Nebraska CTE

# Crop Management & Agronomy

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| **Summarize principles of taxonomic systems to classify plants.** AFNR.HS.12.1 | **a** Compare, contrast, and classify plants in a variety of areas (e.g., taxonomy, life cycle, plant use, structure). AFNR.HS.12.1.A |
| | **b** Describe how classification is used globally in plant identification. AFNR.HS.12.1.B |
| | **c** Describe the importance of scientific nomenclature when identifying plants and give an example of a scientific name in association with its common name. AFNR.HS.12.1.C |
| **Evaluate soil nutrients and soil management for healthy plant growth.** AFNR.HS.12.2 | **a** Identify the essential nutrients and their functions necessary for plant growth and development. AFNR.HS.12.2.A |
| | **b** Analyze the effects and recognize environmental causes of nutrient deficiencies and toxicities. AFNR.HS.12.2.B |
| | **c** Describe the influence of pH on the availability of nutrients in plant health. AFNR.HS.12.2.C |
| | **d** Identify fertilizer sources of essential nutrients; explain and calculate fertilizer formulations and describe different methods of fertilizer application. AFNR.HS.12.2.D |
| | **e** Summarize production methods focused on soil management (e.g., crop rotation, companion planting, cover crops). AFNR.HS.12.2.E |
| | **f** Summarize the impact of environmental factors on nutrient availability. AFNR.HS.12.2.F |
| **Develop pest control measures to minimize the impact on agronomic and horticultural crops.** AFNR.HS.12.3 | **a** Identify and categorize abiotic and biotic plant pests, diseases, and disorders. AFNR.HS.12.3.A |
| | **b** Identify and assess local major weeds, insect pests, and infectious and noninfectious plant diseases. AFNR.HS.12.3.B |
| | **c** Examine the life cycle of major plant pests and diseases. AFNR.HS.12.3.C |
| | **d** Predict pest and disease problems based on environmental conditions and life cycles. AFNR.HS.12.3.D |

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| | e Identify and summarize pest control strategies associated with integrated pest management and the importance of determining economic threshold. AFNR.HS.12.3.E |
| | f Distinguish between risks and benefits associated with the materials and methods used in plant pest management. AFNR.HS.12.3.F |
| Summarize concepts of plant development through the selection, planting, and growing of seeds and plants, based on global demand, economic importance, and growing conditions. AFNR.HS.12.4 | a Summarize the purity of plant production material (virus index, invasive species, seed banks). AFNR.HS.12.4.A |
| | b Analyze how mechanical planting equipment performs soil preparation and seed placement. AFNR.HS.12.4.B |
| | c Determine desired seeding rate and/or numbers of vegetative materials needed for specified plant population or desired quantity of finished plants. AFNR.HS.12.4.C |
| | d Observe environmental conditions during the germination, growth, and development of a crop. AFNR.HS.12.4.D |
| | e Demonstrate proper techniques to control and manage plant growth through mechanical, cultural, or chemical means. AFNR.HS.12.4.E |
| | f Compare and contrast the technologies used in plant production. AFNR.HS.12.4.F |
| Summarize the processes in harvesting, transporting, and storing crops according to current industry standards. AFNR.HS.12.5 | a Identify and analyze processes used by mechanical harvesting methods, including ensuring safety measures. AFNR.HS.12.5.A |
| | b Evaluate crop yield and loss data and make recommendations to reduce crop loss. AFNR.HS.12.5.B |
| | c Demonstrate techniques for grading, handling. and packaging plants and plant products for distribution. AFNR.HS.12.5.C |
| | d Analyze practices used to maintain a safe product through harvest, processing, storage, and shipment (e.g., Food Safety Modernization Act, Good Agricultural Practices). AFNR.HS.12.5.D |
| Evaluate principles and practices of sustainable cropping systems to plant production to recommend the ideal system for their local community. AFNR.HS.12.6 | a Identify the current topics in crop production and the role those topics play in management and production of agronomic crops. AFNR.HS.12.6.A |
| | b Assess the importance of long-term impacts on sustainable agriculture systems in relation to global food security. AFNR.HS.12.6.B |
| | c Analyze the alignment of modern technologies used in production systems (e.g., precision agriculture, gene editing technologies). AFNR.HS.12.6.C |

**d** **Describe sustainable agricultural practices and how they relate to conventional agricultural practices.** AFNR.HS.12.6.D

**e** **Compare and contrast differing research conclusions related to environmental factors on sustainable systems.** AFNR.HS.12.6.E