Agriculture, Food and Natural Resources

Pathway: Plant Systems

Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
AGPB01.01	Plant Systems	#8: Principles of Plant Systems #4: Biotechnology and Agricultural Science Research	Apply principles of anatomy and physiology to produce and manage plants in both a domesticated and a natural environment.	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.
		Course content of this K&S also reflected in the following courses of specialization: #5: Horticulture #6: Forestry and Range Science #7: Agronomy	.	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 the chemical properties of soil/media.
					Determine land use capability.
					Determine the biological functions of microorganisms of soil/media.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
			(CONTINUED)	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.
					Describe the principles of plant micro-propagation.
					Apply principles and practices of biotechnology to plant propagation.
				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.
					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.
AGPB01.02	Plant Systems	#8: Principles of Plant Systems	Address taxonomic or other classifications to explain basic plant anatomy and physiology.	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.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
			(CONTINUED)	Classify plants based on physiology for taxonomic or 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.
					Classify plants by economic value.
AGPB01.03	Plant Systems	#9: Fundamentals of Plant Production and Management	Apply fundamentals of production and harvesting to produce plants.	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 foster 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).
					Prepare plants and plant products for distribution.

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Code	Topic	Course	Knowledge and Skill	Performance Element	Measurement Criteria
			(CONTINUED)	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.
					Prepare plants and plant products for distribution.
AGPB01.04	Plant Systems	#2: Introduction to Plant and Soil Science #3: Advanced Plant and Soil Science	Exercise elements of design to enhance an environment (e.g., floral, forest, landscape, farm).	Apply basic design elements and principles to create a design using plants.	Conduct a site evaluation for physical condition 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.

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