the founding scientists of plant genetics?

FFA Connection Agriscience Fair Categories

There are six major FFA Agriscience Fair Categories from which to choose:

- **Animal Systems (AS)**—Projects in this category include the study of life processes, health, nutrition, genetics, management, and processing. Subjects may include the study of small animals, livestock, dairy, equines, aquaculture, and poultry.
- **Environmental Services/Natural Resource Systems (ENR)**—Projects in this category include the study of systems, instruments, and technology used in waste management; and the study of the management of soil, water, wildlife, forests, and air as natural resources and their influence on the environment.
- **Food Products and Processing Systems (FPP)**—Projects in this category include the study of product development, quality assurance, food safety, production, sales and service, regulation and compliance, and food service within the food science industry.
- **Plant Systems (PS)**—Projects in this category include the study of plant life cycles, classifications, functions, structures, reproduction, media, and nutrients, as well as growth and cultural practices, through the study of crops, turf grass, trees and shrubs and/or ornamental plants.
- **Power, Structural, and Technical Systems (PST)**—Projects in this category include the study of agricultural equipment, power systems, alternative fuel sources, and precision technology, as well as woodworking, metalworking, welding, and project planning for agricultural structures.
- **Social Systems (SS)**—Projects in this category include the study of human behavior and the interaction of individuals in and to society, including agricultural education, agribusiness economic, agricultural communication, agricultural leadership, and other social science applications in agriculture, food, and natural resources.

Visit the National FFA Organization's website for more information and ideas for your agriscience fair project.

USDA

Figure 2-9. With an exploratory SAE, students can explore careers, such as a green roof technician. What types of plants would thrive in a rooftop garden?

Exploratory SAE

The ***exploratory SAE*** is a hands-on learning project in which you explore agricultural careers and subjects. You may investigate topics in agriculture by job shadowing and gathering information through reading and viewing experiences. This SAE will help you gain agricultural literacy. ***Agricultural literacy*** is having the knowledge necessary to synthesize, analyze, and communicate basic information about agriculture.

Exploratory SAEs are best for students who wish to gain an overall understanding or appreciation of the agriculture and natural resources industry, **Figure 2-9**. An exploratory SAE will give you a sample of the many aspects of agriculture. This can be accomplished through experiencing an agricultural festival or fair, visiting an agricultural or scientific museum, or traveling to a farm or ranch.

Exploratory SAEs also provide career exploration. ***Career exploration*** is the investigation of occupations. An exploratory SAE will allow you to job shadow or spend time with professionals while they work. You will see what the professional does and thus better determine whether the career interests you and whether you would like to continue studying the occupation. You may also decide that the job is not one you want to pursue.

dvande/Shutterstock.com

Figure 2-10. Fixing up an old tractor is an improvement SAE. You could use the tractor for work, or you could sell it and use the proceeds to fund another SAE.

Improvement SAE

An ***improvement SAE*** is a hands-on learning project in which you take something related to agriculture and improve it. Creating a new landscape, installing fencing around a garden, building a trail at a local park, assembling compost bins, or organizing financial records of a local business are all examples of improvement SAEs. An improvement SAE encompasses completing a series of steps to finalize a task. This process can take several hours to several days, weeks, or months to complete. Completing an improvement SAE will help you achieve a sense of accomplishment.

You may have a project in mind but do not have the incentive or know-how to complete it. Maybe there is an old tractor on your property or someone has one nearby, **Figure 2-10**.

You could do some research or enlist the help of someone knowledgeable to refurbish the tractor. There may be a park in your neighborhood that is full of trash and has equipment that needs repair. You could rally support from the community and renovate the park to make it beautiful and useful for the neighborhood.

An improvement SAE is a wonderful way to incorporate service learning into your experience. ***Service learning*** is a strategy that integrates community service with instruction and reflection to enrich the learning experience, teach civic responsibility, and strengthen communities. It is also referred to as *community engagement*.

"Without continual growth and progress, such words as improvement, achievement, and success have no meaning."
—Benjamin Franklin

Supplemental SAE

A ***supplemental SAE*** is a hands-on learning project that enhances agricultural skills and knowledge and takes less than eight hours to complete. This type of SAE (also called supplementary) is normally taught in agricultural education classes and, like other SAEs, involves learning by doing. This project is not related to your main SAE, but is an addition to your overall learning program, **Figure 2-11**.

The content of supplemental SAEs is defined by what is taught in your agricultural education program. Supplemental SAEs could include repairing a fence or gate of a pasture or garden, changing the oil on a piece of equipment, grafting tomatoes, or using a piece of landscaping or farm equipment. It is important to record the hours and understand their impact on the general SAE program. Several supplemental SAEs may be accomplished during the course of an SAE program.

Saklakova/Shutterstock.com

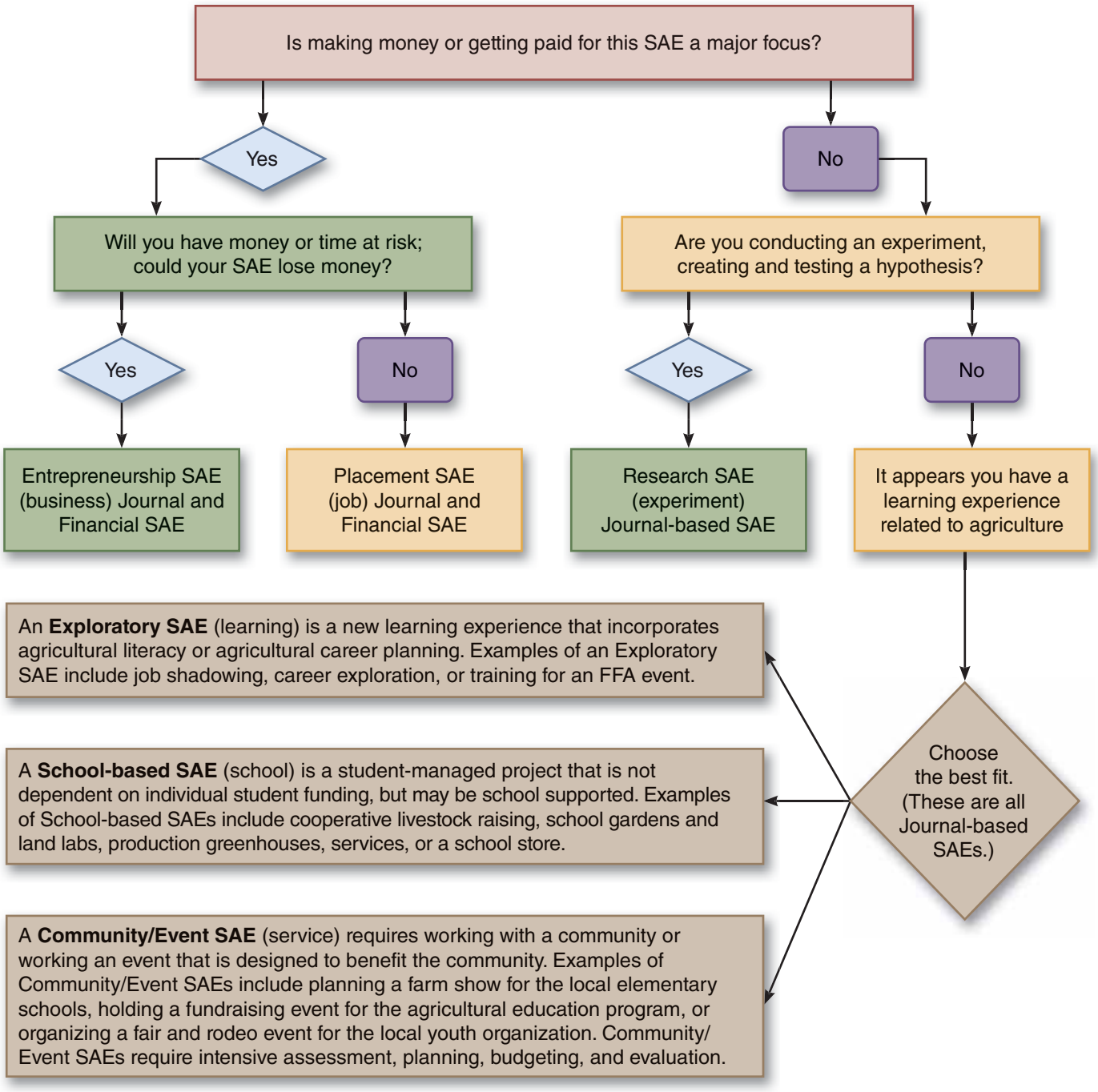
Figure 2-11. Building or staining a fence qualifies as a supplemental SAE. What types of community-based activities would qualify as a supplemental SAE?

The SAE Program Process

When you are first introduced to the SAE program, it can seem overwhelming. Figuring out what an SAE is, understanding the different types of SAEs, trying to determine the top SAE choice for you, taking photos, and understanding finances may seem to be too much for one project. The SAE project may seem more manageable if you look at it as a series of steps. Start by investigating possible SAEs, **Figure 2-12**. Then move to the planning step, thinking about your goals and resources. Consider how you will coordinate your activities with teachers, parents or guardians, and sponsors or employers. Explore methods for keeping records and documenting your experiences. Later on, consider applying for awards. Each of these steps is discussed in more detail in this chapter.

Corner Question

Can tomatoes and potatoes grow on the same plant?



Roger Hanagriff, The AET Record Book

Figure 2-12. If you are having difficulty deciding on an SAE, this decision tree can help you. To use the decision tree, begin answering the questions from the top down and follow the arrows. Complete this exercise for each of your SAE project ideas.

Think about each step separately and plan time to focus on your SAE. You may choose to work on your SAE one day per week or maybe devote a few hours every day to the project. Remember that there is not just one type of project that fits the needs of every student. SAEs can work with everyone's schedule and everyone can have a successful SAE. Make the SAE work for you. Whether you live on a farm or in an apartment, you can develop an SAE to fit your needs.

FFA Connection Agricultural Communications CDE

The National FFA Agricultural Communications CDE is an event that tests students' skills in all areas of the agricultural communications field. It assesses how well students relate classroom knowledge to relative situations. Participants join a replicated news conference and apply the information collected to complete individual practicums in writing, electronic media, and design. Before the event, students gather media plans related to pioneering agricultural practices, management techniques, and marketing instruments. Each team then produces a 15-minute presentation based on their application. Members also participate in an editing exercise and a general communications quiz.

USDA/Bob Nichols

Investigate

"In much of society, research means to investigate something you do not know or understand."
—Neil Armstrong

One of the most crucial steps of the SAE process is the exploration of the project as a whole. What types of SAE projects are out there? What is best for you? Which project will fit your personality and lifestyle?

The first step is to determine your agricultural interests, **Figure 2-13**. No matter who you are, there is something in the agriculture and natural resources industry that can connect to your interests. For your SAE project to be enjoyable and worthy of your time, you must be interested and have a genuine investment in the project. An interest survey can help you to explore your likes and dislikes and what you find appealing.

Complete a ***student interest survey***, a questionnaire that will help you identify your interests in agricultural education and the SAE project that would be best suited for you, **Figure 2-14**. Once you have identified your interests, then you can explore the projects that align with your needs as an agricultural education student and as an individual.

USDA

Figure 2-13. Are you interested in forestry? This student is using an increment borer to further investigate a tree for her forestry SAE project. She is considering a career in forestry and is interested in this plant science. This SAE project will help mold her future career aspirations.

Student Interest Survey			
General Area	**Focus**	**Level of Interest**	**Level of Experience**
Apiculture (beekeeping)	Honey		
Apiculture (beekeeping)	Hive rental		
Aquaculture (fish)	Hatchery		
Aquaculture (fish)	Harvest		
Aquaculture (plants)	Stock production		
Aquaculture (plants)	Harvest/sell		
Beef cattle	Showing		
Beef cattle	Meat production		
Chickens (broilers)	Meat production		
Chickens (layers)	Egg production		
Companion animals	Breeding		
Companion animals	Service (grooming, walking, daycare)		
Dairy cattle	Showing		
Dairy cattle	Milk and milk byproduct production		
Equine	Showing		
Equine	Breeding		
Equine	Training		
Floral design	Arranging/selling		
Flower gardens	Installation and maintenance		
Fruit trees	Planting/grafting		
Fruit trees	Harvesting/selling		
Goats	Showing		
Goats	Meat production		
Goats	Milk and milk byproduct production		
Greenhouse production	Produce		
Greenhouse production	Ornamental		
Landscaping	Installation/maintenance		
Lawn care	Maintenance		
Marketing/selling	Products or services		
Mechanics	Refurbishing/maintenance		

(Continued)

Goodheart-Willcox Publisher

Figure 2-14. Your teacher may provide you with a student interest survey or direct you to an online version. Would this type of survey help you decide which college or university is right for you?

Student Interest Survey *(Figure 2-14, continued)*			
Nontraditional animal production	Meat production		
Nontraditional animal production	Byproduct production		
Recordkeeping	Financial or other data		
Sheep	Showing/breeding		
Sheep	Meat or milk production		
Small animal production (cavies)	Breeding/selling		
Soils	Testing/improvement		
Swine	Showing/breeding		
Swine	Meat production		
Tree production	Planting/grafting		
Turkeys	Meat/egg production		
Vegetable gardening	Selling/canning		
Welding	Construction/repair service		
Woodworking	Designing/building/repairing		
1. Using the numbers 1–4, rate the above areas by your level of interest. (1 for no interest, 4 for highly interested)			
2. Using the numbers 1–4, rate your level of experience in each area. (1 for no experience, 4 for extensive experience)			
Take your top five areas of interest and look into possible SAE projects.			

There are eight divisions or systems of the agriculture and natural resources industry that can be explored by the SAE project. As illustrated in the student interest survey, plants, animals, environmental systems, natural resources, agricultural leadership, agribusiness, power systems, and food systems all provide opportunities for further study. Once you have determined which of the eight systems best matches your interests, you can begin to plan your SAE project.

Plan

Once you have identified an SAE area that matches your interests, you may begin to plan for SAE success. One of the first elements to determine is what resources you have available.

Did You Know?

According to the National Gardening Association, 43 million Americans garden for food in the United States. Food gardening households spend five hours a week tending to their gardens.

Student Resources Inventory

An SAE ***student resources inventory*** is a questionnaire that will help you identify the tools and supplies that you have or can use for an SAE. The questionnaire includes information about your home, school, work opportunities, and community resources, **Figure 2-15**. Once the SAE student resources inventory is completed, you can see what you have and what you will need to begin and complete your SAE project.

SAE Resources Inventory			
Resource	**Level of Availability**	**Location/ownership**	**Need to Purchase**
Academic eligibility			
Arable land			
Family support			
Farm equipment			
Feed (grains, hay)			
Financing			
Garden plot			
Gardening tools			
Hand tools			
Implement trailer			
Livestock facilities			
Livestock trailer			
Mentor			
Positive attitude			
Power tools			
Seedstock			
Time			
Transportation			
Vehicle			
Wood or other construction supplies			
Work ethic			
Workshop			
Questions to Consider			
Crop Production. Is land available for you to rent or use for crop production? Who owns the land? How many acres are available? Where is the land located? Will you be able to use the owner's equipment? Do you need insurance?			
Livestock Production. Are facilities available for you to rent or use to produce livestock? Who owns the facilities? How much space is available? Where are the facilities located? Do you need insurance?			
Gardening. Do you have space for a garden? Who owns the property? Will the land need to be prepared?			
Indicate the availability of each resource (home, from a friend or relative, need to purchase). Rate the availability of resources to conduct your SAE program. (1 for available, 2 for limited availability, 3 for not available)			

Goodheart-Willcox Publisher

Figure 2-15. Review the SAE resources inventory example illustrated here. Can you think of additional questions or areas of concern?

Thinking Green

Steps to Sustainability

You can make SMART goals to help the environment. For example, your SMART goal could be to decrease your use of plastics. This goal could be accomplished by using a reusable water bottle 100% of the time for this year.

How much of an impact would this simple change have on the environment? Currently, only one of every six water bottles we use makes it to the recycling bin. Where do you think the other five bottles end up?

Vladimir Gjorgiev/Shutterstock.com

Goals

Now that you have identified your resources, you can begin making a list of goals for your SAE project. Creating a goal can be easy, but it must be SMART. As you learned in chapter one, a SMART goal is an objective that is specific, measureable, attainable, realistic, and timely. An example goal would be, "I will provide 20 hours of community service at the homeless shelter by the end of this school year." This goal is definitive, and you can easily determine whether or not you accomplish this goal.

For your SAE project, work with your agricultural education teacher to come up with a set of SMART goals specific to your project. Depending on your project and your agricultural education program at your school, your teacher may ask you to write three to five goals for a semester, year, or the entire course of your project, **Figure 2-16**. Review these goals often to help you stay on track and work toward achieving them.

"A goal is not always meant to be reached, it often serves simply as something to aim at."
—Bruce Lee

Coordinate

Although you are the person planning the SAE, setting the goals, and doing the work for the project, several other people may have a role in your SAE. You must coordinate communication among several people for your SAE project. These people may include:

- Teachers.
- Employers or customers.
- Parents or guardians.
- Other individuals who have an interest in your SAE project.

USDA/Bob Nichols

Figure 2-16. A student, such as an FFA officer, may have a goal of giving a speech to an audience. This student, a graduating senior at the Chicago High School for Agricultural Science, gave a speech at her graduation.

Corner Question

What is the oldest calendar?

Thinking Green

Reusing Calendars

Calendars can be reused. Every so often, calendar dates are replicated. You can save calendars and use them again.

2017:	2006	1995	1989	1978	1967	1961	1950	1939	1933	1922	1911	1905	
2018:	2007	2001	1990	1979	1973	1962	1951	1945	1934	1923	1917	1906	1900
2019:	2013	2002	1991	1985	1974	1963	1957	1946	1935	1929	1918	1907	1901

tukkata/Shutterstock.com

Figure 2-17. Keeping track of dates is essential for your SAE project. How will you track dates and other important information for your SAE project?

You may decide to communicate by making a phone call, sending a text or e-mail message, or talking with others in person. Take time to read and reread texts or e-mail messages before you send them. It is never a good idea to rely on the autocorrect feature and hope that software will catch all your mistakes. You do not want to find yourself in a strange situation with an adult, employer, or customer because of a strange text that you sent. Be aware that not all individuals communicate by texts or e-mails. Ask the adults that you are working with which method of communication they prefer.

Communicating schedules, dates, and times accurately is important, **Figure 2-17**. You need to be aware of deadlines, and members of your SAE team may need to know them as well. Consider using shared calendars on the Internet or sending a copy of your calendar for partners in your SAE project.

Did You Know?

The earliest form of human speech took place more than 100,000 years ago.

"Whatever words we utter should be chosen with care for people will hear them and be influenced by them for good or ill."
—Buddha

Keep Records

A record is something that gives information or evidence about the past. Records have value for historical, legal, financial, or other reasons. You will need to keep records during your school years and later as an adult. School transcripts, contracts for loans for college, paychecks, bank account statements, tax returns, bills, and receipts are examples of records you may need to keep. As you create and receive more records, you will need to develop a system for managing all this data.

One of your goals for the SAE project should be to develop an effective system for recordkeeping. During your SAE project, your agricultural education teacher may require you to use a specific method of recordkeeping. Teachers often use online systems for records or may have software for records designed for their specific school. Some schools may still use notebooks, pen, and paper for records. No matter what your method, a major part of the SAE project is keeping records.

Thinking Green

Saving Power with Computers

Most new computers come with a sleep mode or power management feature. ENERGY STARÒ, a government program that rates appliances for energy efficiency, estimates that using these features will keep an extra $30 a year in your wallet. Make sure you have the power-down feature set up on your PC through your operating system software. Power management features are not usually enabled when a computer is purchased and must be enabled by the user.

Did You Know?

Nearly 900 million personal computers and 4 million cell phones are in use in the world.

Some of the information that you will record will be:

- Dates and hours for work completed.
- Journal of what was done for the SAE.
- Finance data.
- Inventory data.
- SAE training agreements with partner signatures.
- Goals achieved and lessons learned.
- Photographs, **Figure 2-18**.
- Receipts.

mallory_mcdevitt1/USDA

Figure 2-18. A student grows organic crops on her one-acre farm in Ohio for her SAE project. She must keep accurate photos and records for her SAE project.

Record your SAE activities immediately after you do something so that you do not forget any piece of information. Many schools are now using The Agricultural Experience Tracker (AET) program. This software allows students to enter data, photographs, and information about FFA activities. The AET is just one example of recordkeeping systems. It can be accessed by computer or mobile device for easy SAE recordkeeping. Students learn a number of skills through work with the SAE that will help them later in life, and recordkeeping is definitely one of them.

Safety Note

Texting While Driving

When using a mobile device to upload pictures into an SAE software or recordkeeping system, it is important to only do so when appropriate and safe. Never use a mobile device while driving or operating other equipment.

SAE Awards and Recognitions

Once your SAE takes flight then you can begin to apply for awards and recognition.

Agricultural Proficiency Awards

An ***Agricultural Proficiency Award*** is a prize or recognition given for an exemplary SAE project, **Figure 2-19**. Planning to apply for these awards can aid in defining the focus of SAE projects, establishing goals, and compiling or maintaining records for award applications. These awards can be in the form of plaques, cash, or trips to places around the world.

Proficiency Awards

Agricultural Communications
Agricultural Education
Agricultural Mechanics Design and Fabrication
Agricultural Mechanics Energy Systems
Agricultural Mechanics Repair and Maintenance—Entrepreneurship
Agricultural Mechanics Repair and Maintenance—Placement
Agricultural Processing
Agricultural Sales—Entrepreneurship
Agricultural Sales—Placement
Agricultural Services
Agriscience Research—Animal Systems
Agriscience Research—Integrated Systems
Agriscience Research—Plant Systems
Beef Production—Entrepreneurship
Beef Production—Placement
Dairy Production—Entrepreneurship
Dairy Production—Placement
Diversified Agricultural Production
Diversified Crop Production—Entrepreneurship
Diversified Crop Production—Placement
Diversified Horticulture
Diversified Livestock Production
Emerging Agricultural Technology
Environmental Science and Natural Resources
Equine Science—Entrepreneurship
Equine Science—Placement
Fiber and/or Oil Crop Production
Food Science and Technology
Forage Production
Forest Management and Products
Fruit Production
Goat Production
Grain Production—Entrepreneurship
Grain Production—Placement
Home and/or Community Development
Landscape Management
Nursery Operations
Outdoor Recreation
Poultry Production
Sheep Production
Small Animal Production and Care
Specialty Animal Production
Specialty Crop Production
Swine Production—Entrepreneurship
Swine Production—Placement
Turf Grass Management
Vegetable Production
Veterinary Science
Wildlife Production and Management

National FFA Organization

Figure 2-19. One of the most common goals for SAE projects is to use them to compete and win a proficiency award. Proficiency awards are given to members that excel in their SAE programs. The list of official proficiency award areas changes on an annual basis, but the list above can be used as a guideline for determining which proficiency category might be right for you.

Agricultural Proficiency Awards are available to FFA members in good standing who are enrolled in an agricultural education program and have an SAE project.

There are four categories of SAE programs and nearly 50 proficiency award application areas. The four categories of SAE programs are:

- **Exploratory**—gain agricultural literacy and career knowledge in agriculture and natural resources.
- **Agriscience research and experimentation**—plan and conduct scientific experiments or investigate a question (includes qualitative, quantitative, experimental, descriptive, and quasi-experimental research).
- **Entrepreneurship**—operate your own enterprise.
- **Placement**—work for an agriculture or natural resource business or individual (paid or unpaid).

When applying for the proficiency award recognition, the focus (categories) will determine the correct proficiency award area in which to apply. Read about the proficiency award areas on the National FFA Organization website and check with your FFA advisor or state FFA to determine when proficiency award applications are due.

Star Awards

Star Awards are prizes and recognitions given to those students who have exemplary SAE projects and are earning an FFA degree. The National FFA Organization recognizes FFA members who participate in all facets of FFA. Students are recognized as "stars" because of their dedication and exemplary work in all areas of the agricultural education program. Star Awards at the chapter level are distributed at chapter banquets or awards assemblies and are accompanied by a plaque or medal. These awards include:

- **Star Discovery Award.** A student who is in seventh or eighth grade can be awarded the Discovery Degree and the Star Discovery Award. This member demonstrates outstanding leadership.
- **Star Greenhand**. A student who qualifies for the Greenhand degree and has a strong SAE program while also demonstrating superior leadership may be awarded the Star Greenhand, **Figure 2-20**.
- **Chapter Star Farmer.** The student with the best production agriculture SAE and FFA commitment may be awarded the Chapter Star Farmer.
- **Chapter Star in Agricultural Placement.** A student with an outstanding placement SAE may be awarded the Chapter Star in Agricultural Placement.
- **Chapter Star in Agriscience.** A student who has an outstanding SAE in the area of natural resources or agriscience and who is an active member of the FFA may be awarded the Chapter Star in Agriscience.

Jodi Riedel

Figure 2-20. A student who qualifies for the Greenhand degree and has a strong SAE program may also be awarded the Star Greenhand.

The State Star Awards are given to FFA members who are earning the State FFA Degree and an Agricultural Proficiency Award. The State Star Awards include:

- Farmer.
- Agribusiness.
- Agricultural Placement.
- Agriscience.

These awards are presented at the state's FFA convention. Members who earn these prestigious award are also given cash awards.

Each year, sixteen FFA members are recognized for the American Star Awards. The Star Awards that are given to four deserving American Degree award recipients are the highest honor awarded. These awards are given each October at the national FFA convention. The American Star Farmer, Star Agribusiness, Star Agricultural Placement, and Star Agriscience are distinguished awards that are accompanied by $4000 cash awards. Finalists (three runners-up) are given plaques and $2000 each.

Corner Question

How much do FFA members earn annually from their SAE projects?

Thinking Green

Trophy Recycling Program

Every year, trophies, plaques, and medals are thrown into landfills. However, your FFA chapter can make a difference by purchasing refurbished awards or donating old awards. Trophy shops will simply put on new lettering and make the gently used awards seem like new. This results in keeping awards out of landfills and saves resources needed to manufacture new ones.

focal point/Shutterstock.com

Did You Know?

The American FFA Degree recipients earn and productively invest a total of nearly $103 million through their supervised agricultural experience programs each year.

Careers

The agricultural industry is a driving force behind the American economy. More than 18% of Americans have jobs related to agriculture. With more than 23 million Americans working in the food and fiber industry, there is an occupation that can meet the needs of almost any individual. Two of these job positions are discussed in this chapter: agricultural business manager and agricultural inspector.

Agricultural Business Manager

Agricultural business managers supervise the business operations of a farm, ranch, or other production operation by providing leadership during the production process, **Figure 2-21**. From contracting crop insurance to

USDA/Lance Cheung

Figure 2-21. One of a vineyard manager's responsibilities is to put markings on grapevines. What other types of responsibilities does a vineyard manager have?

Career Connection

Alicia Rittenhouse

Vice President and Manager for Strategic Engagement at AmericanHort

Alicia Rittenhouse is the vice president and manager for strategic engagement at AmericanHort. She has a horticultural business degree and focuses on branding and marketing of horticultural businesses. She has worked for AmericanHort since college. AmericanHort's focus is on educating, collaborating, researching, and advocating for the horticulture industry. AmericanHort was founded in 2014 upon the merger of the American Nursery and Landscape Association and the Ohio Florist Association (OFA).

Alicia also plays a major role in the HortScholars program. The program educates and exposes horticulture students to facets of the horticulture industry that are not usually experienced during college coursework. The program focuses on professional development, which includes networking, education sessions, and working with an industry mentor. The program is open to two- and four-year college undergraduate and graduate students. The HortScholars program takes place at an annual conference in Columbus, Ohio, called Cultivate. More than 10,000 horticulturists gather at this convention setting.

As a horticulture enthusiast in college, Alicia travelled to Chile and studied viticulture and was active in her horticulture club. Today, Alicia enjoys building relationships with young horticulturists and professionals in the industry. She has a passion for advocacy of horticulture and uses her leadership skills to promote AmericanHort to the public and the horticulture industry.

selecting crops for the planting season to buying greenhouse equipment, it is their responsibility to certify that the production and distribution of produce, grain, or livestock complies with government and environmental regulations while also making a profit.

Agricultural business managers may have a number of duties, including hiring and supervising workers, preparing a budget, organizing regular maintenance, keeping records, and communicating with potential customers. They usually specialize in crops, horticulture, or livestock and may oversee more than one facility.

Agricultural business managers often have farm experience. However, a person in this position may or may not be from a farming background. Agricultural business managers often continue their education and earn a four-year degree in agricultural business, agronomy, or economics. Completing an internship or apprenticeship with a qualified and experienced farmer provides valuable training for an agricultural business manager.

Agricultural Inspector

Agricultural inspectors ensure that agricultural entities obey all government regulations. These workers may review and audit forestry, fishing, or farming operations to ensure that all products and practices conform to safety and health regulations. Agricultural inspectors are accountable for ensuring meat safety and often review meat at meat-processing facilities, **Figure 2-22**. Agricultural inspectors may also check shipments before they depart or arrive in US ports and cross US borders. Daily duties may include:

- Collecting samples from animals, plants, or products.
- Transporting samples to labs for testing.
- Examining employees working in contact with agricultural products.
- Producing reports on their findings at a particular site.
- Preparing health recommendations to farmers, growers, or authoritative organizations.

There are two ways of preparing to become an agricultural inspector—through education or experience. Agricultural inspectors may have a bachelor's degree in an agricultural science, or they may have relevant work experience combined with some additional course work or training after high school.

USDA/Anson Eaglin

Figure 2-22. A USDA agricultural inspector monitors poultry that is being exported.

CHAPTER 2

Review and Assessment

Chapter Summary

- Experiential (hands-on) learning has been used since the first settlers arrived in what is now the United States. However, it was not until the early 1900s that a formalized standard for agricultural education was put in place.
- The supervised agricultural experience (SAE) program uses hands-on learning in agriculture and natural resources.
- SAEs fall into one of six areas that include entrepreneurship, placement, research and experimentation, exploratory, improvement, or supplemental.
- The SAE process includes investigating SAE opportunities, planning the overall SAE project and experience, coordinating resources, recordkeeping, applying for awards, and sustaining the project through high school or beyond.
- SAE records should be kept throughout the duration of the project and should include all facets of the project, such as money, hours, lessons learned, photographs, and general data related to the project.
- SAE records can be kept through traditional methods or online with computer programs.
- Two types of awards that are available to students for their SAE projects are Agricultural Proficiency Awards and Star Awards. These awards are presented through the chapter, state, and National FFA Organization.

Words to Know

Match the key terms from the chapter to the correct definition.

A. agricultural literacy
B. Agricultural Proficiency Award
C. agriscience internship
D. apiculturist
E. career exploration
F. entrepreneurship SAE
G. exploratory SAE
H. improvement SAE
I. microgreen
J. placement SAE
K. research and experimentation SAE
L. service learning
M. Star Award
N. student interest survey
O. student resources inventory
P. supervised agricultural experience (SAE)
Q. supplemental SAE
R. training agreement
S. vermicompost

1. Having the knowledge necessary to synthesize, analyze, and communicate basic information about agriculture.
2. A job placement working in a school's agricultural education program.
3. A hands-on learning project in which the student makes something related to agriculture better in some manner.
4. A hands-on learning project in which a student has an internship that is paid or unpaid within the agriculture and natural resources industry.
5. A hands-on learning project in which the student operates a business and is responsible for all financial risks.
6. A questionnaire that helps students identify tools, supplies, and other resources they have access to for an SAE project.
7. A signed contract that helps the student, teacher, parents or guardians, and employers understand the objectives and goals of the SAE placement.
8. Prizes and recognitions given to a student who has an exemplary SAE project and is earning an FFA degree.
9. A type of compost in which worms as well as microbes and bacteria are used to turn organic matter into fertilizer.
10. A prize or recognition given by FFA for an exemplary SAE project.
11. The investigation of occupations.
12. A person who studies and maintains bees.
13. A recently germinated plant (sprout) that is edible and used for food.
14. A hands-on learning project in which the student explores agricultural careers and subjects.
15. A strategy that integrates community service with instruction and reflection to enrich the learning experience, teach civic responsibility, and strengthen communities.

16. A hands-on learning project that enhances agricultural skills and knowledge and takes less than eight hours to complete.
17. A hands-on learning project in which the student conducts research or uses the scientific method to solve a problem related to agriculture.
18. A questionnaire that helps a student identify his or her interests in agricultural education and the type of SAE project that would be best suited for that student.
19. A student-developed project that involves hands-on learning in agriculture and natural resources.

Know and Understand

Answer the following questions using the information provided in this chapter.

1. What are the three components of agricultural education?
2. What are five ways in which supervised agricultural experiences provide benefits to students?
3. What three laws discussed in the chapter played a part in establishing agricultural education in today's schools?
4. What is the purpose of a supervised agricultural experience?
5. What are the six types of SAE projects?
6. What is an agriscience internship?
7. Why is career exploration important?
8. What is service learning?
9. What are the steps in the SAE process and how can a student begin an SAE without feeling overwhelmed?
10. What is a SMART goal?
11. What is a record and what are three examples of records most people keep?
12. What are some types of information or records you should keep related to an SAE?
13. Describe how SAE records can be maintained.
14. What are the four categories of SAE programs that can be awarded Agricultural Proficiency Awards?
15. List and describe the Star Awards that can be given at the FFA chapter level.
16. Who may earn a State Star Award and what are the four types of awards at the state level?
17. How much money is given to the National FFA Star Award Winners?
18. How much money is awarded to the National Star Award finalists?
19. What education or training does an agricultural business manager need?
20. What are some of the daily duties of an agricultural inspector and what education or training is needed to be an agricultural inspector?

Thinking Critically

1. A local farm manager has more than 50 employees that speak several different languages. Some of the employees have very limited English proficiency. What could this farm manager do to ensure that all his employees are effectively trained and understand safety and protocol on the farm?
2. Your teacher wants to take a field trip to a local farm. The farm has very strict biosecurity measures and will not allow anyone from a farm to enter the facility for fear that they will contaminate the farm with soil, insects, and diseases from other farms. Three students in your class live on farms. What should your teacher do?

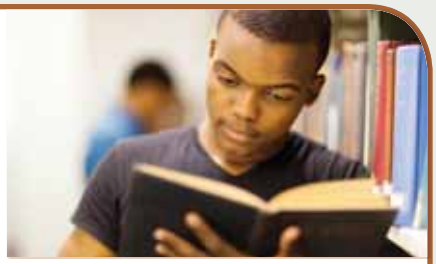
STEM and Academic Activities

1. **Engineering.** You or your teacher should identify one structural problem in your classroom, greenhouse, laboratory, barn, farm, or other site around the school. Engineer a solution for this problem. As part of your SAE project, you can design the solution to the problem and then fix the problem. You may be able to do some of the work yourself. Other work may require a trained professional, such as a plumber or electrician.
2. **Math.** Count the number of students in your classroom. Imagine that your teacher is their manager and must create a budget for paying for their work. Each student will get paid $12 an hour for the work in your class. How many hours a day does each of the students in your class work? How many hours in a week? Next, determine how many hours the students will be in class for the school year. How much would your teacher have to pay for the entire class to work for the school year? Do you think receiving money would be better than getting a grade?
3. **Social Science.** Create a video infomercial about your school's SAE and FFA programs. Take video footage of your school's FFA program and interview some of the students. Include coverage of your school's SAE program. The video should be three minutes long. Use video editing software available through your school or online. Share this video with your local FFA and SAE sponsors. Discuss any necessary image release forms with your teacher and obtain signatures as needed.
4. **Social Science.** Create an educational poster or timeline that outlines the history of agricultural education for the past 100 years since the Smith-Hughes Act of 1917.
5. **Language Arts.** Write a one-page paper about the land-grant college or university in your state. (You may have more than one.) Research when the school was founded and compare this to the date of the Morrill Act that established land-grant colleges and universities. What role did the Morrill Act play in the foundation of your land-grant college or university?
6. **Language Arts.** Contact a farm manager in your community and arrange to interview this employer. Ask what educational and work history he or she has to prepare for this occupation. Ask the manager questions about what she or he likes or dislikes about the job. Find out more information about how he or she manages people and the farm.

Communicating about Agriculture

1. **Writing and Speaking.** Interview someone local who works in an agricultural field. For example, you could interview a nursery manager/owner, park ranger, or poultry producer. Choose an area you are interested in and/or with which you are not familiar. Ask the person to describe a typical day at work. Prepare a list of questions similar to the following: How long have you been in the _____ industry? Did you go to school? Did you work as an intern? What is the work environment like? What are your job duties? What other types of professionals do you work with? Report your findings to the class, giving reasons why you would or would not want to pursue a career similar to that of the person you interviewed. (Do not forget to send a note thanking the person for their time and help.)
2. **Reading and Writing.** Select an agricultural product, and then determine how you could improve upon it to create a niche market. Write a product description outlining the comparative advantage that your new product would have.
3. **Writing and Speaking.** Using the product you created in question 2, create a 5- to 10-minute presentation to pitch your idea to potential investors, similar to television shows where business hopefuls share their ideas in order to secure money from wealthy investors. Be prepared to share your presentation with the class.

SAE Opportunities



michaeljung/Shutterstock.com

1. **Exploratory.** Job shadow a farm, ranch, or other production facility manager.
2. **Experimental.** Research how to grow microgreens. Grow a few different varieties and perform a taste test with students, staff at your school, family, and community members. Analyze the results and present the information to a local restaurant owner who is using or wants to use microgreens.
3. **Entrepreneurship.** Purchase some red wiggler worms. Start with one bin of worms and feed them your kitchen scraps. Harvest the worm castings and sell them to gardeners. Harvest some of the worms to sell to local fisherman. Add more bins and watch your business grow. Contact the school cafeteria to ask for more food scraps to feed your worms.
4. **Exploratory.** Research the Colony Collapse Disorder (CCD) of bees. Create a presentation about your findings and communicate with a local beekeeper or beekeeping organization. Team up with a beekeeper and present your information to local children.
5. **Placement.** Contact your local farm bureau. Set up a paid or unpaid internship. Learn about agricultural communication and the numerous other jobs at the Farm Bureau office.