



## Tennessee Specific Industry Certification Horticulture Science Content Area Resource

This Tennessee Specific Industry Certification (TSIC) resource provides additional guidance as you prepare your horticulture science instructional materials. The general knowledge and skills are provided as a guide for developing lessons and lab activities that lead to deeper understanding of content. The list of sample terms are just that, a list of industry-specific terms that will build each student's knowledge base for this content area.

### *General knowledge and skills for Plant Nutrition*

- Identify the essential major and minor nutrients needed for plant growth.
- Explain the process that nutrients become available for plants.
- Interpret a fertilization formulation
- Identify and explain the different methods of fertilizer application.
- Identify common signs of nutrient deficiencies in plants.
- Describe the role of soil pH on nutrient availability and the overall impact on plant health.
- Evaluate a basic soil analysis to determine the chemical elements and nutritional levels available for plant growth.
- Identify the nutrient requirements of plants and explain the importance of essential plant nutrients for plant growth and development.
- Illustrate and explain the process of photosynthesis.
- Explain the differences and proper uses of water soluble, granular, and organic fertilizers.
- Synthesize information on a fertilizer label and calculate estimate usage.
- Summarize the requirements for nutrients and pH for turf grasses.
- Analyze the fertilizer needs, if any, of established trees and shrubs.

### *Sample terms associated with content area:*

- **0-10-10**
- **15-25-10**
- **33-0-0**
- **5-10-15**
- **Abscisic acid**
- **Amino acids**
- **Anhydrous ammonia**
- **Animal waste**
- **Anthocyanin**
- **Assimilation**
- **Atmospheric nitrogen**
- **Bacterial pathogens**
- **Banding**
- **Blossom end rot**
- **Boron**
- **Broadcasting**
- **Buffer**
- **Cambium**
- **Carbohydrates**
- **Carbon dioxide**
- **Chemiosmosis**
- **Chlorine**
- **Chlorophyll**
- **Chloroplast**
- **Chlorosis**
- **Copper**



- Crop
- Cytochromes
- Cytoplasm of the cell
- Deficiency
- Defoliation
- Drilling
- Dry manure
- Endoplasmic reticulum
- Essential macronutrient
- Ethylene
- Extreme pH
- Fertigation
- Foliar Application
- Fungal pathogens
- Geranium
- Gibberellin
- Granular
- Granular fertilization
- Growing season
- High pH
- Hormone
- Hydrogen
- Immobile micronutrient
- Impatiens
- Interveinal chlorosis
- Iron
- Lawn grasses
- Leaf bronzing.
- Light energy
- Light reaction
- Lime
- Liquid fertilization
- Low pH
- Macro
- Macronutrient
- Magnesium efficiency
- Manganese
- Micro
- Mitochondria
- Moderate pH
- Molybdenum
- Mouse ears
- Necrosis
- Necrotic lesions
- Nephrosis
- Nickel
- Nitrogen
- Nitrogen cycle
- Nitrogen deficiency
- Nitrogen in rainwater
- Nucleus
- Organelles
- Organic soil
- Oxygen
- Oxygen liberation
- Parts per million
- Phloem
- Phosphorus
- Phosphorus deficiency
- Photosynthesis
- Pigment
- Pith
- Plant cell
- Poinsettias
- Poinsettias bracts
- Potassium deficiency
- Protein synthesis
- Radon
- Respiration results
- Root rot
- Roots
- Sandy soils
- Side dressing
- Slow release fertilization
- Soil injection
- Soil nitrogen
- Soilless media
- Soluble salts
- Stroma of the chloroplast
- Thylakoid membrane of the chloroplast
- Thylakoids
- Top dressed
- Toxicity
- Transpiration
- Turf grass
- Vegetative growth
- Water soluble
- Wilting
- Xylem
- Zinc
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