



## ***CUSTOMIZED TEACHER ASSESSMENT BLUEPRINT***

### **APPLIED HORTICULTURE**

**Test Code: 5957**

**Version: 01**

#### ***Specific competencies and skills tested in this assessment:***

##### **Safety**

Identify and follow all general safety, laboratory safety, and field-site safety practices and procedures in horticulture

Identify and follow all OSHA safety standards for the horticulture services industry

Identify and follow procedures written in the Safety Data Sheet (SDS) information system

Demonstrate the safe use of horticulture equipment

Select the proper protective clothing and equipment

Demonstrate basic first aid procedures for injuries

##### **Safe and Proper Plant Health Care Practices**

Practice safety when controlling weeds, insects, and plant diseases

Read and interpret horticulture product labels

Properly calculate and mix quantities of horticulture products used in plant health care

Define the concept of, "Plant Health Care," such as disease, nutrients, etc.

Distinguish the components of an Integrated Pest Management program including the effects of chemicals and pesticides on the environment

Identify various horticultural pests including their signs and symptoms

Identify and use equipment for the application of plant health care products

##### **Basic Botany**

Describe the process of photosynthesis, respiration, translocation, and transpiration

Identify plant cell structure, organization, and function

Identify plant structures and explain their functions

Identify conditions essential for seed germination

Explain the environmental factors that affect the growth and development of a plant

Distinguish between sexual and asexual plant reproduction

Identify plant nutrient requirements

Classify plants and use appropriate binomial taxonomic terminology

## *Applied Horticulture (continued)*

### **Horticulture Business Operations**

Develop a horticultural business plan  
Analyze pricing and mark-up techniques  
Demonstrate appropriate customer/client relationship attributes  
Identify and develop various horticulture record keeping systems  
Analyze business ethics

### **Soils and Climate**

Identify and describe soil characteristics  
Identify soil and/or plant nutrients  
Conduct proper soil sampling techniques  
Describe factors influencing fertilizer application  
Identify environmental factors that affect plant growth  
Describe how weather and climate impact growing conditions and plant selection

### **Sustainable Horticulture**

Identify different methods of sustainable horticulture  
Compare sustainable watering and fertilizing techniques to conventional techniques  
Compare sustainable plant material selection to conventional plant material  
Recycle horticultural waste

### **Horticulture Technology**

Research advanced technologies in horticulture equipment

### **History and Current Status of Horticulture**

Describe the role horticulture plays in the economy of the state and nation  
Identify current issues regarding plant and soil management that impact agronomic and horticultural practices

### **Plant Identification**

Outline the proper use of plant material in various segments of the horticulture industry  
Determine the impact of environmental factors on plant materials  
List the identifying characteristics of various plant categories associated with plants  
Identify 100 plants used in horticulture industry by horticultural reference/botanical reference

*Applied Horticulture (continued)*

**Written Assessment:**

Administration Time: 3 hours  
Number of Questions: 194

***Areas covered:***

12%	Safety
13%	Safe and Proper Plant Health Care Practices
19%	Basic Botany
9%	Horticulture Business Operations
17%	Soils and Climate
7%	Sustainable Horticulture
1%	Horticulture Technology
5%	History and Current Status of Horticulture
17%	Plant Identification

**Sample Questions:**

Injury produced from a single toxic exposure is called \_\_\_\_\_ toxicity.

- A. chronic
- B. acute
- C. LD50
- D. lethal

A serious disease of roses is

- A. fire blight
- B. twig blight
- C. black spot
- D. canker stain

Plant parts important in sexual reproduction of the parent plant include

- A. flowers
- B. bulblets
- C. runners
- D. cormels

A benefit to customers of Internet sales is that

- A. payment is often by credit card
- B. very little data is transferred during a sale
- C. most sites lack secure protocols
- D. membership fees are required

***Applied Horticulture (continued)***

Add \_\_\_\_\_ to soil to prevent chlorosis in plants.

- A. nitrogen
- B. potassium
- C. zinc
- D. phosphorus

Soil erosion is caused by

- A. not fertilizing and watering
- B. applying lime at high levels
- C. large insect and disease infestations
- D. wearing away of the soil due to water or wind

The process for growing plants in a water and nutrient solution without soil is called

- A. xeriscaping
- B. hydroponics
- C. aquaculture
- D. olericulture

Advanced technology in horticulture equipment includes

- A. shovel, rake, and wheelbarrow
- B. tractor, weed-wacker, and lawn mower
- C. computerized greenhouse systems, and ebb and flow benching
- D. hydrostatic tractors and chainsaws

Which area of horticulture produces the most jobs in the United States?

- A. greenhouse and nursery industry
- B. floral design industry
- C. horticulture services industry
- D. olericulture services industry

Which of the following is a shade-tolerant plant?

- A. juniper
- B. switch grass
- C. hosta
- D. rose

*Applied Horticulture (continued)*

**Performance Assessment:**

Administration Time: 3 hours  
Number of Jobs: 5

***Areas Covered:***

- 24%            **Plant Classification and Identification**  
*Participants will identify and record 70 plants by common name and by classification.*
- 12%            **Integrated Pest Management**  
*Participants will identify two pest problems and two plant diseases and consult charts for treatment and rates of application.*
- 39%            **Soils**  
*Participants will identify five types of soil amendments. Select the mixture and measure the soil. Collect soil samples and record findings based on the soil report.*
- 16%            **Plant Propagation**  
*Participants will prepare containers for starting by direct sticking plant cuttings. Steps will include harvesting the cuttings using sterile technique, proper use of cutting equipment, and treating with rooting compound.*
- 9%              **Customer Service**  
*Participants will greet customer and perform a sales transaction including sales tax and prepare a receipt.*

***Sample Job:***                      Customer Service

***Maximum Job Time:***        20 minutes

***Participant Activity:***        Participants will greet a customer, calculate the total including sales tax and write a receipt for the purchase, using a cash register or money box and calculator. Collect payment and return the correct change.