

# **Agricultural Education**

# **Program Standards**

## **Requirements for Approval of Agricultural Education Programs in Secondary Schools in Kansas**

Approved by the Kansas State Board of Education, July 1992

Revised August, 2003

Effective January 1, 2004

The following standards will be used to evaluate each VE-2 local program application in determining eligibility to participate and receive funding as approved in the 1992 legislative session for state board-approved career and technical education programs.

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## REQUIREMENTS FOR SECONDARY AGRICULTURAL EDUCATION PROGRAMS

### The Mission of Agricultural Education

Agricultural education prepares students for successful careers and a lifetime of informed choices in the global agriculture, food, fiber, and natural resources systems.

### To Accomplish this Mission:

- **The complete agricultural education program will target students:**
  - **Through high quality classroom and laboratory instruction**
  - **Develop premier leadership, personal growth, and career success through FFA**
  - **Enhance career skills through Supervised Agricultural Experience (SAE) Programs.**
  
- **We aspire** for excellence as we recruit, prepare and encourage individuals to pursue agricultural careers in life skills through agricultural education.
  
- **We serve** the community and inform them about agriculture, its needs, opportunities and challenges, as well as provide life long career skills.
  
- Agricultural Education programs will respond to community needs and Kansas' agriculture needs. It should prepare students to enter the workforce and to participate as leaders and managers in a global economy.

The chart below shows the correlation between what is taught and the delivery method, illustrating the need for the complete program as outlined above.

*What we teach*

		Knowledge			Life Skills
		Academic	Career	Technical	
How we teach	Classroom/ Laboratory				
	SAE				
	FFA				

### **Basic Definitions**

**Career Development Skills** – A set of competencies outlining abilities essential to the personal development and professional preparation of all students; highly transferable to a variety of life and work situations; not to be confused with Career Development *Events*.

**Completers** – Students that have graduated from high school on time, completed at least three courses, at least two of which are funded, within a coherent sequence of courses for an Agricultural Education program with at least 80% of the competencies achieved.

**Sequence of Courses** – A series of three or more courses, at least two of which are funded, in which technical and academic education are integrated, and which directly relates and leads to both academic and occupational competencies.

**Double-Up** – Offering two courses taught by the same teacher, during the same hour; allowable with certain limitations as outlined in the standards.

**Nesting** (or Triple-Up) - Offering three or more courses taught by the same teacher, during the same hour; not allowable for funding in an Agricultural Education Program.

**Independent Study** - Special course content developed around the needs of an individual student.

**Add/Delete Form** – Form used by fully approved programs to add new courses, delete courses, change course names, and change course content within a program sequence for the following school year.

**VE-2 Form** – Original form used to apply for a new program or to move a conditional program to full approval for the following school year.

**VE-2 Update Form** – Form used only by fully approved programs during the Technical Program Review process.

**FFA** – The leadership organization for students enrolled in Agricultural Education programs, providing opportunities for premier leadership, personal growth and career success.

**SAE** – Supervised Agricultural Experience Programs are teacher-supervised, individualized, hands-on, student developed projects that give students real-world experience in agriculture and/or agriculture related areas.

**CDE** – Career Development Events are competitive activities providing an application of lessons learned in the Agricultural Education classroom and sponsored by the District, State and National FFA Organization.

## **.5 Weighted Funding and How It Works**

### **The VE-2 Application**

The process of getting a new program approved begins with the VE-2 application. The date new programs are due is subject to change, so check the KSDE website for the most current dates and timelines. Remember that each program requires a separate application, as does each application from individual schools. Original signatures are required. At this time, VE-2 applications may not be submitted via facsimile or through electronic mail. Only one original copy of the VE-2 and all support material are needed.

Return the VE-2 application and the documentation to:

State and Federal Programs  
Coordinator – Technical Education  
Kansas State Department of Education  
120 SE 10<sup>th</sup> Avenue  
Topeka, KS 66612-1182

Listed below are the generic rules for determining .5 weighted funding for agriculture courses in an approved Career and Technical Education program. This list is not intended to be all-inclusive since special situations may develop or new funding rules may be released after publication of this document. The .5 weighted funding generated by all of the approved career and technical education programs in one district is included in one check along with other general state aid monies, such as Free and Reduced Lunches, Transportation, etc.

- September 20<sup>th</sup> is the headcount date for counting students in funded courses.
- Elementary and middle school (K-8), ninth grade and introductory courses are not funded.
- The grade level and content of the course determines funding. If ninth graders are enrolled in a funded course on September 20<sup>th</sup>, they can be counted for funding, unless more than twenty-five percent (25%) of students enrolled in a funded course are ninth grade students. Then, the course will not to be funded during the current school year.
- Second semester courses are never funded. There is no headcount date in the second semester.
- A course taught only first semester is funded as if it runs for an entire school year; the course is not awarded half of the .5 funding because it only operates for half a year (i.e., one semester).
- The state aid check will not show a break out of the amount of monies generated by .5 weighted funding. The .5 weighted funding is distributed in the general state aid payment.
- The KSDE auditors will determine the true headcount number during the audit by comparing the enrollment rosters or other student records (dated September 20<sup>th</sup>) to the student count number reported to KSDE on the Building Principal's Report for September 20<sup>th</sup>. The KSDE auditor has the authority to make the necessary adjustments when the two headcounts do not match.
- When the KSDE auditors need to resolve an auditing question that is beyond their scope, they are instructed to call KSDE for clarification.

## Appropriate Expenditures

It is widely accepted that Career and Technical Education programs are expensive to operate and have lower enrollments than most core academic subjects. For this reason, the 1992 State Legislature approved .5 weighted funding to help offset the extra costs associated with operating a vocational program. State law requires that .5 money must be spent on the program. A partial list of legal expenses that can be paid with .5 money include, but are not limited to the following:

- ◆ Extended Summer Contracts
- ◆ FFA Sponsorship
- ◆ Equipment for shop, labs or classroom
- ◆ Computers, digital cameras, scanners, printers
- ◆ Software and site licenses
- ◆ Instructional materials, video tapes, textbooks, DVDs
- ◆ Internet services, connections, subscriptions, and wiring expenses
- ◆ Facility improvements such as painting, rewiring, air conditioning, sidewalks, doors, expanding classroom, storage space, and classroom tables and chairs
- ◆ Purchase or building of facilities such as greenhouse, land lab, school farm
- ◆ Professional organization dues and expenses
- ◆ In-service registration, transportation, meals, and motel rooms
- ◆ Substitute teacher when instructor attends conferences, In-services, and FFA events
- ◆ Consumable supplies required for operation of the program
- ◆ FFA related activities

The .5 weighted funding cannot be expended on tangible or intangible items for non-vocational classrooms, offices, facilities, events, or staff. There are no exceptions.

## Conditionally Approved Programs

Agricultural Education Programs that do not meet the program standards completely with the initial application will be allowed a conditional funding period to correct deficiencies. A new VE-2 application and the correction or addition of deficient elements is required to move to full approval. Funding does begin in the conditional year and with full approval the funding continues. Programs in which the deficiencies have not been corrected by the end of the conditional period will be recommended for disapproval and denial of .5 weighted funding.

## Add/Delete Forms

Once programs are fully approved they may be changed each year to meet the constantly changing needs of students and communities. The process of changing a fully approved program calls for an add/delete form. To make changes to the VE-2 once it has been fully approved, **do not** submit another VE-2 application, just file an add/delete form. Programs that are conditionally approved do not use add/delete forms. The add/delete form can be found and downloaded at the ksde.org Internet site in the Technical Education section.

## Rules for add/delete forms:

- Add/delete forms must be postmarked by the due date to be considered for approval. (Be sure to check the Technical Education Internet site for the current due date for add/delete forms.)
- Type or print the information on the form. Forms that can't be read can't be processed.
- Send in an add/delete form if the course title changes.
- Send in an add/delete form if the number of clock hours for the course changes substantially.
- Complete one add/delete form for **each** course that the high school wants to add, delete, or revise for the next fall.
- Do not include more than one course on an add/delete form.
- Do not submit a VE-2 form in place of the add/delete form to make changes.
- Submit the original of each add/delete form that is filed.
- We must have original signatures.
- Do not fax a copy of the completed add/delete form.
- Do not send the completed add/delete form as an e-mail attachment.
- Submit only one set of the documentation with the add/delete form. Multiple sets of the documentation are not needed.
- Return the add/delete form and any supporting documentation to:

State and Federal Programs  
Coordinator - Technical Education  
Kansas State Department of Education  
120 S. E. Tenth Avenue  
Topeka, KS 66612-1182

## Double-Ups and Nested Courses

At times there is a need to teach more than a single course the same hour to achieve a minimum enrollment number. It is recommended that double-ups be avoided if at all possible. Quality of instruction may suffer when courses are combined. Also, added stress to the instructor and possible problems with adequate supervision are concerns that arise with double-ups. If the need arises for two courses to be taught together during the same hour, there are specific guidelines to follow in order to not jeopardize the funding status of the courses approved.

- A list of courses, by CIP Code, approved for doubling-up and nesting will be available on the Agricultural Education section of the KSDE website at [www.ksde.org](http://www.ksde.org).
- When 2 funded courses are taught within the same period and one course is not part of an allowable double-up combination, then only one course will receive funding.
- When a course that is eligible for funding is taught with a non-funded technical education or an academic course, other than Independent Study, the eligible course will not be funded.
- Independent Study courses will not be approved for funding.
- To receive the additional .5 weighted funding, course titles must match the titles of courses approved for the school. A list of approved courses will be faxed to each superintendent by September 1. Course titles that do not match will not receive the

additional weighted funding. Course title changes on the master schedule and course roster may be made to match the list of approved courses. Changes may be made on the list of approved courses for the following year by using the Add/Delete process.

### **The Elements of an Approved and Funded Agricultural Education Program**

Each approved program contains the same basic elements: classroom-based learning, experience-based learning, connecting activities, and accountability. A program is composed of a coherent sequence of courses from grade nine to grade twelve. Middle school courses may be listed to show additional instruction. All of the courses in a given program sequence must be related to that program area.

### **Program Choices**

There are five separate Agricultural Education programs that can be funded. It is possible for a school to have multiple programs since each program is a separate operation. However, a school that has the components of several programs may combine all courses to fit into one program, Agriculture Education, General, CIP Code 01.0000. For a more detailed description of specific program requirements and examples of sequences of courses within each program, refer to **Appendix A**.

- ❑ **01.0000 – Agricultural Education, General:** A program that focuses on the general principles and practice of agricultural research, production, processing, and marketing, and that may prepare individuals to apply this knowledge to the solution of practical agricultural problems. Includes instruction in at least three of the following areas: Food Products and Processing Systems; Plant Systems; Animal Systems; Power, Structural and Technical Systems (Ag Mechanics); Natural Resources and Environmental Services Systems; and Agribusiness Systems. In addition, must include at least two or more units of instruction in at least one of the following: Ag Sales, Ag Marketing or Ag Management.
- ❑ **01.0201 – Agricultural Mechanics:** A program that generally prepares individuals to fabricate, service, select and sell agricultural or agribusiness technical equipment and facilities, including machinery, equipment structures, power units, utilities, computers and specialized software. Includes instruction in at least three of the following areas: Machinery and Equipment Systems; Energy Systems; Environment and Natural Resources Systems; Structures Systems; Agricultural Welding. In addition, must include at least two or more units of instruction in at least one of the following: Ag Sales, Ag Marketing or Ag Management.
- ❑ **01.0599 – Agricultural and Domestic Animal Services:** A program that prepares students to work in the animal industry, providing services for domestic animal production and care, and specialty animal related careers. Includes instruction in Dog, Pet, and Animal Grooming; Animal Training; Equestrian/Equine Studies; Taxidermy; Animal Health and Nutrition; Small Animal Veterinary Services; and/or Aquaculture. In addition, must include at least two or more units of instruction in at least one of the

following: Ag Sales, Ag Marketing or Ag Management. This program may or may not contain elements of Agricultural Mechanics. If Agricultural Mechanics skills and competencies are integrated, they must be directly related to the program area.

- ❑ **01.0601 – Horticulture:** A program that focuses on the general production and processing of domesticated plants, shrubs, flowers, foliage, trees, groundcovers, and related plant materials; the management of technical and business operations connected with horticultural services; and the basic scientific principles needed to understand plants and their management and care. Includes instruction in at least three of the following areas: Landscape Design and Management; Nursery Operations; Greenhouse Management; Floriculture; Turf Grass Management; Fruit/Vegetable Gardening. In addition, must include at least two or more units of instruction in at least one of the following: Ag Sales, Ag Marketing or Ag Management. This program may or may not contain elements of Agricultural Mechanics. If Agricultural Mechanics skills and competencies are integrated, they must be directly related to the program area.
  
- ❑ **01.9999 – Agricultural Science:** A program that focuses on the science of Agriculture, providing opportunities for applied laboratory experiences in a variety of areas. Includes instruction in at least three of the following areas: Animal Science; Food Science and Technology; Plant Science; Soil Science; Environmental Science. In addition, must include at least two or more units of instruction in at least one of the following: Ag Sales, Ag Marketing or Ag Management. This program may or may not contain elements of Agricultural Mechanics. If Agricultural Mechanics skills and competencies are integrated, they must be directly related to the program area.

All programs must identify an entry-level, introductory course. This course will normally be offered at the ninth grade level and is not funded. It must be comprehensive in nature, allowing students to be exposed to all areas offered in other courses within the sequence. If the course does not include a unit covering one of the courses in the sequence, then the first course with that exposure will be considered the introductory course and will not be funded. This course must also include units in FFA orientation/information and beginning record-keeping skills.

Agricultural education for middle grade students may be implemented as a part of an approved Agricultural Education program. Students of this age enjoy hands-on-learning and would find the topics interesting. This is also an excellent recruitment tool for high school Agricultural Education and FFA programs. The courses should be offered as electives on a quarterly or semester basis, and may be part of the approved sequence of courses, but will not be funded. Exploratory SAE programs should be considered when considering a middle grade curriculum. FFA chapters may form middle school chapters separate from the high school chapter to focus on the needs of students at the local level. However, no activities, awards or recognition are currently provided at the state level.

## *Classroom-Based Learning*

### **Instructional Staff**

**Requirement 1** – Each instructor in the program possesses a valid teaching certificate/license with an endorsement in Agriculture, Vocational Agriculture or Agricultural Mechanics, or meets the requirements for approval determined by the Kansas State Department of Education. If an instructor does not hold the required certification/license, any courses that instructor teaches **cannot** be counted for funding.

**Requirement 2** - Each instructor annually continues his/her professional/technical growth in Agricultural Education through: college credit courses; attending at least fifteen hours of agriculture related professional improvement meetings, workshops, in-services or conferences; or participating in program-related professional organization activities. At least one of the following activities must be attended:

- Spring or Fall Area Meetings sponsored by the District KAAE or KSDE
- Ag Ed Symposium
- Summer K-ACTE/KSDE Summer Conference
- KSDE Connecting Education and Employment Conference

Additional activities that are acceptable examples of agriculture related in-services:

- ⇒ NAAE convention
- ⇒ NAAE Region II summer conference
- ⇒ NAAE sponsored workshops such as Hummert, Stuppy, or Kent Feeds programs
- ⇒ Briggs and Stratton Small Engine workshop
- ⇒ Educational Service Center Perkins technology workshops
- ⇒ National FFA sponsored workshops
- ⇒ KSDE sponsored workshops directly related to program
- ⇒ Extension service field days

Selecting, developing, and retaining an instructional staff, which is competent to meet the needs of Agricultural Education training, is of utmost importance to the success of the teaching program. Realizing that agriculture instruction is unique in education, all instructors need to have an adequate general education along with recent work experience or working contact with the agriculture industry, which will enable them to relate their instruction to business or industrial methodology. As evidence of proper preparation, all agriculture instructors shall exceed state certification requirements and will hold a current teaching certificate/license appropriate to their subject area. In addition, all agriculture instructors should continuously strive to improve their skills and knowledge by upgrading certification/licensure requirements and by attending professional improvement meetings, workshops, state conferences, etc.

### **Curriculum**

**Requirement 3** – The program includes a sequence of courses, at least two of which must be funded, that integrate technical, career development, and academic skills with an awareness of the food, fiber and natural resource industry, and includes components of SAE and FFA.

The locally developed, state approved curriculum for all agriculture courses should be utilized with input from the community, students, and administration and includes the identification of specific goals and objectives, competencies, Supervised Agricultural Experience (SAE) supervision, and leadership instruction, utilizing FFA as an integral part of the instructional program.

It is important that courses within the program follow a sequence allowing students to expand their knowledge base and competency level. Courses within a sequence are funded based on their content, not by the name of the course. However, in an effort to ease confusion, there are guidelines to follow in naming courses for the program.

1. The name of the course must accurately portray the content of the course.
2. The name of the course should be short enough to fit into the school's master schedule, teacher's roster, counselor's scheduling program and the enrollment handbook.
3. The name of the course used locally must match the name as approved on the VE-2 application.
4. Introductory level courses are not funded; therefore, do not use the word "Introduction" or "Exploratory" for an approved funded course.
5. A list of recommended titles for fundable courses has been provided in **Appendix B**.

### **Course Outlines and Competency Profiles**

**Requirement 4** – The instructor maintains current course outlines detailing the content taught for each course.

A course outline is designed to show what the instructor is actually teaching. It should not be a listing of competencies and skills, but rather the content that is taught in order for the student to achieve skills in the area. Course outlines must include the following information:

1. Title of course
2. Length of course including credit and/or clock hours
3. Grade level for course
4. Prerequisites, if any
5. Teaching resources, including copyright dates of resources if available
6. Brief description of course
7. Outline of course content including topic headings

Course outlines must contain all requested information and support the competency profiles (see Requirement 5). The course content should be well defined, well organized, and promote higher order process skills. For examples of course outlines, refer to **Appendix C**.

**Requirement 5** – Course competency profiles are developed which show technical, academic, career development, SAE and FFA skills expected of the student for all courses, and are updated with input from the local advisory committee.

The course competency profile is a listing of skills and competencies that the student should be able to demonstrate upon completion of the course. The difference between the course outline

and the competency profile is that the outline details what the instructor will teach, while the competency profile details what the student has achieved after instruction has taken place. Competency profiles must include the following information:

1. Course title
2. Name of student
3. Completion date of student
4. Rating or grading scale and a key for that scale
5. Topic headings for content areas
6. Student competencies listed under topics
7. Integration of competencies for:
  - a. Academic knowledge and skills (math, science, language arts)
  - b. Career development skills
  - c. FFA related leadership knowledge and skills
  - d. SAE related activities

Competency profiles must contain all requested information and support the course content on course outlines. Competencies should be well defined, well organized, and promote higher order process skills. For examples of how a course outline correlates with a competency profile, refer to **Appendix D**.

### **Core Competencies**

A set of state required core competencies is found in **Appendix E**. If a funded course is represented in the list of state competencies, the local course competency profile must include those competencies as a minimum. It will also include competencies that are specific to the local program. The state competency profile is only a base to build upon.

In addition to technical skills, competencies in academics, career development skills, experience-based learning and leadership must also be included on the local competency profile. Specific standards concerning integration of these components will be found in later sections of this document.

### **Distance Learning and Internet-Based Classes**

Sometimes courses may be offered at other locations that would benefit students within the local program. These may be offered via the Internet or by Interactive Distance Learning (IDL). The following standards must be followed in order for the courses to be approved for .5 weighted funding.

1. Course content and delivery must be from an accredited post secondary institution, an approved agriculture education program in Kansas, or other program approved by the Agricultural Education consultant at the KSDE.
2. The course must be supervised locally by a certified agriculture education instructor.
3. Course competencies delivered by the Internet or IDL may only comprise 75% of the course work. At least 25% must be provided locally through hands on application of course work, research work or additional competencies.
4. SAE and FFA competencies must be included in the course.

5. Course must be offered and student enrolled during the school day at a set time to be determined locally; course may be doubled up during another approved course in the program.
6. Dual or concurrent credit may be granted if the course is offered through an accredited post secondary institution, but the cost of college tuition, fees and other expenses shall be the responsibility of the student.

**Equipment and Software**

**Requirement 6** - The agricultural education program has the equipment, technology, software and resources necessary to support the instructional program, meet the needs of students, and represents industry standards.

The availability and proper utilization of instructional materials is considered essential to conducting quality instruction. Schools offering agricultural education programs shall ensure that adequate amounts of such materials, including audiovisual aids, reference texts, competency profiles, connection to the Internet, etc., are made available for instructional purposes. Agriculture instructors shall utilize a variety of instructional materials, technology and methods in accordance with student needs. All computers in the program must meet the minimum configurations as outlined on the KSDE Internet site. To access the list, log on to [www.ksde.org](http://www.ksde.org). The list assembled below is required for all programs.

Required	Recommended	Item
X		Fax Machine (access to)
X		Internet in Agriculture classroom;
X		Computer for instructor use, Internet accessible
X		Telephone in Agriculture classroom/instructor office
X		Digital Camera (access to)
X		Scanner (access to)
X		VCR or DVD player
X		Television (27 inch recommended)
X		Access to fully networked, Internet computer lab, 2:1 ratio, 1:1 ratio recommended
X		Student computers; 4:1 ratio, students in largest class to computer; recommended 2:1
X		Software able to access KSDE, National and State FFA web sites, download applications, documents and programs; FFA roster; Ag Teacher directory; presentation software; web browser software
	X	Web page design program
	X	LCD projector
	X	Document camera

When reporting equipment and software purchased or leased specifically for this program, use the following format to submit a list for each course listed on the VE-2 application.

1. List the course title
2. List the hardware, software and all equipment used in the course.
3. For computer hardware include the following: operating system, processor, memory, hard drive size, CD ROM/CDR or DVD drives, monitor, video RAM, printers and network connection.
4. For laboratory equipment include the manufacturer and date of manufacture.
5. For hand tools just list the total number of tools in individual categories.
6. List the manufacturer and date of manufacture for electronic hardware such as: digital cameras, video cameras, LCD projectors, DVD players, VCRs, Televisions, and scanners.
7. List software used by title and version number.

### **Integration**

***Requirement 7*** - Agriculture related academics and career development skills are incorporated/integrated into the instructional content.

Besides the technical competencies, each local course competency profile must include competencies in math, science, language arts, and projects that reflect real world and relevant learning activities that promote higher-level skills. In addition, at least ten (10), as a minimum, agriculture related career development skills must be incorporated/integrated into each course in the instructional program.

Examples of academic competencies can include:

- ◆ Technical reading – read repair manuals; follow directions to build a project; reading blueprints
- ◆ Technical writing – write instructions for operating a piece of equipment; safety guides
- ◆ Oral communications – oral reports; demonstrations of equipment; multimedia presentations
- ◆ Math – Agribusiness management problem solving; determining geometric angles in project construction; balancing rations; determining volumes needed for landscaping material
- ◆ Science – dissect digestive or reproductive tracts; conduct research and present results in Agriscience fair exhibit, using scientific method

Examples of career development skills can include:

- ◆ Listening Skills – Analyzing speeches and oral reports; maintain proper and effective debate in a parliamentary procedure demonstration
- ◆ Oral Communication – Participate in Ag Issues Forum; demonstrate job interview skills
- ◆ Mathematics – Use completed record book to fill out proficiency award and FFA Degree applications; analyze supply and demand, break even, or market charts and graphs
- ◆ Writing – Write reports on Agriscience research; fill out proficiency award application
- ◆ Computer Literacy – Develop marketing graphs; make computer generated presentations

- ◆ Human Relations – Provide opportunities for every student to chair a committee; each student maintains goals pages in SAE record book
- ◆ Decision Making/Problem Solving – Participate in any FFA Judging CDE; balance rations using multiple feedstuffs
- ◆ Teamwork – Provide opportunities for all students to work in a team setting; allow judging teams the opportunity for problem solving
- ◆ Resource Management – Selecting greenhouse plants and materials; pre-determining cost of major shop project and ordering necessary materials
- ◆ Time Management – Utilize timelines for major assignment deadlines; allow students to organize and operate food sale
- ◆ Work Ethics – Treat laboratory time as the workplace, students as employees; assign students specific duties
- ◆ Career Planning – Prepare personal budgets compared to desired career pay; arrange for job shadowing experience for students

### **Experience-Based Learning**

Every approved career and technical program must contain elements of experience-based learning. These experiences must be directly related to the program. All experiences are “live” and do not include simulations. Depending on the program and the availability of placement, the type of experience-based learning will vary.

### **Supervised Agricultural Experience**

**Requirement 8** - SAE is implemented through classroom instruction and SAE competencies are identified in each course. For a list of required and recommended competencies, refer to **Appendix F**.

**Requirement 9** - The SAE is a part of the agricultural education program and opportunities are provided for each student enrolled to develop an SAE Program, outside of the student’s class time through experiences in school labs; community labs; school-business partnerships; and/or entrepreneurship, placement, or Agriscience activities.

Agricultural education programs are uniquely designed to meet students’ career objectives through supervised agriculture experiences (SAE) or on-the-job training coupled with regular classroom instruction. SAE programs are teacher-supervised, individualized, hands-on, student developed projects that give students real-world experience in agriculture and/or agriculture related areas. An SAE is considered acceptable if it will correspond to a recognized National FFA Proficiency Award area and meets one of the three criteria below.

- Entrepreneurship – Personal ownership of an ag-related enterprise or agribusiness.
- Placement – Paid employment or non-paid internship in an ag-related job or career area
- Agriscience – Research based program in which students collect data and reach scientific based conclusions dealing with agriculture or ag-related issues.

SAE can be described as experiencing life applications. As a part of the agricultural education program, students are encouraged to invest their time and sometimes money into a life

application activity that aligns with their interests and career goals. The local agriculture instructor supervises these activities. SAEs could include horticulture, gardening, livestock production, poultry production, specialty crop or animal, leadership and public speaking, home and/or community improvement projects, on-the-job training, Agriscience research projects, or a number of other interesting areas. Students are encouraged to maintain their SAE while they are enrolled in agricultural education. This will allow them to continually apply the information used in the classroom to improve their SAE. Students must maintain an SAE in order to retain FFA membership if they are not enrolled in an agricultural education class for one year.

These SAE opportunities may be integrated in a variety of ways. Listed below are examples of strategies that can be used for integrating SAE into the Agricultural Education program. Every student must be involved in at least one strategy for a program to be approved. Many additional strategies may be found in the “SAE Best Practices” sections of the Local Program Resource Guide CD.

Suggested strategies to meet Requirement 8:

1. Begin an agricultural business in class and have students run the business.
2. Teach a unit on cooperatives and participate in the state FFA Coop Testing competition.
3. Teach a unit on entrepreneurship, and have students fill out the National FFA Agri-Entrepreneurship application.
4. Teach a unit on Agricultural Marketing and participate in the state FFA Ag Marketing Career Development Event.
5. Require all students in a class to conduct an agriculture related science research project and participate in a local and/or state level Agri-science fair.
6. Require all students in a class to fill out the National FFA Proficiency Award application or State FFA Degree application.
7. Require each student to maintain an agricultural education record book in which monthly entries are maintained and provide at least a semester grade for SAE.
8. Offer an SAE OJT course to seniors as described in Appendix I of these standards.

Strategies to meet Requirement 9:

9. Advisor makes visits to students’ SAE programs throughout the calendar year, including summer visitations, and documents all visits.
10. Every student maintains a locally documented SAE program utilizing a variety of experiences through school labs, community labs, school-business partnerships, entrepreneurship activities, placement activities, or Agri-science activities.
11. Provide job-shadowing opportunities for introductory students to explore SAE opportunities.
12. Provide recognition for student’s SAEs through FFA Degree programs, proficiency awards, FFA banquets, and a variety of media.
13. Provide an SAE night for students, parents, administrators and community members outlining the SAE program.
14. Establish a Livestock Co-op project for students to join and operate.
15. Chapter conducts a work auction to provide students with potential SAE offers.

## **SAE On-The-Job Training**

One method of providing SAE opportunities for students is to offer a specific course designed to place students in agriculture related job during the school day. This course does require a high level of administrative and teacher time.

Each student participating in a placement experience should be placed in a job related to his/her occupational objective and training program. The instructor should ensure that each student's training provides experiences that allow the students to meet the goals and objectives of his/her training program.

The agriculture program should ensure that students are legally employed if their training involves working for pay. As a condition of their employment, a Training Agreement and a Training Plan shall be signed by the employer, student, parent, and teacher-coordinator, and shall be maintained on file.

In order to assure quality of training and procedural compliance, the local teacher-coordinator shall visit each training site at least once each month. Provisions should also be made for the local instructor/coordinator to visit each training site. Students should be encouraged to develop teacher-assisted SAE entrepreneurship programs, where such programs are related to the instructional content of the agricultural education program.

For specific information on an SAE OJT course, see **Appendix G**.

## **SAE Student Evaluation**

***Requirement 10*** - Each agriculture education program completer must maintain an SAE program and fill out a student SAE evaluation form.

Student evaluations should include the following information:

1. Name of student
2. Name of employer/sponsor
3. Brief description of the experience
4. Competencies for the experience related to the course or program.
5. Rating scale with key.
6. Rating and/or signatures by all parties involved (student, employer/sponsor, and instructor, if different from sponsor).

For samples of approved evaluation forms, refer to **Appendix H**.

## **Connecting Activities**

### **Student Leadership**

**Requirement 11** – An approved FFA chapter is offered where student leadership development activities are integrated into the agriculture course of instruction, are conducted year round and are supervised by the local agriculture instructor(s).

Student leadership development activities are considered an integral part of the course of instruction in all programs. Each student shall be afforded the opportunity to become an active member of a local FFA chapter. The leadership development activities associated with the FFA shall be directed and supervised by the local teacher with guidance from the local school administration and the state supervisory staff. It is not enough that a local FFA chapter be chartered. In addition, leadership competencies must be integrated into each course profile and be related to FFA activities.

**Requirement 12** – Each course within the sequence must include at least 4 lessons from the National FFA LifeKnowledge: Real Lessons for Real Life curriculum. Each instructor may receive this material free of charge from the National FFA Organization by participating in a state-sponsored training workshop.

**Requirement 13** – Within a program, leadership competencies must be offered in the following areas:

- \* Oral presentation or Public Speaking
- \* Leading a group discussion
- \* Parliamentary Procedure
- \* Community Development Activities

**Requirement 14** – Within a two-year time, students must be provided the opportunity to be eligible for the State FFA Degree, which requires eight (8) activities above the chapter level. For a more complete listing of these activities, refer to **Appendix I**.

**Requirement 15** – The FFA Chapter must submit annually the State FFA reports required to remain constitutionally in good standing with the State FFA Association. These reports include:

- ❑ FFA Roster submitted electronically to the State FFA Office by September 30.
- ❑ Program of Activities including list of chapter officers, submitted to the State FFA Office by October 15.
- ❑ Annual Report, submitted electronically to the Kansas State Department of Education by May 20.

Requirements 11 - 15 are the minimum required for approval. The items listed below are highly recommended.

- ❑ Chapter FFA meetings are held monthly.
- ❑ Each FFA member participates in at least one FFA-sponsored activity.
- ❑ The chapter submits Forms I and II of the National Chapter Award.

- ❑ The chapter holds an annual banquet or awards program for awards and recognition of students with parents, school officials, and community leaders being invited.
- ❑ The chapter sends delegates to the State FFA convention annually.
- ❑ The newly elected chapter officers attend State Conference for Chapter Leaders, or are provided summer leadership training.
- ❑ Each FFA member participates in at least 3 items of the Chapter Program of Activities.
- ❑ The chapter is supported by an FFA Alumni affiliate.
- ❑ Summer FFA activities are held, and sponsored by the FFA Advisor.

### **Career Counseling Services**

**Requirement 16** – The program shall provide career-counseling services to facilitate an easy transition to post-secondary education or training, or entry into the workforce.

To accomplish this requirement, the following activities must be addressed.

- ✓ Activities are provided for students to give them information about post secondary institutions and careers in agriculture.
- ✓ Students visit area post-secondary programs related to agriculture
- ✓ Student enrollment materials include information about the agriculture program.
- ✓ General information provided to students about careers includes information about career and technical opportunities

The instructor should work with the counselor to provide opportunities for students to become program completers. This can be accomplished by giving preference in courses with large enrollment numbers to students that have taken one or more courses within the sequence, have an SAE and are on track to be completers.

### **Advisory Committee**

**Requirement 17** - The program has an active advisory committee comprised of business, industry, and community partners reflective of the program area, which meets a minimum of two times a year.

The program advisory committee is an essential component of a successful Agricultural Education program. There must be at least three members representing agricultural business and industry on the agriculture advisory committee or on the school-wide advisory committee. There should be at least one person on the committee representing each area of the agriculture curriculum. It is recommended that there be five to seven members for an effective committee.

Advisory committee meetings are semi-formal activities and minutes of the meeting must be kept on file. The minutes of the advisory committee should reflect the following items:

- ❑ Reviews course competencies
- ❑ Reviews equipment and instructional materials
- ❑ Submits recommendations annually to the building administrator
- ❑ Participates in the development of the Program Improvement Plan for the Technical Program Review.

For more information on advisory committees please refer to the publication, *Functions of an Advisory Committee*, which outlines recommendations on how to select the members of the Advisory Committee and how to organize and conduct meetings. This publication should be read so that the rules to establish an Advisory Committee are met. It is also a good idea to provide a copy of this publication to each advisory committee member. Copies of this publication can be obtained from the KSDE, Career and Technical Education.

When reporting the make-up of the advisory committee for either a new program application or the Technical Program Review, include the following information:

1. List name of advisory committee member
2. Give job title of committee member
3. Give name of organization/business represented
4. Identify type of organization/business
5. List city/state of organization/business

### **Accountability**

#### **Student Learning**

**Requirement 18** – A record of student enrollment, placement and follow-up activities are maintained and used in program planning and development.

Recognizing that the major objective of the agriculture program is the continuation of the student's education and/or gainful employment, a systematic program of job placement and follow-up is essential. As evidence of efforts to achieve this objective, each local educational agency shall maintain student enrollment in agriculture courses, and placement and follow-up records on all completers of the agricultural education program.

#### **Concentrators and Completers**

Not every student who enrolls in a funded course in an Agricultural Education program will complete the program. Students involved in the program become concentrators at the point where they have completed two courses in the program sequence, are enrolled in a third course of the program, and entered eleventh grade. Students who complete at least three courses in the appropriate sequence, at least two of which are funded, and graduate on time are program completers. Most of the time students will not take every course in a program. Part of the program design process is to establish the sequence students will need to take to become completers.

It is highly recommended that the student have completed the equivalent of three full year courses or six semester courses; maintained an extensive, quality SAE program; and have been an active FFA member. Local programs may elect to set higher standards for the definition of a completer than those outlined here.

As students enter the 10<sup>th</sup> grade and begin to take funded courses in the program sequence, the course competency profiles for each course must be completed for each student enrolled in the funded courses. All funded course competencies need to be collected in this manner. The expectation is that each completer will achieve 100% of the course competencies. There is some flexibility at the course competency level in that specific course competencies not taught are not evaluated. They do not count against the 100% standard. Teachers almost always include some competencies that are an extension of the course and may not always, or even often, be achieved due to time limitations.

Course competency profiles for completers must be retained by the school for five years. It is strongly encouraged that students receive a copy of their competency profiles as part of the completer process. These competency profiles should be the best indicator of what the student could “do” when they left the secondary program and the school. This information is of great value to future employers, instructors, and counselors.

The instructor should work with the counselor to provide opportunities for students to become program completers. This can be accomplished by giving preference in courses with large enrollment numbers to students that have taken one or more courses within the sequence, have an SAE and are on track to be completers.

### **Funding**

***Requirement 19*** – The Local Education Agency will provide adequate funds to sustain the school’s instructional program, providing for the purchase of equipment and technology; software; teaching materials; consumable supplies; and facility improvements.

Proper equipment and adequate supplies must be made available to support the agriculture program. Schools offering vocational programs shall provide funds for equipment and supplies in accordance with acceptable standards and at a level to assure quality agricultural education. Equipment selected should be representative of the grade and type used by business and industry and must meet or exceed all appropriate safety standards.

### **Additional Program Requirements**

***Requirement 20*** - Provisions are made for continuous education and supervision of students throughout the calendar year under the coordination of the Agriculture Education instructor; activities shall include both FFA and SAE supervision, and shall be documented locally.

Agricultural Education programs are unique in that the SAE and FFA components occur year round, as opposed to a scheduled class time during the academic year. For this reason, it is critical that the instructor be provided the opportunity to supervise students. There are also additional needs for the development of the Agricultural Education program that can only occur during the summer. It takes additional time to coordinate all these activities, which are critical to the success of the local program.

The manner in which summer supervision is provided is to be determined by the local administration, board of education, and teacher's bargaining unit, with input from the Agricultural Advisory Committee and local instructor. The length of extended contract will vary depending on the needs of the local community. The minimum recommended length is ten and one half (10 ½) months, or 30 additional days.

Any extended contract activities should be documented locally and can be done in a variety of ways. There are numerous forms available for this purpose, as well as any teacher-generated forms. Suggested activities for an extended contract could include, but are not limited to:

- ☞ SAE visits
- ☞ County Fairs
- ☞ Arranging OJT and job shadowing sites
- ☞ Preparing applications for National FFA competition (June)
- ☞ Preparing and Planning SAE and FFA activities
- ☞ State FFA Convention (May-June)
- ☞ State Conference for Chapter Leaders (July)
- ☞ Chapter FFA meetings
- ☞ Chapter Officer Leadership Training
- ☞ Professional development activities (Summer Conference, Region II, NAAE sponsored In-services, technology training)
- ☞ Laboratory/equipment maintenance
- ☞ Research and writing grants

**Requirement 21** – The facilities are accessible to all populations, clean, attractive, safe, healthy, adequate, and appropriate for the instructional program being offered.

Physical facilities for agricultural education programs shall include adequate space and utilities in classrooms, laboratories, and shop areas, which provide for safe and orderly instruction. Both instructional and non-instructional areas, including storage areas, restrooms and offices, shall be adequate for the number of students and staff using such areas. Special consideration shall be given to handicapped students as well as providing for the special needs of co-ed classes.

According to the state fire marshal, the classroom facility must provide a minimum of 15 square feet of usable space per student. Usable space is defined as actual space provided for the movement or seating of students. Built in cabinets, storage, audiovisual equipment, and other components that take up space do not count toward usable space for students. While this is the minimum space requirement for adequate fire safety, there are other concerns to consider. Since agricultural education programs include hands-on and laboratory activities within the classroom, the agriculture classroom should be larger than the minimum size. Classrooms that do not meet the minimum size requirements must either be expanded, or the class size limited to meet these standards.

The teaching load (student-teacher ratio) will vary with the program, depending upon the number/kinds of students to be served, the specific skills to be taught, the size of the facility, and the methods of instruction to be used. However, reasonable enrollment limits must be

maintained in order to ensure that program objectives may be met in an efficient and effective manner.

For safety reasons, it is recommended that classes involving laboratory or shop activities be limited in enrollment to a size appropriate for the instruction. In addition to the size limitations below, the maximum number of students in a project based lab class should be 18, fewer if the facilities are more restrictive.

The space requirements for other facility components are less easily defined, depending on the program and how the facility is utilized. Below are listed the recommended sizes of various facility areas, based on a one teacher department. When possible these guidelines should be followed for the local program.

Facility type	Minimum <b>recommended</b> size:
Classroom	25 square feet per student
Ag Mechanics laboratory	150 square feet per student
Lab storage	320 square feet
Greenhouse	70 square feet per student
Teacher office	120 square feet
Classroom Storage	120 square feet
Agribusiness lab with computers	15 square feet per student
Locker/storage space for student lab clothes and supplies	
Clean-up/wash basin area	
Bathroom facilities for male and female students	

**Requirement 22** - Agriculture instructors shall ensure that safety training is incorporated into the instructional content of all areas of the training program; safety instruction should include equipment safety, chemical safety, fire safety, and blood borne pathogens. Safety tests specific to courses shall be given, passed with 100% and kept on file for all students.

**Requirement 23** – A safety inspection has been conducted of the facilities including all lab areas, equipment, and approved storage for hazardous materials, for all phases of the agriculture program; inspections should be done by an authorized state agency or insurance inspector.

Due to the nature of agriculture training and related employment, student safety and safety training are considered essential to quality program operations. Schools offering agriculture programs shall ensure that safety features in the instructional facilities and equipment are properly implemented and maintained. In addition, adequate lighting, heat, and ventilation shall be provided to ensure a safe and healthy learning environment. The Kansas Department of Health and Environment (KDHE) and Kansas Department of Human Resources (KDHR) standards shall be used to guide the implementation and maintenance of environmental health and safety features.

## **Section 5. Program Improvement**

**Requirement 24** – The program has a plan for continuous improvement based on analyzing the four elements of an approved Agricultural Education Program.

As a part of the Technical Program Review process, each program will submit a Program Improvement Plan to the KSDE Agricultural Education program consultant every five years. However, improvement of the program should be an on-going process, involving the instructor, Advisory Committee, and school administration. By implementing a continuous improvement plan, the results of the Technical Program Review should be positive.

When evaluating the local Agriculture Education program, consideration should be given to the following data:

- ⇒ The Advisory Committee must be actively involved
- ⇒ Both short and long-range goals should be addressed
- ⇒ Goals should be annually reviewed and updated
- ⇒ Review the four elements of a program, including Classroom-Based Learning; Experience-Based Learning; Connecting Activities; and Program Accountability.
- ⇒ Review the CATE web reporting system completer data and disaggregated groups as defined by Perkins
- ⇒ Address strategies to increase the number of program completers

### **Summary of Requirements**

**Requirement 1** – Each instructor in the program possesses a valid teaching certificate/license with an endorsement in Agriculture, Vocational Agriculture or Agricultural Mechanics, or meets the requirements for approval determined by the Kansas State Department of Education. If an instructor does not hold the required certification/license, any courses that instructor teaches **cannot** be counted for funding.

**Requirement 2** - Each instructor annually continues his/her professional/technical growth in Agricultural Education through: college credit courses; attending at least fifteen hours of agriculture related professional improvement meetings, workshops, in-services or conferences; or participating in program-related professional organization activities. At least one of the following activities must be attended:

- Spring or Fall Area Meetings sponsored by the District KAAE or KSDE
- Ag Ed Symposium
- Summer K-ACTE/KSDE Summer Conference
- KSDE Connecting Education and Employment Conference

**Requirement 3** – The program includes a sequence of courses, at least two of which must be funded, that integrate technical, career development, and academic skills with an awareness of the food, fiber and natural resource industry, and includes components of SAE and FFA.

**Requirement 4** – The instructor maintains current course outlines detailing the content taught for each course.

**Requirement 5** – Course competency profiles are developed which show technical, academic, career development, SAE and FFA skills expected of the student for all courses, and are updated with input from the local advisory committee.

**Requirement 6** - The agricultural education program has the equipment, technology, software and resources necessary to support the instructional program, meet the needs of students, and represents industry standards.

**Requirement 7** - Agriculture related academics and career development skills are incorporated/integrated into the instructional content.

**Requirement 8** - SAE is implemented through classroom instruction and SAE competencies are identified in each course.

**Requirement 9** - The SAE is a part of the agricultural education program and opportunities are provided for each student enrolled to develop an SAE Program, outside of the student's class time through experiences in school labs; community labs; school-business partnerships; and/or entrepreneurship, placement, or Agriscience activities.

**Requirement 10** - Each agriculture education program completer must maintain an SAE program and fill out a student SAE evaluation form.

**Requirement 11** – An approved FFA chapter is offered where student leadership development activities are integrated into the agriculture course of instruction, are conducted year round and are supervised by the local agriculture instructor(s).

**Requirement 12** – Each course within the sequence must include at least 4 lessons from the National FFA LifeKnowledge: Real Lessons for Real Life curriculum.

**Requirement 13** – Within a program, leadership competencies must be offered in the following areas:

- \* Oral presentation or Public Speaking
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- \* Parliamentary Procedure
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**Requirement 15** – The FFA Chapter must submit annually the State FFA reports required to remain constitutionally in good standing with the State FFA Association. These reports include:

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- ❑ Annual Report, submitted electronically to the Kansas State Department of Education by May 20.

**Requirement 16** – The program shall provide career-counseling services to facilitate an easy transition to post-secondary education or training, or entry into the workforce.

**Requirement 17** - The program has an active advisory committee comprised of business, industry, and community partners reflective of the program area, which meets a minimum of two times a year.

**Requirement 18** – A record of student enrollment, placement and follow-up activities are maintained and used in program planning and development.

**Requirement 19** – The Local Education Agency will provide adequate funds to sustain the school’s instructional program, providing for the purchase of equipment and technology; software; teaching materials; consumable supplies; and facility improvements.

**Requirement 20** - Provisions are made for continuous education and supervision of students throughout the calendar year under the coordination of the Agriculture Education instructor; activities shall include both FFA and SAE supervision, and shall be documented locally.

**Requirement 21** – The facilities are accessible to all populations, clean, attractive, safe, healthy, adequate, and appropriate for the instructional program being offered.

**Requirement 22** - Agriculture instructors shall ensure that safety training is incorporated into the instructional content of all areas of the training program; safety instruction should include equipment safety, chemical safety, fire safety, and blood borne pathogens. Safety tests specific to courses shall be given, passed with 100% and kept on file for all students.

**Requirement 23** – A safety inspection has been conducted of the facilities including all lab areas, equipment, and approved storage for hazardous materials, for all phases of the agriculture program; inspections should be done by an authorized state agency or insurance inspector.

**Requirement 24** – The program has a plan for continuous improvement based on analyzing the four elements of an approved Agricultural Education Program.

## Appendix A

### Specific Program Requirements and Examples for Course Sequences

#### 01.0000 – Agricultural Education, General:

Must include courses in at least 3 different areas:

- Animal Systems
- Plant Systems
- Power, Structural and Technical Systems
- Natural Resources and Environmental Systems
- Food Products and Processing Systems
- Agribusiness Systems

Must include units in safety as appropriate for the program

Must also include at least 2 units of instruction in at least one of the following areas:

- Ag Sales/Service
- Ag Business Management
- Ag Marketing

An introductory course must be offered at the 9<sup>th</sup> grade level. If an 8<sup>th</sup> grade course is included in the sequence, it may be used as one of the un-funded courses within the sequence for identifying a completer. The introductory course must include a variety of subjects allowing students to be exposed to all areas offered in other courses within the sequence. For example, if the courses in the sequence include animal science, plant science, ag welding, agribusiness management, and natural resources, then the introductory course must have units in each of these areas. In addition, this course must include units in FFA orientation and beginning record-keeping skills.

An example of a program sequence with suggested course titles and grade levels, for Agricultural Education, General 01-0000:

Exploratory Ag	8
Introduction to Agriculture Education	9
Plant & Soil Science	10
Animal Science	11
Horticulture	10
Ag Mechanics	11
Ag Business Management	12
<i>Other Course Options</i>	
Ag Power & Machinery	10
Ag Environmental Science	11
Advanced Animal Science	12

## 01.0201 – Agricultural Mechanics:

Must include courses in at least 3 different areas within Power, Structural and Technical Systems:

- Machinery and Equipment Systems
  - Ag Machinery and Equipment
- Energy Systems
  - Ag Electrification
  - Ag Power – Small Engines, Farm Power
- Environment and Natural Resources Systems
  - Soil and Water Management
  - Ag Environmental systems
- Structures Systems
  - Ag Carpentry
  - Ag Construction/Projects/Structures
  - Blueprint reading/drafting/CAD/mechanical drawing
- Agricultural Welding
  - MIG, TIG, Arc, Oxy-Acetylene, Plasma
  - Ag Projects

Must include units in hand tool safety, power tool safety and general shop safety as appropriate for the program. Must also include at least 2 units of instruction in at least one of the following areas: Ag Sales/Service; Ag Business Management; Ag Marketing

An introductory course must be offered at the 9<sup>th</sup> grade level. If an 8<sup>th</sup> grade course is included in the sequence, it may be used as one of the un-funded courses within the sequence for identifying a completer. The introductory course must include a variety of subjects allowing students to be exposed to all areas offered in other courses within the sequence. For example, if the courses in the sequence include ag welding, ag power, ag structures, ag projects, and agribusiness management, then the introductory course must have units in each of these areas. In addition, this course must include units in FFA orientation and beginning record-keeping skills.

An example of a program sequence with suggested course titles and grade levels, for Agriculture Mechanics, 01-0201:

Introduction to Ag Mechanics	9
Ag Welding	10
Small Engines	10
Ag Power and Machinery	11
Ag Structures	11
Ag Construction	12
<b><i>Other Course Options</i></b>	
Advanced Ag Mechanics	10
Ag Environmental Systems	11
Ag Projects	12

## 01.0599 – Agricultural and Domestic Animal Services:

Must offer courses that include at least 3 different areas within Animal Systems:

- Anatomy and Physiology of Animals
- Animal Behavior/Training
- Animal Nutrition and Health
- Animal Reproduction
- Environmental Factors on Animal Production

To meet this requirement, various components may be taught in each course, or may be taught individually as a stand-alone course. A variety of competencies must be offered within the program.

Must include units in safety as appropriate for the program

Must also include at least 2 units of instruction in at least one of the following areas:

- Ag Sales/Service
- Ag Business Management
- Ag Marketing

An introductory course must be offered at the 9<sup>th</sup> grade level. If an 8<sup>th</sup> grade course is included in the sequence, it may be used as one of the un-funded courses within the sequence for identifying a completer. The introductory course must include a variety of subjects allowing students to be exposed to all areas offered in other courses within the sequence. For example, if the courses in the sequence include small animal care, equine science, veterinary science, aquaculture, and agribusiness management, then the introductory course must have units in each of these areas. In addition, this course must include units in FFA orientation and beginning record-keeping skills.

Examples of Ag Mechanics competencies that could be integrated into this program include:

- Welding – design and construction of livestock handling facilities
- Environmental Systems – design of livestock waste handling facilities
- Structures – design and fabrication of pet housing facilities

Example of a program sequence with suggested course titles and grade levels, for Agricultural and Domestic Animal Services 01-5999:

Introduction to Agriculture Education	9
Small Animal Care	10
Wildlife Management	10
Equine Science	11
Companion Animals	11
Veterinary Science	12
<i>Other Course Options</i>	
Aquaculture	10
Animal Science	11
Agribusiness Management	12

**01.0601 – Horticulture:**

Must include courses in at least 3 different areas:

- Landscape Design and Management
- Nursery Operations
- Greenhouse Management
- Floriculture
- Turf Grass Management
- Fruit/Vegetable Gardening

Must include units in greenhouse and chemical safety; personal/general safety; ecological and environmental safety; and or hand and power tool safety as appropriate for the program.

Must also include at least 2 units of instruction in at least one of the following areas:

- Ag Sales/Service
- Ag Business Management
- Ag Marketing

An introductory course must be offered at the 9<sup>th</sup> grade level. If an 8<sup>th</sup> grade course is included in the sequence, it may be used as one of the un-funded courses within the sequence for identifying a completer. The introductory course must include a variety of subjects allowing students to be exposed to all areas offered in other courses within the sequence. For example, if the courses in the sequence include plant and soil science, turf management, landscape design, greenhouse management, and ag marketing, then the introductory course must have units in each of these areas. In addition, this course must include units in FFA orientation and beginning record-keeping skills.

Examples of Ag Mechanics competencies that could be integrated into this program include:

- Ag Power – repair and maintenance of lawn and garden power equipment
- Structures – design and construction of lawn, garden and horticulture buildings
- Plumbing – design and installation of irrigation systems

Example of a program sequence with suggested course titles and grade levels, for Horticulture 01-0601:

Introduction to Horticulture	9
Fruit and Vegetable Production	10
Plant and Soil Science	10
Greenhouse Management	11
Turf and Landscape Management	11
Landscape Design/Management	12
<b><i>Other Course Options</i></b>	
Hydroponics	10
Ag Environmental Science	11
Ag Marketing	12

**01.9999 – Agricultural Science:**

Must include courses in at least 3 different areas:

- Animal Science
- Food Science and Technology
- Plant Science
- Soil Science
- Environmental Science

Must include units in laboratory and personal safety as appropriate for the program

Must also include at least 2 units of instruction in at least one of the following areas:

- Ag Sales/Service
- Ag Business Management
- Ag Marketing

An introductory course must be offered at the 9<sup>th</sup> grade level. If an 8<sup>th</sup> grade course is included in the sequence, it may be used as one of the un-funded courses within the sequence for identifying a completer. The introductory course must include a variety of subjects allowing students to be exposed to all areas offered in other courses within the sequence. For example, if the courses in the sequence include plant science, animal science, food processing, environmental science and ag sales, then the introductory course must have units in each of these areas. In addition, this course must include units in FFA orientation and beginning record-keeping skills.

Examples of Ag Mechanics competencies that could be integrated into this program include:

- Welding – physical and chemical changes in metals
- Structures – design and construction of livestock handling facilities
- Electrification – Electrical wiring and electronics

Example of a program sequence with suggested course titles and grade levels, for Agricultural Science 01-9999:

Introduction to Agriculture Science	9
Plant and Soil Science	10
Ag Environmental Science	11
Animal Science	11
Food and Nutrition Systems	12
Pre-Veterinary Science	12
<b><i>Other Course Options</i></b>	
Horticulture	10
Food Products and Processing	11
Ag Sales and Service	12

## Appendix B

### List of Recommended Titles for Fundable Courses

Course titles listed are recommended for audit purposes. This is not an all-inclusive list, and is provided for guidance when selecting course titles. Local programs may use other titles as determined by local needs.

Summary of approved course titles by program area

Course	01.0000	01.0201	01.0599	01.0601	01.9999
<b>Food Products and Processing Systems:</b>					
Food Science	X				X
Food and Nutrition Systems	X				X
Food Products and Processing	X				X
<b>Plant Systems:</b>					
Plant Science	X			X	X
Soil Science	X			X	X
Plant and Soil Science	X			X	X
Crop Science/Production	X				X
Horticulture/Hort Science	X				X
Horticulture 2/Hort Science 2	X				X
Landscape Design/Management	X			X	
Greenhouse Management	X			X	
Turf and Landscape Management	X			X	
Floriculture	X			X	
Fruit and Vegetable Production	X			X	
Hydroponics	X			X	X
<b>Animal Systems:</b>					
Animal Science	X		X		X
Advanced Animal Science	X		X		X
Livestock Production	X		X		
Veterinary Science	X		X		X
Wildlife Management	X		X		X
Small Animal Care	X		X		
Equine Science	X		X		X
Companion Animals	X		X		
Aquaculture	X		X		X
<b>Power, Structural and Technical Systems:</b>					
Ag Mechanics	X	X			
Ag Welding	X	X			
Ag Metals	X	X			X
Ag Power and Machinery	X	X			
Small Engines	X	X		X	
Ag Construction	X	X			

Course	01.0000	01.0201	01.0599	01.0601	01.9999
Ag Structures	X	X		X	
Ag Power and Electricity	X	X			X
Ag Technology Management	X	X			
Ag Environmental Systems	X	X			
Advanced Ag Mechanics	X				
<b>Natural Resources and Environmental Systems:</b>					
Natural Resources Management	X	X			X
Ag Environmental Science	X				X
Wildlife Management	X		X		X
Soil and Water Management	X	X			
<b>Agribusiness Systems:</b>					
Ag Entrepreneurship	X				
Ag Management	X	X	X	X	X
Ag Business Management	X	X	X	X	X
Ag Sales and Service	X	X		X	
Ag Marketing	X		X	X	
Ag Business and Leadership	X				
<b>Sequence courses – must contain a variety of subjects in at least 3 of the above areas</b>					
Ag Ed 2, 3, 4	X				
Ag Science 2, 3, 4	X				X
Ag Mechanics 2, 3, 4		X			
<b>Miscellaneous course titles, general:</b>					
Ag Leadership*	X		X	X	X
Ag Research	X		X	X	X
Ag Science	X		X	X	
Advanced Ag Ed	X				
Ag OJT or SAE OJT	X	X	X	X	X

\* An Ag Leadership course must include at least 50% technical agriculture, SAE and FFA related competencies in order to be funded. The remaining competencies may be related to Career Development Skills. Examples of acceptable technical agriculture, SAE and FFA related competencies include: Ag Issues Forum type research and delivery; Ag Science Fair preparation and participation; Ag research topics; Advanced skills in agriculture related projects; International agriculture; Preparation for CDEs including Ag Sales, Job Interview, or Ag Marketing.

# Appendix C

## Course Outline

### Anytown High School Plant and Soil Science

**Course Length:** 170 hours, 1 year  
**Grade Level:** 10<sup>th</sup>  
**Prerequisites:** Introduction to Agriculture  
**Teaching Resources:** Plant Science Curriculum Materials, Texas A&M Univ.  
Soil Science and Management, Delmar, 2<sup>nd</sup> edition  
Land and Homesite Evaluation Handbook, KSU  
Crop Production, Prentice Hall, 5<sup>th</sup> edition

**Course Description:** This course involves the study of basic plant identification, anatomy and physiology, environmental requirements for optimum plant growth, plant propagation methods, greenhouse management and pest management. Other areas of study include field crop sciences, landscape plants, specialty crops, soil and water management and crop quality grading. Leadership and personal development skills are taught through the integration of FFA Career Development Events and SAE activities.

#### Course Outline:

- I. Plant and Soil Science Industry and Careers
  - A. History of plant and soil science
  - B. Career opportunities today
  - C. Student activities:
    - Develop an outline/timeline by searching websites and references related to the History of Farming.
    - Interview a person employed in a crop/soils/horticulture position to present orally.
  
- II. Soil Science and Land Evaluation
  - A. Processes of rock degradation and soil formation
  - B. Soil profiles and horizon layering
  - C. Properties of soils
  - D. Soil textural classifications
  - E. Soil cation exchange and water holding capabilities
  - F. Calculating slope and runoff potential
  - G. Land use capability classification
  - H. Land improvement practices
  - I. Student Activities:
    - Tour local construction site to view soil profile differences
    - Utilize various soil types, including student's home samples, to classify soils using the soil textural triangle and ribbon method.
    - Conduct "slope estimation".
    - Participate in local, district and state FFA Land Judging and Homesite Evaluation

## Appendix D

### Example of Correlation Between Course Outline and Competency Profile

The difference between the course outline and the competency profile is that the outline details what the instructor will teach, while the competency profile details what the student has achieved after instruction has taken place.

To demonstrate the difference, note in the example below a section from the course outline in Appendix C, and the corresponding competency profile. Note that the outline identifies what is being taught; whereas the profile identifies competencies the student can demonstrate upon completion of the instruction.

#### **Outline: What the Teacher Teaches**

Course: Plant and Soil Science

Unit of Instruction: Soil Science and Land Evaluation

Topics:

- A. Processes of rock degradation and soil formation
- B. Soil profiles and horizon layering
- C. Properties of soils
- D. Soil textural classifications
- E. Soil cation exchange and water holding capabilities
- F. Calculating slope and runoff potential
- G. Land use capability classification
- H. Land improvement practices

#### **Competency Profile: What the Student Can Do**

Course: Plant and Soil Science

Topic Heading: Soil Science and Land Evaluation

(S) = science; (M) = math; (E) = language arts; (C) = Career Development Skill; (L) Lab Activity

- |         |   |         |   |
|---------|---|---------|---|
| 3 2 1 0 | 1. Explain the process of soil formation (S)                | 3 2 1 0 | 9. Determine fertilizer and lime recommendations from soil test (M, C)              |
| 3 2 1 0 | 2. Describe soil geology (S)                                |         |   |
| 3 2 1 0 | 3. Differentiate between various horizons of a soil profile | 3 2 1 0 | 10. Determine soil texture using ribboning method (L)                               |
| 3 2 1 0 | 4. Describe biological properties of soil (S)               | 3 2 1 0 | 11. Determine soil texture using soil triangle (M, L)                               |
| 3 2 1 0 | 5. Describe physical properties of soil (S)                 | 3 2 1 0 | 12. Explain classification of soil water (E)  |
| 3 2 1 0 | 6. Describe chemical properties of soil (S)                 | 3 2 1 0 | 13. Determine appropriate use of land for production purposes (C)                   |
| 3 2 1 0 | 7. Test soil samples to determine characteristics (S, L)    | 3 2 1 0 | 14. Evaluate land for use as a home site (C)  |
| 3 2 1 0 | 8. Interpret soil test results (M)                          | 3 2 1 0 | 15. Recommend land improvement practices for a field based on land capability class |
| 3 2 1 0 | 9. Determine soil pH (S)                                    |         |   |

# Appendix E

## Core Competencies Required and Recommended By Career Cluster Pathway

### AGRIBUSINESS SYSTEMS

#### REQUIRED COMPETENCIES

**Performance Element: Develop a mission statement to guide business activities effectively.**

Establish short- and long-term goals.

**Performance Element: Apply leadership skills to accomplish general business activities from production to public relations.**

Identify leadership styles.

Conduct a business meeting using proper parliamentary procedures/consensus techniques.

Work in teams to access a variety of expertise.

**Performance Element: Apply management skills to accomplish general business activities from production to public relations.**

Identify organizational structures.

Identify time management techniques.

Make business presentations.

**Performance Element: Prepare and maintain all files as needed to accomplish effective record keeping.**

Develop record keeping techniques and practices.

Keep production and agribusiness records.

Make records analysis.

**Performance Element: Use key accounting fundamentals to accomplish dependable bookkeeping and associated files.**

Budget resources (e.g., capital, human, financial, time).

Evaluate credit uses and options.

Prepare and interpret financial statements (e.g., balance sheet, profit/loss statement, cash flow statement).

Determine cost of doing business.

Analyze investment options (e.g., buy, lease, finance, risk).

**Performance Element: Use technology and information technology strategies for business improvement.**

Create and use documents using word processors, spreadsheets, databases and electronic mail.

Conduct research using the Internet.

Conduct oral/visual presentation using presentation software.

**Performance Element: Conduct market research.**

Evaluate methods of marketing products and services.

Apply economic principles to marketing (e.g., supply and demand).

**Performance Element: Merchandise products and services.**

Conduct sales presentation.

## **RECOMMENDED COMPETENCIES**

### **Performance Element: Develop a mission statement to guide business activities effectively.**

Identify planning approaches for preparing mission statement.

Write a mission statement.

### **Performance Element: Apply leadership skills to accomplish general business activities from production to public relations.**

Extend a pat on the back for jobs well done.

### **Performance Element: Apply management skills to accomplish general business activities from production to public relations.**

Identify management types.

Make business agreements.

Follow local, state, and federal regulations and appreciate the consequences of not following them.

Recruit, train and evaluate human resources.

### **Performance Element: Prepare and maintain all files as needed to accomplish effective record keeping.**

Identify information management systems.

### **Performance Element: Use key accounting fundamentals to accomplish dependable bookkeeping and associated files.**

Manage assets for optimum utilization.

Manage risk of liabilities.

Prepare tax forms (e.g., W-4 19, Depreciation, 1099, Workers Compensation).

Compare and examine advantages and disadvantages of banking procedures (e.g., bank reconciliation).

### **Performance Element: Monitor inventory levels to accomplish practical inventory control.**

Maintain optimum inventory levels.

Calculate costs of carrying inventory.

### **Performance Element: Use technology and information technology strategies for business improvement.**

Utilize leading technology: e.g., Global Positioning System (GPS), Geographical Information System (GIS),

Personal Data Application (PDA), cellular.

### **Performance Element: Conduct market research.**

Research products and service design(s).

### **Performance Element: Develop a marketing plan.**

Identify and develop value-added products.

Develop public relations campaigns.

Develop sales goals and incentive programs.

### **Performance Element: Implement a marketing plan.**

Promote products and services.

Advertise products and services.

### **Performance Element: Merchandise products and services.**

Identify key components to organize a sale.

Build and develop customer relationships.

Provide post-sale service.

Handle customer complaints.

Locate prospective new customers.

## ANIMAL SYSTEMS

### REQUIRED COMPETENCIES

**Performance Element: Use classification systems to explain basic functions of animal anatomy and physiology.**

Describe functional differences in animal structures and body systems.

Classify animals according to anatomy and physiology.

**Performance Element: Recognize the anatomy of animal species to understand how the body structures interact and affect animal health.**

Identify selected animal parts from a diagram or on a real animal.

Identify ways that an animal's health can be affected by anatomy/physiology problems.

**Performance Element: Analyze a subject animal to determine the nature of its health status.**

Perform simple procedures in evaluating an animal's health status.

Identify symptoms of diseases, illnesses, parasites, and other health-related problems.

**Performance Element: Examine animal developmental stages to comprehend why nutrient requirements are different throughout an animal's life cycle.**

Select diets, which provide the appropriate quantity of nutrients for each animal developmental stage.

**Performance Element: Analyze a feed ration to determine whether or not it fulfills a given animal's nutrient requirements.**

Identify the differences between good and poor quality feedstuffs.

Create a balanced ration for a given animal.

**Performance Element: Record and compare feed variations to assess whether the nutritional requirements of a given animal are being met.**

Use different types of feedstuffs (e.g., roughage, concentrates) to create a feed ration containing the appropriate amounts of required nutrients.

**Performance Element: Analyze elements in the reproductive cycle to explain differences between male and female reproductive systems.**

Identify the parts of male and female reproductive tracts on example animals.

Analyze the reproductive cycle of a given animal.

Evaluate animal readiness for breeding.

**Performance Element: Discuss reproductive cycles to show how they differ from species to species.**

Discuss the pros and cons of breeding through natural cover and artificial insemination.

Discuss the implications of genetic variation.

Describe techniques of artificial insemination.

Identify reproduction management practices (e.g., male to female ratios, age and weight for breeding, fertility and soundness for breeding, heat synchronization, flushing).

**Performance Element: Evaluate an animal to determine its breeding soundness.**

Identify and prevent problems associated with reproduction.

Select animals based on breeding soundness.

**Performance Element: Recognize optimum performance for a given animal species.**

Identify good performance for a given animal species.

Identify reasons why some animals perform better than others.

**Performance Element: Develop efficient procedures to produce consistently high-quality animals, well suited for their intended purpose.**

Identify a given species' desirable production numbers (e.g., birth weight, rate of gain, age of maturity, age of sexual maturity).

Evaluate desired traits (e.g., production) of animals.

Evaluate the role that economics plays in animal production.

**RECOMMENDED COMPETENCIES**

**Performance Element: Analyze a subject animal to determine the nature of its health status.**

Diagnose animal ailments.

Implement disease prevention and health improvement program.

Identify and implement (i.e., treat) treatment options.

**Performance Element: Develop a safety plan for working with a specific animal.**

Explain factors, which serve to stimulate or discourage given types of animal behavior.

Perform safe handling procedures when working with animals.

Identify strengths and weaknesses of an animal safety-handling plan.

Operate animal facilities to insure safety of animals.

**Performance Element: Examine animal developmental stages to comprehend why nutrient requirements are different throughout an animal's life cycle.**

Recognize the different phases of an animal's life cycle.

**Performance Element: Record and compare feed variations to assess whether the nutritional requirements of a given animal are being met.**

Use different forms of feedstuffs (e.g., pellets, cracked, rolled, ground) to create a diet that meets the needs of a specific animal.

**Performance Element: Evaluate an animal to determine its breeding soundness.**

Describe the procedure for determining an animal's breeding readiness.

**Performance Element: Create a program to develop an animal to its highest potential performance.**

Identify factors that can be manipulated to control a given animal's performance.

Generate ways to increase an animal's performance.

**Performance Element: Assess an animal to determine if it has reached its optimum.**

Make appropriate changes in an animal's environment in order to achieve optimum performance.

Use appropriate tools in manipulating animal performance.

**Performance Element: Develop efficient procedures to produce consistently high-quality animals, well suited for their intended purpose.**

Design facilities appropriate for the production of a given species of animal.

Make decisions on using new techniques and methods in the production facility so that both profit and animal safety are maximized.

## **FOOD PRODUCTS AND PROCESSING SYSTEMS**

### **REQUIRED COMPETENCIES**

**Performance Element: Develop management plans to maintain equipment and facilities.**

Explain and demonstrate Good Manufacturing Practices (GMP), including employee safety.

**Performance Element: Interpret and follow, develop and implement Hazard Analysis Critical Control Point (HACCP) procedures to establish operating parameters.**

Establish critical limits for each Critical Control Point (CCP).

**Performance Element: Apply food science principles to enhance product development.**

Comply and apply USDA/FDA standards.

Use product development (e.g., consumer opinion, taste testing).

Compare and contrast the nutritive value of food groups.

Identify and compare various food constituents.

**Performance Element: Analyze product preparation options to prepare products for distribution.**

Demonstrate approved product handling techniques.

Use weights and measures (e.g., US, metric) to formulate product.

Store products.

**Performance Element: Compare and select food preservation methods to develop food preservation programs.**

Explain methods of chemical preservation (e.g., pH, salt, water activity [aw], additives).

Explain the impact of temperature in food preservation.

Compare and contrast process preservation (e.g., irradiation, pasteurization, sterilization).

**Performance Element: Develop a "quality factors program" to comply with local, national, governmental, and international standards.**

Explain methods of food storage to assure product quality.

Interpret and follow industry/government standards.

**Performance Element: Develop slaughter/inspection techniques to process food products and analyze food product options.**

Compare and contrast slaughter techniques (e.g., zero tolerance).

### **RECOMMENDED COMPETENCIES**

**Performance Element: Develop management plans to maintain equipment and facilities.**

Develop and maintain a Standard Sanitation Operating Procedure (SSOP).

**Performance Element: Interpret and follow, develop and implement Hazard Analysis Critical Control Point (HACCP) procedures to establish operating parameters.**

Conduct a hazard analysis.

Identify Critical Control Points (CCP).

Establish monitoring procedures.

Establish corrective actions.

Establish verification procedures.

**Performance Element: Apply food science principles to enhance product development.**

Conduct research.

Apply the use of chemistry.

Conduct nutritional analysis (e.g. biochemistry).

**Performance Element: Analyze product preparation options to prepare products for distribution.**

Interpret and perform quality assurance tests (e.g., fat, moisture, protein).

Demonstrate documentation techniques.

Package products.

**Performance Element: Compare and select food preservation methods to develop food preservation programs.**

Calculate and inventory parts per million (ppm) of restricted ingredients (e.g., milk).

Compare and contrast packaging preservation (e.g., film, plastic, can).

**Performance Element: Develop a "quality factors program" to comply with local, national, governmental, and international standards.**

Perform and interpret quality check of food products per industry standards.

**Performance Element: Develop slaughter/inspection techniques to process food products and analyze food product options.**

Compare and contrast slaughter techniques (e.g., zero tolerance).

Conduct pre-mortem and post-mortem inspections.

Process meat and poultry products.

Process dairy products.

Process fruits and vegetables.

Process grains.

Select raw materials for processing.

## **NATURAL RESOURCES AND ENVIRONMENTAL SYSTEMS**

### **REQUIRED COMPETENCIES - Natural Resources**

**Performance Element: Identify resource management components to establish relationships in natural resource systems.**

Identify natural resources.

Identify organizations and agencies involved in resource management.

Identify impacts by humans on natural resources.

Describe ecosystem relationships.

**Performance Element: Employ environmental and wildlife knowledge to demonstrate natural resource enhancement techniques.**

Demonstrate wildlife habitat enhancement techniques.

Demonstrate range enhancement techniques.

**Performance Element: Examine biological and physical characteristics to identify and classify natural resources.**

Identify tree species and other woody vegetation.

Identify grass and forb species.

Identify wildlife species.

Identify fish species.

Identify rocks, minerals and soil types.

**Performance Element: Examine natural cycles and related phenomena to describe ecologic concepts and principles.**

Describe the hydrologic cycle.

Describe the nitrogen cycle.

Describe the carbon cycle.

Describe nutrient cycles.

Describe succession.  
Describe predator-prey relationships.  
Identify potential pollution sources.

**Performance Element: Recognize insect types and available controls to prevent insect infestation.**

Identify and classify insects.  
Identify insect damage signs.

**REQUIRED COMPETENCIES - Environmental**

**Performance Element: Use instrumentation to monitor samples.**

Operate basic laboratory equipment and environment monitoring instruments (e.g., pH meter/ISE meter, compound microscope/dissecting microscope, sound level measuring devices, turbidimeter, conductivity meter, chlorine meter OVA, HNMU).

**Performance Element: Apply statistics, charts, and scattergrams to measure and monitor operations.**

Interpret quantitative and graphic output from chemical analysis instruments.

**Performance Element: Describe soil compositions and properties to demonstrate knowledge of soil science.**

Describe soil geology.  
Describe composition of soil.  
Describe the biological properties of soil.  
Identify the physical properties of soil.  
Describe the chemical properties of soil.  
Test soil samples to determine characteristics.  
Explain classification of soil water.  
Explain the relationship between soil classifications and land use.

**Performance Element: Explain well design and groundwater supplies to demonstrate knowledge of hydrology.**

Explain hydrology.  
Explain geological and meteorological principles affecting groundwater supply.

**Performance Element: Discuss properties, classifications and functions in order to understand wetland principles.**

Explain wetlands classification.  
Explain the function of wetlands.  
Describe the living components of wetland habitats.

**Performance Element: Discuss properties, classifications and functions in order to understand watershed principles.**

Identify properties of watersheds.  
Explain watershed management.

**Performance Element: Use pollution control measures to maintain a safe facility environment.**

Identify types of pollution (e.g., ground, surface water, air, noise radioactive contamination).  
Identify presence of pollution.  
Describe environmental impact from industrial and non-industrial processes.  
Establish pollution management and prevention program.

**Performance Element: Apply principles of solid waste management (landfill) to manage safe disposal of all categories of waste.**

Identify the risks associated with solid waste accumulation and disposal.  
Describe recycling methods.

**Performance Element: Apply drinking water treatment operations principles to assure safe water at a facility.**

Identify characteristics of drinking water treatment.  
Explain the aeration process in water treatment.  
Monitor the filtration and sedimentation process in water treatment.  
Monitor the disinfection process in water treatment.

**Performance Element: Apply wastewater treatment operations principles to manage wastewater disposal in keeping with rules and regulations.**

Analyze the constituents of wastewater entering wastewater treatment facility.  
Describe the disinfection process in wastewater treatment.  
Describe the treatment train, effluent disposal, and biosolids management in wastewater.

**Performance Element: Apply hazardous materials management principles to assure a safe facility and to comply with applicable regulations.**

Describe risks related to hazardous materials.  
Describe health and safety practices to reduce risks from hazardous materials.  
Describe appropriate use of Personal Protective Equipment (PPE).  
Demonstrate safe handling procedures for hazardous materials and hazardous waste.  
Demonstrate methods for identifying hazardous material.  
Perform site evaluation for hazardous material risk.

**Performance Element: Explore conventional and alternative supplies to define energy sources.**

Identify alternative energy sources and their environmental impact.

## **RECOMMENDED COMPETENCIES – Natural Resources**

**Performance Element: Identify resource management components to establish relationships in natural resource systems.**

Create habitat management plan.

**Performance Element: Apply cartographic skills to natural resource activities.**

Describe different types of maps.  
Interpret map features and legend.  
Determine map scale and actual distance.  
Determine direction from map.  
Determine elevation and terrain features from topographic maps.  
Use directional tools with map to locate position.  
Use land survey and coordinate system.  
Use Geographic Information System to interface geospatial data.  
Interpret photos and images.

**Performance Element: Monitor natural resource status to obtain planning data.**

Conduct resource inventory and population studies.  
Establish sample plots and points.  
Locate and identify resources.  
Collect data concerning resource availability and health.  
Describe the relationship of harvest levels to long-term availability of resources.

**Performance Element: Employ environmental and wildlife knowledge to demonstrate natural resource enhancement techniques.**

Demonstrate stream enhancement techniques.  
Demonstrate forest stand improvement techniques.  
Demonstrate recreation area enhancement techniques.

**Performance Element: Examine weather and other criteria to recognize dangers related to work in an outdoor environment.**

Recognize weather-related dangers.  
Recognize hazards as they relate to terrain.  
Recognize poisonous plants and animals.  
Recognize hazardous situations at the work location.

**Performance Element: Examine natural cycles and related phenomena to describe ecologic concepts and principles.**

Describe population dynamics.  
Describe primary and secondary producers.  
Define watershed boundaries.  
Use stream classification system.  
Describe the influence of weather and climate factors.

**Performance Element: Prepare presentations to describe how natural resource products are produced, harvested, processed and used.**

Describe forest harvest techniques and procedures.  
Describe wildlife harvest techniques and procedures.  
Describe fish harvest techniques and procedures.  
Describe how public recreation use is a product.

**Performance Element: Employ techniques and equipment needed to prevent wildfire.**

Demonstrate personal fire prevention precautions while working in natural environments.

**Performance Element: Recognize symptoms of animal and plant diseases and use appropriate techniques to prevent their spread.**

Identify observable diseases impacting plants and animals.  
Describe how to report observance of disease infestations.  
Use appropriate techniques and equipment when working with biohazards.

**Performance Element: Use acceptable pesticides to treat insect infestation.**

Apply materials to treat for insect infestation.

**RECOMENDED COMPETENCIES - Environmental**

**Performance Element: Use instrumentation to monitor samples.**

Perform chemical laboratory sample preparation.  
Perform analytical separation techniques.  
Operate advanced laboratory and field equipment and instruments (e.g., HPLC, GC, bomb calorimeter, Geiger Mueller counter, explosimeters specific gas meters, carbon analyzer, microwave).  
Use computers to interface with chemical analytical instruments.  
Perform instrumental analysis (e.g., mass spectrometers, chromatographs, electron microscopes).

**Performance Element: Calibrate and service instruments on a timely schedule to maintain environmental instrumentation.**

Calibrate chemical analytical instruments.  
Operate and maintain pressure test instruments (e.g., manometers, vacuum pumps, pressure and vacuum gages).  
Service thermal measuring instruments.  
Service chemical property measuring instruments (e.g., O<sub>2</sub> meter, spectrophotometer, atomic absorption spectrophotometer, inductively coupled plasma, ion chromatography, infrared).

**Performance Element: Apply statistics, charts, and scattergrams to measure and monitor operations.**

Apply basic statistics concepts.

Interpret scattergrams.  
Analyze probability theories.  
Determine control limits.  
Determine process capability.  
Prepare and evaluate charts.  
Conduct process improvement studies.

**Performance Element: Consult reliable resources or training to identify the major laws impacting environmental services.**

Identify key components of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).  
Identify requirements of waste and material transportation.  
Explain requirements of Clean Water Act.

**Performance Element: Apply meteorological knowledge to recognize weather systems and weather patterns.**

Identify the components of the earth's atmosphere.  
Explain basic meteorology principles.

**Performance Element: Explain well design and groundwater supplies to demonstrate knowledge of hydrology.**

Conduct channel flow analysis  
Identify differences in groundwater potential.  
Identify environmental hazards associated with groundwater supplies.

**Performance Element: Discuss properties, classifications and functions in order to understand wetland principles.**

Identify techniques used in wetland management, enhancement and restoration programs.  
Identify principles used in wetland mitigation and restoration.

**Performance Element: Discuss properties, classifications and functions in order to understand watershed principles.**

Delineate watersheds.  
Assess source water.

**Performance Element: Use chemical analysis to conduct tests.**

Explain basic chemistry principles (e.g., elements, compounds).  
Apply chemical laboratory skills.

**Performance Element: Perform common microbiology procedures to examine cell types and conduct tests.**

Conduct bioassay tests.  
Identify groups of microorganisms.  
Analyze factors affecting microbial growth.

**Performance Element: Apply sampling techniques and other assessments to demonstrate background knowledge of microbiology.**

Describe roles of microorganisms in the environment.  
Explain microbial growth.  
Describe influence of environmental factors on microbes.

**Performance Element: Use pollution control measures to maintain a safe facility environment.**

Quantify extent of pollution.  
Locate and monitor sources of pollution.

**Performance Element: Apply principles of solid waste management (landfill) to manage safe disposal of all categories of waste.**

Collect solid waste materials.

Describe methods of site identification and acceptance.  
Explain sanitary landfill operating procedures.  
Describe methods to operate a composting facility.  
Describe methods to incinerate solid waste.

**Performance Element: Apply drinking water treatment operations principles to assure safe water at a facility.**

Monitor the mixing, coagulation and flocculation processes in water treatment.  
Monitor the water-softening process in water treatment.  
Monitor the stabilization process in water treatment.  
Monitor the corrosion-control process in water treatment.  
Describe taste and odor control in water treatment.  
Describe the demineralization processes in water treatment.  
Monitor the fluoridation process in water treatment.  
Identify methods for backflow prevention.

**Performance Element: Apply wastewater treatment operations principles to manage wastewater disposal in keeping with rules and regulations.**

Identify characteristics of wastewater treatment.  
Sample wastewater.  
Describe wastewater collection systems.  
Describe the mixing, coagulation and flocculation processes in wastewater treatment.

**Performance Element: Apply hazardous materials management principles to assure a safe facility and to comply with applicable regulations.**

Demonstrate appropriate responses for major types of hazardous materials disasters (e.g., chemical, fire and explosion, general safety hazards) (FRA, FRO, HMT, HMS).  
Explain hazardous substance regulations.  
Demonstrate ability to obtain and use information addressing hazardous substance release.  
Evaluate laboratory results.  
Detect hazardous materials.  
Respond to mock hazardous materials emergency situations.  
Describe use of equipment related to hazardous materials and hazardous-waste operations.

**Performance Element: Explore conventional and alternative supplies to define energy sources.**

Identify conventional energy sources and their environmental impact.

**Performance Element: Use technological tools to map land, facilities, and infrastructure.**

Apply basic drafting skills to create working drawings.  
Use CADD fundamentals to create specialized documents.  
Apply cartographic skills.  
Apply surveying skills.

## **PLANT SYSTEMS**

### **REQUIRED COMPETENCIES**

**Performance Element: Analyze and evaluate nutritional requirements and environmental conditions to develop and implement a fertilization plan.**

Describe nutrient sources.  
Determine plant nutrient requirements for optimum growth.  
Identify function of plant nutrients in plants.  
Determine the environmental factors that influence and optimize plant growth.  
Apply nutrients to plants for economic growth.  
Describe nutrient application methods and appropriate practices.

**Performance Element: Test appropriate materials or examine data to evaluate and manage soil/media nutrients.**

Collect and test soil/media and/or plant tissue.  
Interpret tests of soil/media and/or plant tissue.  
Identify soil slope, structure and type.  
Evaluate soil/media permeability and water-holding capacity.  
Determine land use capability.

**Performance Element: Explain and use basic methods for reproducing and propagating plants.**

Determine the role of genetics in plants.  
Describe the components and functions of plant reproductive parts.  
Identify and practice methods of asexual/sexual plant propagation.

**Performance Element: Develop and use a plan for integrated pest management.**

Identify plant pests (e.g., insects, diseases, weeds, rodents).  
Determine pest management safety practices.  
Determine pest management methods.

**Performance Element: Examine unique plant properties to identify/describe functional differences in plant structures including roots, stems, flowers, leaves and fruit.**

Identify plant structures (e.g., seeds).  
Describe physiological functions of plants.  
Describe germination process and conditions.

**Performance Element: Classify plants based on physiology for taxonomic and other classifications.**

Classify plants as monocots or dicots.  
Classify plants as annuals, biennials or perennials.  
Classify plants according to growth habit.  
Classify plants by type.

**Performance Element: Apply fundamentals of plant management to develop a production plan.**

Identify and select seeds and plants.  
Manipulate and evaluate environmental conditions (e.g., irrigation, mulch, shading) to faster plant germination, growth and development.  
Evaluate and demonstrate planting practices (e.g., population rate, germination/seed vigor, inoculation, seed and plant treatments).  
Evaluate and demonstrate transplanting practices.  
Prepare soil/media for planting.  
Control plant growth (e.g., pruning, pinching, disbudding, topping, detasseling, staking, cabling, shearing, shaping).

**RECOMMENDED COMPETENCIES**

**Performance Element: Test appropriate materials or examine data to evaluate and manage soil/media nutrients.**

Determine the chemical properties of soil/media.  
Determine the biological functions of microorganisms of soil/media

**Performance Element: Explain and use basic methods for reproducing and propagating plants.**

Describe the principles of plant micro-propagation.  
Apply principles and practices of biotechnology to plant propagation.

**Performance Element: Develop and use a plan for integrated pest management.**

Develop pest management plans based on pest life cycles.  
Implement pest control plan with appropriate treatments.

Evaluate pest control plan.  
Prevent, identify and manage pest resistance.

**Performance Element: Classify plants based on physiology for taxonomic and other classifications.**  
Classify plants by economic value.

**Performance Element: Apply fundamentals of plant management to develop a production plan.**  
Prepare plants and plant products for distribution.

**Performance Element: Apply fundamentals of plant management to harvest, handle and store crops.**  
Determine crop maturity.  
Identify harvesting practices and equipment.  
Demonstrate common harvesting techniques.  
Calculate yield and loss.  
Identify options for crop storage.  
Maintain quality of plant products in storage.

**Performance Element: Apply basic design elements and principles to create a design using plants.**  
Conduct a site evaluation for physical conditions and design implications.  
Apply elements of design (e.g., line, form, texture, color).  
Incorporate principles of design (e.g., space, scale, proportion, order).  
Use landscape design drawing tools including Computer Aided Design (CAD) and industry-specific software.  
Select hard goods, supplies and tools used in design.  
Select plant(s) for design.

## **POWER, STRUCTURAL & TECHNICAL SYSTEMS**

### **REQUIRED COMPETENCIES**

#### **TOPIC: POWER**

**Performance Element: Perform scheduled service routines to maintain machinery.**  
Ensure presence and function of safety systems and hardware.  
Maintain fluid levels.  
Identify causes of malfunctions and failures.

**Performance Element: Observe rules of the road to operate machinery and equipment.**  
Safely operate equipment.

**Performance Element: Troubleshoot problems and evaluate performance to service and repair the components of internal combustion engines.**  
Describe principles of operation.  
Identify engine systems and components.  
Analyze and troubleshoot engine.

**Performance Element: Use tools in the workplace to demonstrate safe use and proper skills with construction/fabrication hand tools.**  
Demonstrate proper use of measurement and layout tools.  
Apply proper use of measurement and layout tools in construction/fabrication of an actual project.  
Demonstrate safe and proper techniques in using hand and power tools in construction/fabrication.  
Demonstrate hand and power tool use to construct/fabricate an actual project according to blueprints or plans.  
Identify and demonstrate proper hand and power tool maintenance procedures.

## **TOPIC: STRUCTURAL SYSTEMS**

### **Performance Element: Use computer skills to develop simple sketches and plans.**

Use current technology to develop simple plans and sketches.

Use scale measurement and dimension to develop simple plans and sketches.

### **Performance Element: Use bids and billing information to develop a complete materials list and project cost estimate.**

Identify materials used in agricultural construction/fabrication.

Explain proper criteria for material use.

Identify elements of project cost estimate (materials, labor, administrative, etc.).

Explain selection process of all construction materials.

Estimate and select type and quantities of material and other costs associated with a specified project plan.

### **Performance Element: Use tools in the workplace to demonstrate safe use and proper skills with construction/fabrication hand tools.**

Demonstrate proper use of measurement and layout tools.

Apply proper use of measurement and layout tools in construction/fabrication of an actual project.

Demonstrate safe and proper techniques in using hand and power tools in construction/fabrication.

Demonstrate hand and power tool use to construct/fabricate an actual project according to blueprints or plans.

Identify and demonstrate proper hand and power tool maintenance procedures.

## **RECOMMENDED COMPETENCIES**

### **TOPIC: SCIENCE**

#### **Performance Element: Relate power generation to energy sources.**

Identify petroleum sources (e.g., gasoline, diesel).

Identify alternative sources (e.g., ethanol, biodiesel, air, wood, geothermal, solar).

Compare environmental impact of energy sources.

Compare efficiency of energy sources.

Compare characteristics of energy sources.

Discuss efficiency of systems (e.g., fuel cells, chemical wind, hydro, nuclear, electric, mechanical, solar, biological).

#### **Performance Element: Apply principles of lubricants of sort and classify lubricants.**

Classify lubricants and determine applications

Identify viscosity and strengths of lubricants.

Describe properties of lubricants.

### **TOPIC: POWER**

#### **Performance Element: Perform scheduled service routines to maintain machinery.**

Lubricate machinery and equipment.

Service electrical systems.

Perform machine adjustments (e.g., belts, drive chains).

Service filtration systems.

Maintain vehicle, machinery and equipment cleanliness and appearance.

Maintain fluid conveyance components, (e.g., hoses and lines, valves, nozzles).

Design a preventive maintenance schedule.

Calibrate metering, monitoring, and sensing equipment.

#### **Performance Element: Observe rules of the road to operate machinery and equipment.**

Describe function of machine controls and instrumentation.

Perform appropriate start-up procedures.

Select proper machine(s) for specific task(s).

Perform pre-operation inspection.

List applicable laws for on- and off-highway operation.

**Performance Element: Troubleshoot problems and evaluate performance to serve and repair the components of internal combustion engines.**

Perform overhaul procedures.

Evaluate engine performance through post-rebuild testing.

**Performance Element: Follow manufacturers' guidelines to service and repair power transmission systems.**

Describe features, benefits, and applications of various power transmission systems.

Describe principles of operation of various power transmission systems.

Perform calculations involving speed, torque and power relationships.

Describe features, benefits, and applications of mechanical transmission components (e.g., belts, chains, gears, bearings, seals, universals).

**Performance Element: Evaluate performance and check maintenance manuals to service and repair hydraulic systems.**

Describe features, benefits, and applications of types of hydraulic systems.

Describe physical principles of operation.

Interpret symbols and schematic drawings.

Describe and application and operation of major components.

Evaluate system cleanliness.

Identify hydraulic fittings and ports.

**Performance Element: Troubleshoot from schematics to service vehicle electrical systems.**

Describe features and applications of electrical systems.

Interpret symbols and wiring diagrams.

Test and troubleshoot electrical systems and components (e.g., battery, charging, starting, lighting, instrumentation, accessories).

Troubleshoot and install instrumentation and data acquisition system (e.g. Global Positioning System (GPS), spraying planting, harvesting monitors).

**Performance Element: Check performance parameters to service and repair steering, suspension, traction, and vehicle performance systems.**

Evaluate traction, ballasting, and weight transfer.

Evaluate vehicle stability.

Determine optimum vehicle performance, e.g., horsepower management, fuel efficiency.

**TOPIC: STRUCTURAL SYSTEMS**

**Performance Element: Use computer skills to develop simple sketches and plans.**

Identify symbols and drawing techniques used to develop simple plans and sketches.

**Performance Element: Examine blueprints and local codes to develop a logical construction plan.**

Identify parts of a plan or blueprint.

Identify criteria for different views of a plan or blueprint.

Locate elements of a construction plan and develop a construction plan.

Identify local code enforcement agencies and procedures.

**Performance Element: Use bids and billing information to develop a complete materials list and project cost estimate.**

Prepare a bid package for a planned project

**Performance Element: Design machinery and equipment including vehicles, implements, building, and facilities (e.g., feeding, feed storage).**

Analyze site/equipment/permit requirements.

Develop drawings.

Estimate material needs and costs.

Operate Computer Aided Drafting Design (CADD) Software.

**Performance Element: Follow architectural and mechanical plans to construct buildings and facilities.**

Identify and select appropriate building materials.

Install plumbing equipment and fixtures. Construct with wood and metal.

Construct with wood and metal.

Install electrical wiring components and fixtures.

Paint or protect with coatings.

Insulate facility.

Construct with concrete, stone, and brick.

**TOPIC: TECHNICAL SYSTEMS**

**Performance Element: Measure with selected instruments to demonstrate knowledge of basic electricity.**

Show proficiency in use of various meters.

Discuss importance of and techniques for grounding.

Show understanding of codes and regulations.

Discuss various energy sources.

**Performance Element: Employ appropriate techniques to demonstrate application of GIS/GPS systems principles.**

Explain the concept and principles.

Describe equipment.

List techniques used.

Explain the application of GIS/GPS systems with map development output.

## **Appendix F**

### **SAE competencies**

#### **Required Competencies:**

1. Beginning/basic record keeping skills in an introductory course
2. Career exploration activities
3. Job interview
4. Resume writing
5. Maintain minimum record book pages in funded courses:
  - A. Leadership Development pages  
AND
  - B. Appropriate SAE Packet  
OR  
SAE Agreement; SAE Summary Page; Record of skills, competencies and hours (paid or unpaid) of SAE; Income and Expenses, if applicable  
AND
  - C. SAE Evaluation form (Refer to Appendix H)

#### **Recommended Competencies:**

The following is a list of sample competencies that may be integrated into various courses within any Agricultural Education program. This is not an all-inclusive list, but a sample of what could be used.

#### **Introductory Level**

##### **GENERAL**

- Define Supervised Agricultural Experience program terms
- Determine types of SAE activities in placement activities
- Determine types of SAE activities in entrepreneurship activities
- Determine the types of SAE activities in Agriscience activities.
- Explore the opportunities for SAE programs
- Select an SAE program area
- Make plans for implementing an SAE program
- Set goals for SAE program
- Keep and maintain a mock checking account; can use quicken
- Explain the purpose of an SAE.
- Develop or enhance a plan for an SAE.
- Set goals for your SAE and implement plan of action to achieve them.
- Identify the various areas of the proficiency awards program.
- Match their SAE with the appropriate proficiency awards.
- Describe how to apply for a job interview.
- Make arrangements for an SAE visitation by the instructor.
- Participate in field trip activities on agriculture opportunities.
- Identify and evaluate a career.
- Identify benefits and incentives of an SAE program as it relates to career in agriculture.

## RECORD BOOK

Complete FFA leadership pages.

Complete sample entries in a record book.

Demonstrate ability to enter own activities in a record book.

Record the following for own situation: Leadership, SAE, Goals, Income, Personal Expense, Business Expense, Cash Flow and SAE specific pages.

Record personal and business expenditures in a record book.

Open record book; understand purpose.

Explain the importance of record keeping.

Match terms associated with record keeping.

Properly fill out a cash flow statement.

Fill out inventory and balance sheets.

Select and have long-range plan for SAE.

Demonstrate use of a program agreement.

Demonstrate ability to fill out beginning pages.

Complete SAE income and expense records.

## Second-Year Level

### GENERAL

Design an enterprise or SAE budget.

Compile and maintain records, logs, lab notes and other documents.

List steps for improving the SAE.

Maintaining service records.

Maintaining laboratory skills records.

Reconcile personal savings and checking accounts.

Apply for awards and degrees at appropriate level.

Apply for chapter/district proficiency awards.

Organize and submit award application.

Develop and Expand Safety project.

Apply for a job

Examine goals and future plans for SAE.

Make arrangements for an SAE visitation by the instructor.

Keep pictures monitoring SAE progress.

## RECORD BOOK

Demonstrate how to closeout a record book.

Perform end of the year balances.

List major record keeping forms that are commonly used.

Complete an enterprise analysis.

Explain the use of income statements.

Develop crop records.

Develop chemical records.

Analyze livestock records

Record borrowing/investments.

Develop a record keeping system for the student's entrepreneurship or placement area.  
Expand the record keeping system to keep records on all enterprises

#### Advanced Level

Maintaining tax records.

Calculate basic financial equations.

Examine different accounting systems used in agriculture record keeping.

Develop a plan for furthering their education and finding a job.

Develop positive human relationship characteristics.

Assist in managing money for the FFA Chapter.

Develop a plan for career pursuit.

Developing Personal Life Skills.

Analyze SAE records and determine profitability.

Demonstrate a sense of time management by successfully completing a project.

Utilize skills to market a product.

Make arrangements for an SAE visitation by the instructor.

Develop a career and educational plan.

Build SAEs by re-investing profits back into the program.

Build a construction type project for their SAEP.

Prepare a projected enterprise budget for the upcoming year using previous data.

Develop a research/monitoring plan to inquire about a natural resource topic.

Conduct a research/monitoring activity for a natural resource topic.

Evaluate the results of a natural resource-related inquiry.

Produce a technical report of results/findings.

Participate in wildlife prevention community service project.

## **APPENDIX G**

### **SAE On-The-Job Training**

#### **Course Description:**

To have an approved OJT course, the name of the course must be either “Ag OJT” or “SAE OJT”. The experience may either be one semester or one full-year long and must be identified on the Add/Delete form or VE-2 application. The course may count for either 1, 2 or 3 class periods for a total of up to 540 hours.

#### **Enrollment Eligibility:**

Only seniors are permitted to enroll in an approved OJT course. Students must have either completed a minimum of 3 full years of Agriculture courses in the approved sequence or be concurrently enrolled in their third course. Three courses can include the introductory course. It is recommended that the student be concurrently enrolled in an approved Ag Ed course in addition to the OJT. This will provide daily contact with the student and will allow time and access for the student to be involved in FFA activities.

#### **Supervision/Coordination Time:**

Only the certified agriculture instructor may supervise OJT students. Supervisory visits must be made at least once each month. The agriculture instructor that supervises OJT students shall receive one class period of coordination time per day when one to 14 students are enrolled in OJT. When 15 to 25 students are enrolled in OJT, the instructor shall receive two hours or coordination time per day. If the school is on a block schedule, the agriculture instructor that supervises OJT shall be granted a coordination time at least every other day. OJT is limited to 25 students for one agriculture instructor. If OJT enrollment exceeds 25 students, two certified agriculture instructors must coordinate OJT. Both instructors shall be provided with the same amount of coordination time as stated above.

The OJT agriculture instructor shall not be scheduled to teach another course, provide independent study, or be subject to any other duties during the coordination time. Coordination time must be scheduled during the same time that the OJT students are physically at their training stations. Coordination time must be scheduled during the regular school day.

#### **Student Placement:**

The agriculture instructor is responsible for locating a suitable training station for each OJT student. If a student locates his/her own training station, the agriculture instructor must approve it. All OJT training sites must be directly related to agriculture. OJT experiences may either be in placement or entrepreneurship. Students should not work for their parents as part of a placement experience. Students may only be placed on the family farm if someone other than the parents directly supervises them. A non-parent adult must directly supervise entrepreneurship experiences.

The OJT experience can be either paid or unpaid. This will be decided by an agreement between the school, training site, parents, instructors and student. Each student must have a training plan and training agreement on file for each training site.

### **OJT Grades:**

Students may also receive high school credit for taking OJT. The school district decides how much high school credit will be awarded for completing OJT. The grade that is calculated for each grading period and for the final grade shall consist of a combination of the employer's evaluation and the agriculture instructor's evaluation. It is suggested that 50% to 90% of the student's grade will come from the employer's evaluation. The remaining 10% to 50% should include items that the agriculture instructor deems important. Those items can include attendance, punctuality, dress, attitude, and the successful completion of certain assignments such as time sheets, employer notebook, a project, or interviews with employees, just to mention a few.

### **Training Sites:**

The experience base learning provided by on OJT placement is designed to provide students with preparation in high wage, high skill, and high tech jobs. Both placement and entrepreneurial OJT sites must be directly related to agriculture. The best way to identify appropriate training sites is to align the experience with the National FFA Proficiency Award program. Examples of approved SAE sites include:

- Grocery store produce and meat counters
- Welding and machine shops
- Mechanics shops
- Veterinarians
- Feed stores
- Ag product sales positions
- Production agriculture

Examples of unsuitable SAE positions:

- Secretarial work
- Grocery store carry out, cashier, stocker
- Childcare
- Food service
- Factory work (low wage, low skill, low tech)

### **Required Paperwork:**

Before students are placed in their training stations, they should complete minimum employability skill training. This can be done either in a course during their Junior year, the beginning of their Senior year prior to the experience, or during a concurrent course if enrolled in a course where these skills are taught early in the year. Skills that should be taught before students begin their experience include job applications, interview skills, resumes and cover letters, work ethic, time management and other skills identified on the Career Development Skills Profile.

**Training Agreements:** A training agreement must be completed and signed for each OJT student. The training agreement is a legal document signed by the employer, the student, the student's parents/guardian and the agriculture instructor. The training agreement indicates employment information and general provisions of training. The agriculture instructor may use training agreements found in the Kansas Agriculture Education Record book SAE packets, or

they may customize a training agreement to fit the program's needs. Training agreements should be kept on file at the school for three years. The KSDE auditors may ask to see the current year's training agreements during the audit.

**Training Plans:** Training plans must be completed and signed for each OJT student. The training plan is a legal agreement between the employer, the school and the student that specifically lists the job duties to be performed by the student while employed at the OJT training station. The agriculture instructor, the employer and the student will develop the training plan jointly. The training plan must show that the training site will provide the OJT student with a variety of opportunities and skills. A majority of the competencies must be technical in nature. The remainder of the competencies may include Career Development Skills and leadership (FFA) activities. Participation in FFA and SAE activities must be a part of the OJT course in order to be approved. Training plans should be kept on file at the school for three years.

**Employer Evaluations:** The agriculture instructor will develop the evaluation form. The evaluation form should list all the job duties the student will perform at their training site, including any skills, knowledge and attitudes desired by the employer. It can be designed as a checklist and may be designed to duplicate the job duties listed on the training plan. The student's OJT supervisor will rate the student's performance on the job. It is recommended that the evaluation be conducted at the end of each grading period. Employer evaluations should be kept on file at the school for three years.

**Monthly Visitation Reports:** Each OJT student should be supervised by a visit of the agriculture instructor at least once a month. Each visit should be documented with an SAE visitation report. The instructor may use whatever means they desire to document visits. There are examples of all required forms available on the National FFA Local Program Resource Guide CD.

**Daily Time Sheet/Daily Journal:** The student should maintain at least a daily record of time spent on the job. In addition, it is recommended that the student keep a journal of daily skills and activities.

**Additional Requirements:**

The agriculture instructor must submit to the KSDE Agriculture Education Program Consultant a summary of OJT training sites by September 1 each year. This report will identify the training site for each student, verifying that each site is agricultural related.

In addition, the agriculture instructor and school district may make additional requirements to these guidelines. These can include developing a process for selection of students, minimum requirements for involvement in the program, and any other requirements deemed necessary for the improvement of the OJT experience. At no time may these standards be made less restrictive than outlined in this document without the written permission of the Agricultural Education Consultant.

## **Appendix H**

### **SAE Evaluation Forms**

Completers in the program must fill out an SAE evaluation form. The evaluation form must include the following information:

1. Name of student
2. Name of employer/sponsor
3. Brief description of experience
4. Competencies for the experience related to the course or program
5. Rating scale with key
6. Rating and/or signatures by all parties involved (student, employer/sponsor, and instructor, if different from sponsor).

There are several different forms that will work for this requirement. Several options may be utilized. Each student may have a different evaluation form.

1. State Degree Application
2. District level Proficiency Award Application
3. Local level Proficiency Award Application. To meet the requirements, it must at least include the basic information on a district application, or all required information as outlined above.
4. SAE packets in the Kansas Agricultural Education record book contain many of the pages that will adequately meet this requirement. A record book that has been accurately, completely and currently maintained should provide the majority of the information requested. Only minor additional modifications may be needed to meet the requirements above, including signatures of parties involved at the conclusion of the SAE.
5. The local instructor may generate his/her own form that addresses all required information above to use for this requirement.
6. On the next page is a sample form that may be used for any student that does not have any of the above pages.



## **Appendix I**

### **FFA Activities**

Below are examples of approved FFA activities above the chapter level that meet requirement 14 as outlined in the program standards.

#### Conferences or Activities:

Advanced Leadership Development	Greenhand Conference
Ag Science Fair	State Fair
Agriscience Student	Leader Lab
Chevron Tractor Restoration	Made for Excellence
Commodity Challenge	National FFA Band
Commodity Marketing Challenge	National FFA Chorus
Cooperatives Test	National FFA Convention
County Collective Booth	National FFA Talent
Courtesy Corps	Risk Management Essay
District Banquet	State Conference for Chapter Leaders
District FFA Officer	State FFA Band
Exhibiting SAE	State FFA Chorus
Farmland Youth	State FFA Convention
FFA Global Opportunities	Tractor Troubleshooting
FFA Proficiency Award	WLC
Career Development Events:	
Ag Business Management	Floriculture
Ag Communications	Food Science
Ag Issues Forum	Forestry
Ag Sales	Horse
Ag Technology Management	Job Interview
Agronomy	Land
Creed Speaking	Leadership Conference (3 components)
Dairy Cattle	Livestock
Dairy Foods	Marketing Plan
Dairy Handler's Activity	Meats
Entomology	Nursery/Landscape
Environmental/Natural Resources	Poultry
Envirothon	Prepared Public Speaking
Extemporaneous Public Speaking	Range Management

## **DOCUMENTATION LIST**

Below is a listing of items of evidence that can be used to support the Program Standards. While the list is not all-inclusive, it is provided to give a sample of the items needed for the Technical Program Review. Not all items are applicable to every program or instructor.

### **Requirement 1**

Copy of teaching certificate for each instructor in the program  
List of courses taught by each instructor in the program

### **Requirement 2**

In-service transcript  
Registration form for meetings attended  
Organizational membership list of Instructor(s)  
Professional Development Plan  
Record of meetings attended  
College transcript

### **Requirement 3**

VE-2 Update Form or VE-2 application for new programs  
Competency profiles for each course listed on the VE-2 form

### **Requirement 4**

Course outlines for each course in the program sequence

### **Requirement 5**

Course Competency Profiles for each course in the program sequence

### **Requirement 6**

Inventory of equipment, technology, software, and teaching resources used in each course

### **Requirement 7**

Samples of student work showing application of science, math and language arts  
Samples of student work showing application of career development skills  
Samples are related to competencies found on course competency profile

### **Requirement 8**

Course Competency Profiles for each course in the program sequence

### **Requirement 9**

Record book pages including SAE packets or SAE related pages  
Local Program Success SAE visitation forms  
List of all students' SAE participation

Requirement 10  
State Degree Applications  
Local, district or state FFA Proficiency Award applications  
SAE evaluation forms

Requirement 11  
Copy of FFA Program of Activities  
Competency Profiles show FFA activities in each course

Requirement 12  
Competency Profiles show LifeKnowledge: Real Lessons for Real Life competencies in each course

Requirement 13  
Competency Profiles show leadership competencies within the program

Requirement 14  
List of FFA activities participated in over the past two years  
Copy of recent State FFA Degree application, page 14

Requirement 15  
FFA Roster, Program of Activities and Annual Report submitted by the appropriate deadlines

Requirement 16  
List of activities provided by counselor that address Agricultural Education  
List of students visiting post-secondary agriculture programs  
High School student enrollment handbook, pre-registration form or enrollment materials  
Career and Technical information provided by counselor to students

Requirement 17  
List of Advisory Committee members  
Minutes of Advisory Committee meetings

Requirement 18  
Copies of competency profiles for each completer  
Compare number of completers on file with those actually reported on CaTE data collection  
Program Improvement Plan

Requirement 19  
List of equipment, software, supplies and materials, and facility improvements for the last 3 fiscal years  
List total dollars expended for the last 3 fiscal years to purchase equipment, software, supplies and materials, and facility improvements

Requirement 20

Local Program Success SAE visitation forms

Summer calendar or summer journal

Record book pages

Copy of instructor's teaching contract

Requirement 21

List of facilities by type, size, condition, and number of students in largest class utilizing that facility

Requirement 22

Course Outlines

Competency Profiles

Copies of completed student safety exams

Requirement 23

Safety inspection report from KDHE, KDHR, Fire Marshal, USD insurance inspector, or other agency

Requirement 24

Program Improvement Plan