

Standards for the Preparation of Teachers

Agriscience and Natural Resources (HX)



Adopted by the Michigan State Board of Education
September 14, 2004

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Preface

Development of the Proposal

In 2003-2004, a referent group of professional educators developed a proposal to adopt standards for the preparation of Agricultural Education teachers. These standards align with standards developed by the *Michigan Curriculum Framework*, the *Michigan Career Pathways*, and the standards developed by the American Association of Agricultural Educators. The referent committee also recommended a change in the name of the current Agricultural Education (HX) endorsement to Agriscience and Natural Resources. This change provides consistency with the current name of the Vocational Agriscience and Natural Resources (VA) endorsement. Agriscience and natural resources teachers are prepared to teach classes in agricultural education, natural resources, animal science, plant science, agriscience/natural resources technology, agriscience/natural resources management, agriscience/ natural resources leadership and development, and environmental management.

Secondary teachers who have earned the HX endorsement may also qualify for a VA endorsement if they have also completed 6 semester hours in vocational education (covering vocational curriculum development, academic integration, management of vocational programs, safety/ethical issues, and instruction in work-based learning) and 4,000 hours of applicable work experience. Completion of an HX program is a prerequisite for the VA endorsement.

To provide information and gather feedback on the proposal, in April 2004 a copy was forwarded for review and comment to selected organizations, all Michigan teacher preparation institutions, and all intermediate and local school districts that offer classes related to Agriscience and Natural Resources. As presented in this document, the standards reflect the feedback received.

State Board adoption of new specialty program standards typically leads to the creation of a new certification test for teachers prepared to teach in the content area. Test development for a new Michigan Test for Teacher Certification in Agriscience and Natural Resources will be scheduled according to the recommendation of the Standing Technical Advisory Council.

Approval of Programs

Teacher preparation institutions that have previously been approved to offer HX programs are required to submit an application for program approval to demonstrate how the standards and requirements will be met for all candidates in their proposed programs. Following initial approval, the teacher preparation programs will be reviewed every seven years through the Periodic Review/Program Evaluation process.

The HX endorsement requires completion of a group major of at least 36 semester hours or a group minor of at least 24 semester hours. Previously certified teachers may also complete an additional endorsement program of at least 24 semester hours.

Proficiency Level

Upon completion of an approved teacher preparation program in Michigan for Agricultural Education, a person recommended for the Michigan Provisional certificate must meet the following proficiency level for each standard.

The Description of Proficiency levels are:

- A = Awareness: Possesses general knowledge of (exposure)**
- B = Basic: Ability to comprehend and apply (use)**
- C = Comprehensive: High level of understanding, application, and reflecting (proficient)**

1.0 Program Development Content Knowledge

The program will teach candidates about the components of an Agriscience and Natural Resources program consistent with best practices and current research findings.

The preparation of agriscience and natural resources teachers will enable them to:

- 1.1 identify the objectives of agriscience and natural resources education at the secondary school level (C)
- 1.2 describe the concepts of a total program in agriscience and natural resources education (C)
- 1.3 describe the various types and settings of programs and curricula in agriscience and natural resources education (C)
- 1.4 identify the role of professional educators, in general, and the duties and responsibilities of a teacher in agriscience and natural resources (C)
- 1.5 assess personal strengths and weaknesses based upon the qualifications of effective teachers of agriscience and natural resources (C)
- 1.6 list the requirements for career and technical teacher certification in Michigan (C)
- 1.7 plan an undergraduate program in agriscience and natural resources education to achieve individual educational goals; (B)
- 1.8 identify the opportunities and rewards existing in teaching agriscience and natural resources (C)
- 1.9 identify the trends and developments taking place in agriscience and natural resources education (B)
- 1.10 develop a total curriculum for an agriscience and natural resources education program at the secondary school level (C)
- 1.11 identify the need for agriscience and natural resources education in Michigan and the nation (C)
- 1.12 identify guidelines for developing new agriscience and natural resources education programs (C)

2.0 Technical Content Knowledge

The program will teach candidates the most recent and relevant technical content knowledge related to Agriscience and Natural Resources.

The preparation of agriscience and natural resources teachers will enable them to:

- 2.1 describe, identify, and demonstrate the key concepts and best management practices related to technical agriscience and natural resources (B)
- 2.2 integrate natural resources into a planned and organized curriculum(B)
- 2.3 integrate plant science into a planned and organized curriculum (B)
- 2.4 integrate animal science into a planned and organized curriculum (B)

- 2.5 integrate business management into a planned and organized curriculum (B)
- 2.6 integrate leadership, personal development and communications into a planned and organized curriculum (B)
- 2.7 integrate agricultural mechanics into a planned and organized curriculum (B)
- 2.8 integrate soil science into a planned and organized curriculum (B)
- 2.9 integrate floriculture into a planned and organized curriculum (B)
- 2.10 integrate landscape into a planned and organized curriculum (B)
- 2.11 integrate environmental science into a planned and organized curriculum (B)
- 2.12 teach general laboratory safety (B)

3.0 Instructional Material Development Content Knowledge

The program will teach candidates how to design, present, and assess Agriscience and Natural Resources instructional materials. (Programs should provide evidence in field experiences or content area methods classes that candidates have developed instructional skills specifically related to Agriscience and Natural Resources.)

The preparation of agriscience and natural resources teachers will enable them to:

- 3.1 use group dynamic techniques for instruction of students (B)
- 3.2 analyze subject matter in developing units of instruction (B)
- 3.3 formulate observable and measurable educational objectives for an instructional unit (C)
- 3.4 use reference and resource materials in instruction (B)
- 3.5 prepare and use teaching materials (B)
- 3.6 prepare materials, equipment and the environment for teaching (B)
- 3.7 prepare instructional materials for use in individual skill development (B)
- 3.8 use various methods to involve students in the teaching and learning process(B)
- 3.9 apply basic principles of learning to teaching agriscience and natural resources(B)
- 3.10 recognize discipline problems and implement corrective measures(B)
- 3.11 utilize student management and organizational techniques(B)
- 3.12 determine when and how to use the various methods of teaching(B)
- 3.13 utilize student needs and experience in developing instructional materials(B)
- 3.14 develop and deliver the introduction to a lesson(B)
- 3.15 prepare and use lesson plans (B)
- 3.16 evaluate and summarize the effectiveness and develop the appropriate conclusions of lesson plans (B)
- 3.17 evaluate the effectiveness of teaching (B)
- 3.18 construct evaluation instruments to assess student achievement (B)
- 3.19 arrive at an objective evaluation of student attainment of competencies (B)

- 3.20 maintain an environment conducive to effective learning (B)
- 3.21 use supervised study techniques (B)
- 3.22 organize and use student notebooks (B)
- 3.23 plan, organize, conduct, and evaluate field trips (B)

4.0 Program Management Content Knowledge

The program will teach candidates how to develop, manage, and evaluate an Agriscience and Natural Resources program in schools consistent with best practice and current research findings.

The preparation of agriscience and natural resources teachers will enable them to:

- 4.1 plan, organize, and maintain physical facilities (B)
- 4.2 develop an adequate department budget based upon the instructional program with provisions for tools, consumable supplies, and equipment (B)
- 4.3 develop laboratory, land lab, horticulture and animal facility experience record keeping systems for each class (B)
- 4.4 maintain an inventory of tools, equipment, and supplies (B)
- 4.5 plan a comprehensive extended program of activities (B)
- 4.6 Cooperate with guidance counselors in providing guidance and counseling for students (B)
- 4.7 organize and use a program advisory committee (B)
- 4.8 organize and use an FFA alumni (B)
- 4.9 understand State department requirements (B)

5.0 Leadership Development Content Knowledge

The program will teach candidates the most recent and relevant youth leadership content knowledge related to Agriscience and Natural Resources.

The preparation of agriscience and natural resources teachers will enable them to:

- 5.1 describe the role of FFA in motivating students and vitalizing instruction in agriscience and natural resources education (C)
- 5.2 list the characteristics of basic leadership behavior patterns (C)
- 5.3 identify the characteristics of a quality FFA chapter based on State standards (C)
- 5.4 design and carry out a meaningful FFA program of activities (C)
- 5.5 design an effective FFA chapter officer training program (C)
- 5.6 list the duties of the advisor, including the management, organization, and development of an effective FFA chapter (C)

- 5.7 use basic parliamentary procedure skills (C)
- 5.8 explain the purpose of an FFA constitution and by-laws (C)

6.0 Supervised Agricultural Experience Content Knowledge

The program will teach candidates the most recent and relevant supervised agricultural experience content knowledge related to Agriscience and Natural Resources.

The preparation of agriscience and natural resources teachers will enable them to:

- 6.1 identify the components of an effective work based/experiential learning (Supervised Agricultural Experience - SAE) program (C)
- 6.2 develop a long - range work based/experiential learning (SAE) program with students (B)
- 6.3 plan a comprehensive plan of student supervision (B)
- 6.4 carry out an effective program of student supervision (B)
- 6.5 develop project budgets, training plans, and agreements related to the work based/experiential learning (SAE) program (B)

7.0 Career Education Content Knowledge

The program will teach candidates the most recent and relevant career education content knowledge related to Agriscience and Natural Resources.

The preparation of agriscience and natural resources teachers will enable them to:

- 7.1 describe the role of career technical education to the world of work (B)
- 7.2 identify the basic principles of career and technical education (B)
- 7.3 differentiate between general, career, and technical education (B)
- 7.4 describe the most recent educational trends in general education, career, and technical education (B)
- 7.5 describe the characteristics and organizational patterns of each career and technical education program (B)