

# Competencies for Secondary Teachers: Agriculture, Grades 7-12

2023

*In addition to the Arkansas Teaching Standards, the teacher of Agriculture, grades 7-12, shall demonstrate knowledge and competencies in the following areas:*

<p><b>1. Pedagogical Content Knowledge</b> <i>AAAE: Standard 1</i> <i>NCAE: Standard</i></p>	<p>1.1 Demonstrates the capacity to utilize experiential learning opportunities to encourage student development and construct an instructional delivery process that allows all student access to systematic experiential, service, and work-based experience learning</p> <ul style="list-style-type: none"><li><i>a) Highlights STEM concepts in lesson plan construction</i></li><li><i>b) Understands how to implement safe and effective laboratory activities</i></li><li><i>c) Facilitates student centered learning using a variety of approaches</i></li><li><i>d) Understands and teaches students the reliability of sources</i></li><li><i>e) Plans lessons for instruction from a local and global perspective</i></li><li><i>f) Implements inquiry-based learning</i></li><li><i>g) Utilizes higher order questions</i></li><li><i>h) Demonstrates a variety of teaching methods</i></li><li><i>i) Implements research-based pedagogy and best practices for instruction</i></li><li><i>j) Develops and sequences curriculum framework for SBAE (School-Based Agricultural Education)</i></li><li><i>k) Teaches students how to use technology appropriate to the agricultural industry</i></li><li><i>l) Utilizes digital literacy and social media appropriately to enhance student learning</i></li></ul> <p>1.2 Understands individuals and creates a learning environment to encourage positive social interactions, self-motivation, and active learning</p> <ul style="list-style-type: none"><li><i>a) Understands individuals and create a learning environment to encourage positive social interactions, self-motivation, and active learning</i></li><li><i>b) Understands effective age-appropriate motivational strategies</i></li><li><i>c) Conveys excitement about subject matter to students</i></li><li><i>d) Demonstrates basic knowledge on meeting the needs of all students</i></li><li><i>e) Demonstrates and displays effective classroom management strategies</i></li><li><i>f) Engages all students through effective motivational strategies to ensure a positive learning environment</i></li></ul>
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	<ul style="list-style-type: none"> <li><i>g) Develops and demonstrates instruction that fulfills the needs of all students</i></li> <li><i>h) Implements inquiry-based learning</i></li> </ul>
<p style="text-align: center;"><b>2. Agricultural Content Knowledge</b> Praxis (5701): Section I NCAE: Standard 1,2, &amp; 3 AAAE: Standard 2</p>	<p>2.1 Agribusiness Systems</p> <ul style="list-style-type: none"> <li><i>a. Knows the principles of capitalism and entrepreneurship in the agribusiness industry</i></li> <li><i>b. Knows the management skills needed to organize an agribusiness</i></li> <li><i>c. Knows the record keeping skills needed to accomplish agribusiness objectives</i></li> <li><i>d. Knows generally accepted accounting practices for making agribusiness decisions</i></li> <li><i>e. Knows the fundamentals of savings, investments, and credit in agribusiness</i></li> <li><i>f. Knows the marketing principles needed to accomplish agribusiness objectives</i></li> </ul> <p>2.2 Animal Systems</p> <ul style="list-style-type: none"> <li><i>a. Knows the historical development and trends of the animal systems industry</i></li> <li><i>b. Knows the classification, anatomical, physiological characteristics of animals</i></li> <li><i>c. Knows proper health care of animals</i></li> <li><i>d. Knows the basic principles of animal nutrition</i></li> <li><i>e. Knows the basic principles of animal production and management</i></li> <li><i>f. Knows safety practices related to animal production</i></li> <li><i>g. Knows normal and abnormal animal behavior</i></li> <li><i>h. Knows the proper design and use of animal facilities and the equipment for safe and efficient production</i></li> <li><i>i. Knows the principles and practices of basic animal production</i></li> <li><i>j. Knows the effects of environmental conditions on animal</i></li> <li><i>k. Knows the impact of animal production on the environment</i></li> <li><i>l. Knows the issues related to animal rights, animal welfare, and producer responsibilities</i></li> </ul> <p>2.3 Food Science and Biotechnology Systems</p> <ul style="list-style-type: none"> <li><i>a. Knows major issues and trends affecting the food products and processing industry</i></li> <li><i>b. Knows industry organizations, groups, and regulatory agencies that affect the food products and processing industry</i></li> </ul>

- c. *Knows the safety principles and recommended equipment and facility management practices related to the food products and processing industry*
- d. *Knows the processes for selecting, harvesting, processing, and classifying food products for storage, distribution, and consumption*
- e. *Knows major innovations, historical developments, and applications of biotechnology in agriculture*
- f. *Knows the ethical, legal, social, cultural, safety and environmental issues related to biotechnology*
- g. *Knows basic, safe laboratory procedures*
- h. *Knows various uses of genetic engineering in the agricultural industry*

2.4 Environmental and Natural Resource Systems

- a) *Knows the natural cycles related to environmental and natural resource management*
- b) *Knows chemical properties related to environmental and natural resources*
- c) *Knows the various ecosystems of the environment*
- d) *Knows the ecological concepts and principles related to natural resource systems*
- e) *Knows the current issues and regulations in environmental and natural resource management*
- f) *Knows the use of personal protective equipment (PPE) and safety procedures related to environmental and natural resource management*
- g) *Knows the role of environmental and natural resource management in the local, state, and national economies*
- h) *Knows the impact of conventional and alternative energy sources on the environment*
- i) *Knows about wetlands and their role in the environment*
- j) *Knows the use, production, and processing of natural resources*
- k) *Knows the procedures used to develop an environmental and natural resource management plan*
- l) *Knows the general impact of land use on environmental and natural resources*

2.5 Plant Systems

- a) *Knows the historical development of plant science and its relationship with society*

- b) *Knows the general safety issues related to plant systems*
- c) *Knows the basic principles of identification, classification, anatomy and physiology as related to plant production and management*
- d) *Knows the influence of environmental factors on plant growth*
- e) *Knows propagation, cultivation, and harvesting of plants*
- f) *Knows the basic characteristics of both soils and growing media and their uses*
- g) *Knows the use of integrated pest management (IPM) in plant production*
- h) *Knows production and management practices associated with horticultural crops*
- i) *Knows production and management practices associated with agronomic crops*
- j) *Knows the principles and elements of landscape and floral design*

2.6 Power, Structural, and Technical Systems

- a) *Knows the physical science principles and engineering applications associated with power, structural, and technical systems*
- b) *Knows electricity and electrical wiring*
- c) *Knows various power and energy sources*
- d) *Knows principles of power, energy, transfer, and conversion*
- e) *Knows the proper use, storage, and disposal of potentially hazardous materials common to the agricultural mechanics laboratory*
- f) *Knows the safe operation and maintenance of hand tools, power tools, and other equipment*
- g) *Knows the principles of small-engine operation, maintenance, and repair*
- h) *Knows the planning and building structures*
- i) *Knows metal fabrication and welding*
- j) *Knows the installation, maintenance, and repair of water systems*
- k) *Knows the application of technology to the agriculture industry*
- l) *Knows the use of technical and mathematical approaches to map land, facilities and infrastructure*

2.7 Leadership and Career Development

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	<ul style="list-style-type: none"> <li>a) <i>Knows the principles of leadership</i></li> <li>b) <i>Knows the foundational areas of career development</i></li> <li>c) <i>Understands the purpose, structure, and function of the National FFA organization</i></li> <li>d) <i>Encourages student participation in intra-curricular leadership, career, and personal development through FFA</i></li> <li>e) <i>Knows individual and team leadership skills</i></li> <li>f) <i>Knows communication skills</i></li> <li>g) <i>Knows information research skills to make informed decisions</i></li> <li>h) <i>Understands supervised agricultural experiences (SAE)</i></li> <li>i) <i>Knows career opportunities across various pathways of agriculture</i></li> <li>j) <i>Knows local program planning and management</i></li> </ul>
<p><b>3. Program Planning</b> AAAE: Standard 3 NCAE: Standard 1, 4, &amp; 7</p>	<p>3.1 Implements a standards-based curriculum in agriculture, food, and natural resource education delivered through programs of study that incorporate classroom laboratory instruction; experiential, project, and work-based learning through SAE and leadership and personal development through FFA</p> <p>3.2 Plans instruction based upon knowledge of subject matter, students, the community, and curriculum</p> <p>3.3 Ensures facilities and equipment support implementation of the program and curriculum by providing all students opportunities for the development and application of knowledge and skills</p> <p>3.4 Utilizes multiple methods to assess and promote student learning</p> <p>3.5 Ensures school and community partners are engaged in developing and supporting a quality program</p> <p>3.6 Understands a system of needs assessment and evaluation provides information necessary for continual program development and improvement</p>
<p><b>4. Diversity</b> AAAE: Standard 2 &amp; 5 New America</p>	<p>4.1 Embraces and celebrates diversity by creating environments that builds positive rapport with students, parents, stakeholders, and community members ensuring fairness and equity</p> <p>4.2 Recognizes and appreciates the influence of diverse cultures on global agricultural production practices, possess global competence of issues relating to food and fiber systems, and realize the impact of agriculture/agricultural practices on global populations</p>

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	<p>4.3 Draw on students’ culture to share curriculum and instruction</p> <p>4.4 Bring real-world issues into the classroom</p> <p>4.5 Model high expectations for all students</p> <p>4.6 Promote respect for students differences</p> <p>4.7 Collaborate with families and the local community</p> <p>4.8 Communicate in linguistically and culturally responsive ways</p>
<p><b>5. Professionalism</b> AAAE: Standard 6 NCAE: Standard 6</p>	<p>5.1 Strives for personal and professional growth to meet the needs of their students, school, community and profession through dedication to all aspects of the discipline</p> <ul style="list-style-type: none"> <li>a. <i>Engages in professional development opportunities in content, teaching, and experiences in the agriculture industry</i></li> <li>b. <i>Reflects on teaching and identifies opportunities for personal and professional growth</i></li> <li>c. <i>Utilizes feedback to improve teaching and guide professional growth</i></li> <li>d. <i>Interacts in a collaborative manner and fosters positive relationships with stakeholders</i></li> <li>e. <i>Maintains a professional image and displays professional behavior through ethical conduct</i></li> <li>f. <i>Fulfills professional responsibilities including engagement in professional education organizations</i></li> <li>g. <i>Values a service-minded approach</i></li> <li>h. <i>Model personal leadership traits involving the investment and empowerment of others</i></li> </ul> <p>5.2 Exhibits professional responsibilities in the school environment</p> <ul style="list-style-type: none"> <li>a. <i>Recognizes the role of the agriculture program in contributing to the broad mission</i></li> <li>b. <i>Exhibits a collaborative spirit</i> <ul style="list-style-type: none"> <li>• <i>Collaborates with other educators</i></li> <li>• <i>Makes efforts towards curriculum integration</i></li> <li>• <i>Engages in professional networking</i></li> <li>• <i>Maintains a positive rapport with school leaders</i></li> </ul> </li> <li>c. <i>Decision making</i> <ul style="list-style-type: none"> <li>• <i>Makes sound ethical judgements in the workplace</i></li> <li>• <i>Approaches situations with sound mind and judgement</i></li> </ul> </li> <li>d. <i>Management tasks</i></li> </ul>

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	<ul style="list-style-type: none"> <li>• <i>Handling school finances and requisitions</i></li> <li>• <i>Demonstrating time management in attention to professional assignments</i></li> </ul> <p>5.3 Demonstrates personal leadership traits</p> <ol style="list-style-type: none"> <li>a. <i>Models leadership skills</i></li> <li>b. <i>Participate in professional education organizations</i></li> <li>c. <i>Demonstrates an emphasis on leadership for students as well as self</i></li> <li>d. <i>Invests in and empowering others</i></li> <li>e. <i>Exhibits a service-minded approach to leadership</i></li> </ol>
<p><b>6. Personal Development</b> <i>AAAE: Standard 7 Guide for Life</i></p>	<p>6.1 Growth (manage yourself)</p> <ul style="list-style-type: none"> <li>➤ Develop problem-solving skills</li> <li>➤ Practice mindfulness</li> <li>➤ Persevere</li> </ul> <p>6.2 Understanding yourself (know yourself)</p> <ul style="list-style-type: none"> <li>➤ Increase self-awareness</li> <li>➤ Know your strengths and weaknesses</li> <li>➤ Develop critical thinking skills</li> </ul> <p>6.3 Interaction (build relationships)</p> <ul style="list-style-type: none"> <li>➤ Treat others with respect</li> <li>➤ Know your strengths and weaknesses</li> <li>➤ Develop critical thinking skills</li> </ul> <p>6.4 Decisions (make responsible choices)</p> <ul style="list-style-type: none"> <li>➤ See other perspectives</li> <li>➤ Value the feelings of others</li> <li>➤ Appreciate diversity</li> </ul> <p>6.5 Empathy (be aware of others)</p> <ul style="list-style-type: none"> <li>➤ See other perspectives</li> <li>➤ Value the feelings of others</li> <li>➤ Appreciate diversity</li> </ul>