



**Agriculture and Landscape Design**

**Program of Study Scope & Sequence  
with  
Certification Outcomes**

**01.0601 – Applied Horticulture/Horticultural Operations, General**

<b>Task #</b>	<b>Task Description</b>	<b>Level/ Marking Pd</b>	<b>Career Path CIP/Soc  (Landscaping and Groundskeepi ng Workers)  37.3011</b>	<b>Career Path CIP/Soc  (First Line Spvsr of Landscapi ng, Lawn Service, Grounds)  46.0101</b>	<b>Career Path CIP/Soc  (Farmwo rkers and Laborers , Crop, Nursery and Greenho use)  45.2092</b>	<b>Certification to test for</b>
<b>100</b>	<b>SAFETY</b>					<b>OSHA-10 Agriculture (Year One)</b>
101	Follow all general safety, laboratory safety and field-site safety practices and procedures in horticulture.	1.1	X	X	x	
102	Follow all general safety standards for the horticulture services industry.	1.1	x	x	x	<b>Greenius - Landscape Safety (recertified</b>

						every year)
103	Follow procedures written in the Safety Data Sheets (SDS) information system	1.1	x	x	x	
104	Operate Horticultural Equipment	1.1	x	x	x	<b>National Safe Tractor Machinery and Operation Program (NSTMOP) (Year Two or Three)</b>
105	Select the proper protective clothing and equipment.	1.1	x	x	x	
106	Reserved					
<b>200</b>	<b>SAFE AND PROPER PLANT HEALTH CARE PRACTICES</b>					<b>Worker Protection Standard for Pesticides Handlers (Year One)</b>
201	Control weeds, insects, and plant diseases.	1.1	x	x	x	
202	Interpret horticulture product labels	1.2	x	x	x	
203	Formulate quantities of horticultural products used in plant health care.	1.2	x	x	x	
204	RESERVED					
205	Investigate the concept of plant health care, e.g., disease, nutrients.	1.2	x	x	x	
206	Distinguish the components of an integrated pest	1.3	x	x	xx	

	management program including the effects of chemicals and pesticides on the environment.					
207	Analyze various horticultural pests including their signs and symptoms.	1.2	x		x	
208	RESERVED					
209	Prepare for PA Pesticide Certification.	3.2	x	x	x	<b>PA Pesticides Licensure (18 year old requirement ) (Year Two or Three)</b>
<b>300</b>	<b>BASIC BOTANY</b>					
301	Describe the process of photosynthesis, respiration, translocation, and transpiration.	1.3	x	x	x	
302	Compare plant cell structure, organization, and function.	1.3	x	x	x	
303	Compare plant structures and explain their functions.	1.3	x	x	x	
304	Analyze conditions essential for seed germination.	1.3	x	x	x	
305	Explain the environmental factors that affect the growth and development of a plant.	1.2	x	x	x	
306	Distinguish between sexual and asexual plant reproduction.	2.1			x	
307	Analyze plant nutrient requirements.	1.4	x	x	x	
308	Describe the nutrient cycles.	1.4	x	x	x	
309	Classify plants and use appropriate binomial taxonomic terminology.	1.3	x	x	x	

310	Describe techniques used to control environmental factors.	1.4		x	x	
311	Describe how weather and climate impact growing conditions and plant selection.	1.2	x	x	x	
<b>400</b>	<b>HORTICULTURAL BUSINESS OPERATIONS</b>					
401	RESERVED					
402	RESERVED					
403	Develop a horticultural business plan.	2.3	x	x	x	
404	Analyze pricing and mark-up techniques.	2.3	x	x	x	
405	RESERVED					
406	Research vendors to obtain product information.	2.3	x	x	x	
407	Perform appropriate customer and client relationship attributes.	2.3	x	x	x	
408	RESERVED					
409	Analyze record keeping system to determine best management practices.	2.4	x	x	x	
410	RESERVED					
<b>500</b>	<b>SOILS AND FERTILIZER</b>					
501	Compare soil/media characteristics.	1.2	x	x	x	
502	Analyze soil and/or plant nutrients.	1.2	x	x	x	
503	Describe soil management techniques.	1.2	x	x	x	
504	Conduct proper soil sampling techniques.	3.1	x	x	x	

505	Test soil for pH, texture, macronutrients, and soluble salts.	3.1	x	x	x	
506	Interpret commercial soil test reports.	2.2	x	x	x	
507	Describe criteria for selecting fertilizers and soil amendments.	1.3	x	x	x	
508	Describe factors influencing fertilizer application.	1.3	x	x	x	
509	RESERVED					
510	RESERVED					
511	RESERVED					
512	Compare current issues regarding plant and soil management that impacts agronomic and horticultural practices.	1.2	x	x	x	
513	Analyze microbial life and its effects on soil.	3.2	x	x	x	
<b>600</b>	<b>SUSTAINABLE HORTICULTURE</b>					
601	Investigate different methods of sustainable horticulture.	1.3	x	x	x	
602	Compare sustainable watering and fertilizing techniques to conventional techniques.	1.3	x	x	x	
603	Compare sustainable plant material selection to conventional plant material.	1.3	x	x	x	
604	Recycle horticultural waste.	1.2	x	x	x	
605	RESERVED					
<b>700</b>	<b>HORTICULTURE TECHNOLOGY</b>					
701	Explain the uses of technologically altered plants.	1.3	x	x	x	

702	RESERVED					
703	RESERVED					
704	Research advanced and emerging technologies in horticulture.	1.3		x	x	
705	Perform a point of sale (POS) transaction.	2.3	x	x	x	
<b>800</b>	<b>HISTORY AND CURRENT STATUS OF HORTICULTURE</b>					
801	Describe major historical developments in the field of horticulture.	1.3	x	x	x	
802	Compare/contrast the effect human beings have had on various plant species.	1.3	x	x	x	
803	Determine how development of certain plant species has affected cultural development.	1.3	x	x	x	
804	Describe the role horticulture plays in the economy of the state and nation.	2.1	x	x	x	
805	RESERVED					
806	Critique the impact of that botanical gardens, public parks, and plants have on people in a society.	2.1			x	
<b>900</b>	<b>PLANT IDENTIFICATION</b>					
901	Outline the proper use of plant material in various segments of the horticulture industry.	1.1	x	x	x	
902	Determine the impact of environmental factors on plant materials.	1.1	x	x	x	
903	Analyze characteristics of various plant categories including woody and herbaceous plants in the horticulture industry.	1.1	x	x	x	
904	Identify 100 plants used in the horticulture industry	1.1	x	x	x	

	by horticultural reference/botanical reference (70 to be deciduous, evergreen, annuals, perennials, and house plants)					
<b>1000</b>	<b>HORTICULTURAL CAREERS AND OPPORTUNITIES</b>					<b>Pennsylvania Certified Horticulturalist (PCH) (Year Two or Three)</b>
1001	Describe careers and working conditions in the horticulture industry.	1.2	x	x	x	
1002	Perform job readiness skills needed in the horticulture industry.	1.3	x	x	x	
1003	Research horticulture industry certifications.	1.2	x	x	x	
1004	Explore postsecondary opportunities.	3.1	x	x	x	
<b>1100</b>	<b>HORTICULTURAL PATHWAYS</b>					
1101	Apply concepts of landscape, hardscape, or floral design.	1.1	x	x	x	
1102	Create various horticulture designs.	1.1	x	x	x	
1103	Calculate measurements, areas, and volumes of horticulture designs.	1.1	x	x	x	
1104	Interpret landscape design, symbols, and abbreviations.	1.1	x	x	x	
1105	Transplant various types of plant material.	2.2	x	x	x	
1106	Prune various types of plant material.	1.4	x	x	x	
1107	Describe the characteristics of lawn/turfgrass installation and maintenance.	1.1	x	x		

1108	Describe the characteristics and features of various types of growing structures.	1.2			x	
1109	Prepare plant material for marketing or sales.	1.2	x	x	x	
1110	Recognize non-traditional growth and propagation of various plant materials. (examples may include but are not limited to: hydroponics, aquaponics, aeroponics, and tissue culture)	1.3		x	x	