

Standards and Competencies for Plant and Soil Science (Course # 5161)

	Begin-End Yr
Standard 1 - Evaluate conservation measures necessary for the use of natural resources for future generations.	2009 -
1.1 - Specify and explain terms related to natural resources and the environment.	2009 -
1.2 - Evaluate the economic impact of natural resources in agriculture.	2009 -
1.3 - Classify the major categories of natural resources.	2009 -
1.4 - Evaluate ways population growth and societal change affect natural resources.	2009 -
1.5 - Evaluate the role of individuals and organizations that work with conservation and the environment.	2009 -
Standard 2 - Evaluate land management practices needed to ensure a plentiful supply of quality water.	2009 -
2.1 - Specify and explain terms related to water quality and land management.	2009 -
2.2 - Evaluate the management of surface water and the impact of water runoff on land use.	2009 -
2.3 - Determine the effects of groundwater on agricultural use.	2009 -
2.4 - Evaluate the types of agricultural wastes and techniques for reclamation.	2009 -
2.5 - Evaluate soil and water conservation needs.	2009 -
2.6 - Recommend soil management practices.	2009 -
2.7 - Summarize physical soil characteristics and their relationship to soil pollution.	2009 -
2.8 - Examine the relationship of soils and home site suitability.	2009 -
Standard 3 - Analyze the physical properties of soil and their relationship to plant growth.	2009 -
3.1 - Specify and explain terms related to the physical properties of soils.	2009 -
3.2 - Compare soil particles, texture, drainage class, and rooting depth of a soil profile.	2009 -
3.3 - Determine land class based on soil characteristics.	2009 -
3.4 - Examine the effect of different slopes on soil erosion.	2009 -
3.5 - Evaluate the importance of organic matter in the soil.	2009 -
3.6 - Analyze soil formation and the development of the horizons in soil.	2009 -
Standard 4 - Analyze the anatomy and physiology of plants that are used for agronomic crops.	2009 -
4.1 - Specify and explain terms related to plant anatomy and physiology of crops.	2009 -
4.2 - Explain the function of plant parts related to plant anatomy.	2009 -
4.3 - Explain the process of photosynthesis.	2009 -
4.4 - Explain the hydrologic cycle.	2009 -
4.5 - Explain the processes of sexual and asexual reproduction.	2009 -
4.6 - Distinguish between a monocot and dicot and their relationship in crop production.	2009 -
Standard 5 - Analyze the chemical elements essential to plant nutrition and the importance and benefits of proper soil fertility.	2009 -
5.1 - Specify and explain terms related to soil chemistry and plant nutrition.	2009 -
5.2 - Evaluate the need for essential elements in plant growth.	2009 -
5.3 - Classify essential elements according to their sources.	2009 -
5.4 - Evaluate the nutritional needs of soil to promote plant growth.	2009 -
5.5 - Calculate the actual amount of nutrients found in bag analysis.	2009 -
5.6 - Differentiate between primary, secondary and micronutrients.	2009 -
5.7 - Measure soil pH and its effects on nutrient availability.	2009 -
5.8 - Assess the nutrient deficiency symptoms in plants.	2009 -
Standard 6 - Evaluate the types of pollution in the environment and methods of controlling pollution.	2009 -
6.1 - Specify and explain terms related to environmental pollution control.	2009 -
6.2 - Evaluate sources of water pollution and methods of control.	2009 -
6.3 - Examine sources of air pollution and methods of control.	2009 -
6.4 - Examine sources of noise pollution and methods of control.	2009 -
6.5 - Analyze procedures for handling, storing and disposing of hazardous materials to protect the environment.	2009 -
6.6 - Examine the role of recycling and composting in controlling pollution.	2009 -
Standard 7 - Analyze factors used for selecting a site that ensures the optimal growth and economic return of agricultural crops.	2009 -
7.1 - Specify and explain terms related to crop site selection.	2009 -
7.2 - Evaluate factors that affect site selection for agricultural crops.	2009 -
7.3 - Recommend best management practices that will ensure appropriate use of a land resource.	2009 -
7.4 - Analyze climatic factors that influence crop production.	2009 -
7.5 - Determine invasive pest species for row crop and non-row crop species using morphology (i.e., plants, insects, animals).	2009 -
7.6 - Determine the crops that can be utilized for row crop production.	2009 -
7.7 - Determine the crops that can be utilized for small grain and forage production.	2009 -
7.8 - Determine the crops that can be utilized for vegetable production.	2009 -
7.9 - Determine the crops that can be utilized for fruit and nut production.	2009 -
Standard 8 - Analyze factors that influence the economics of crop production.	2009 -
8.1 - Specify and explain terms related to crop economics.	2009 -
8.2 - Analyze input costs for the various types of crops.	2009 -
8.3 - Analyze the needs for different marketing strategies.	2009 -
8.4 - Examine the opportunities for specialty crops through niche markets.	2009 -
8.5 - Examine the economic and other advantages and disadvantages of using natural pests instead of pesticides (i.e., Integrated Pest Management, IPM).	2009 -
Standard 9 - Demonstrate premier leadership and personal growth needed for careers in the area of plant and soil science.	2009 -
9.1 - Specify and explain terms related to careers in plant and soil science.	2009 -

9.2 - Evaluate positive work attitudes and ethics used in natural resource management.	2009 -
9.3 - Prepare career plans that reflect critical thinking skills to encourage life-long learning.	2009 -
9.4 - Compare human relations skills used in dealing with landowners.	2009 -
9.5 - Prepare career goals, based on a related SAEP, supervised agricultural experience program, in natural resource management.	2009 -