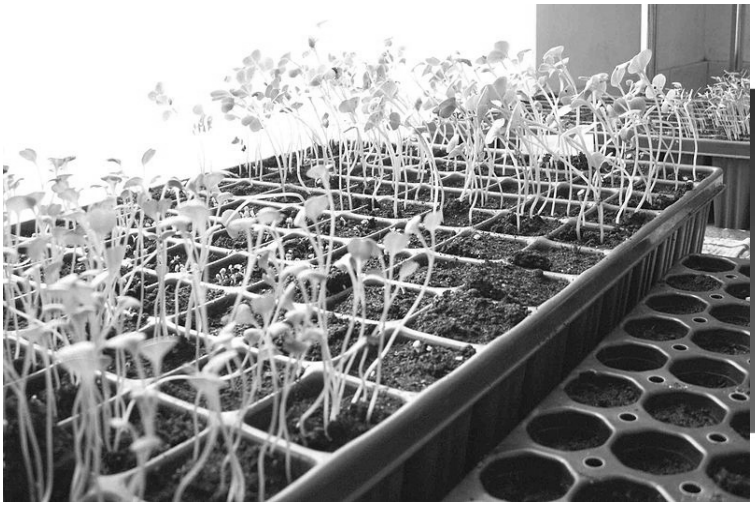
Lesson – Career Opportunities in Plant Systems



Lesson Overview

In this lesson, participants will be introduced to careers relating to plant systems. Participants will research and explore a variety of related careers in the plant systems pathway.

Lesson Objectives

After completing this lesson, participants will be able to:

- Identify several professions in the plant systems pathway
- Consider if any of the occupations covered in class are appropriate for them to pursue

Lesson at a Glance

Activity	Materials	Preparation	Approximate class time
FOCUS	• *Plant Systems Career Pathway Note Sheet*	1. Print/photocopy the *Plant Systems Career Pathway Note Sheet* – one for each participant	10-15 minutes
LEARN	• Library and internet resources • *Career Exploration Research Summary* handout	2. Print/photocopy the *Career Exploration Research Summary* handout – one for each participant	30-90 minutes
REVIEW	• Questions for panel (optional)	1. Contact 3-5 local horticulture, agronomy, forestry, viticulture, soils and related professionals and invite them to participate in a panel discussion 2. Set up the room with panel seating in the front and audience facing the panel	45-60 minutes

Lesson - Career Opportunities in Plant Systems

FOCUS: Defining the Available Career Paths

10-15 minutes

Purpose:

Participants will learn the variety of occupational areas that fall within the plant systems pathway classification and how this translates into career opportunities.

Materials:

- *Plant Systems Career Pathway Note Sheet*

Facilitation Steps:

1. Give each student the *Plant Systems Career Pathway Note Sheet*. Have them take notes while you share the following definitions of the plant systems pathway.

   This pathway includes occupations related to growing food, feed and fiber crops, and the study of plants and their growth to help producers meet consumer demand while conserving natural resources and maintaining the environment. Here are six types of career classifications within the plant systems pathway:

- **Horticulture** is evolved from the Latin words 'hortus' (garden plant) and 'cultura' (culture), horticulture is the culture of cultivating. But at the same time, it is a huge field of study. Horticulture is heavily dependent on three broad areas of knowledge: science, business and art. An appropriate balance and interaction of these three components is necessary for success in Horticulture.

  Horticulture involves the study of growing crops, plants, herbs, turfs, shrubs, trees, fruits, flowers, vegetables, grains, cereals, and anything else that falls in this genre. It is a science of plant propagation and crop production. Involved are the topics of botany and agriculture that study physiology, biology and chemistry of plants and trees.

  Subjects of genetic engineering and bio-technology falls into the same group as well. Crop reaping, storage, quality assurance, processing, maintenance and transportation are also included. The tricks and techniques of improving crop production, their quality, nutritional virtues, immunity to diseases is covered as well. Not only this, horticulture also extends to the study of non-edible ornamental kind of plants.

  Horticulture employs a wide range of tools and technologies. It is a scientific methodology of cultivation, so as to make the crops yield the desired quality.

- **Agronomy** is a science and practice that looks at agriculture from an integrated, holistic perspective. In agronomy, it's important to understand the properties of the soil and how the soil interacts with the growing crop; what nutrients (fertilizers) the crop needs and when and how to apply these nutrients; the ways that crops grow and develop; how climate and other environmental factors affect the crop at all stages; and how best to control weeds, insects, fungi and other crop pests.

  Another big focus in agronomy is how to grow crops effectively and profitably while conserving natural resources and protecting the environment. Growing crops requires collaboration among many fields, including the traditional soil, plant and weed sciences, as well as related disciplines such as ecology, entomology, climatology and economics. The best crop production methods are always grounded in scientific research. As a result, they are by nature continually evolving and improving.

  Agronomists are plant and soil scientists who develop innovative farm practices and technologies that not only boost crop yields but also control pests and weeds and protect the environment. Agronomists are also professional practitioners, educators and advisers who work directly with farmers, companies and others in the

agriculture community to implement the latest methods and tools for growing crops profitably and sustainably.

- **Forestry** is the science, art and practice of understanding, managing and using wisely the natural resources associated with, and derived from, forest lands. These resources include timber, water, fish, wildlife, soil, plants and recreation. Forest lands are instrumental in the beauty and spiritual impact of our landscape. Finding a balance between multiple uses, while sustaining and conserving forest resources is the basis of this challenging and exciting career area.

  Forestry career paths include forest biologists, professional foresters, wood engineers, forestry business administrators, conservationists and renewable resource managers. As an applied science, a forestry education can also serve as a foundation for entry into other professions such as education, business and law.

- **Turf Management** includes many job options in grounds keeping and greens keeping, especially for sports fields and golf courses. Turf management professionals must be physically capable of doing the work under various conditions, especially outdoors. Although many academic institutions offer jobs in turf management may be found at athletic fields or golf courses for universities, professional sports teams, municipal parks and private clubs. Career titles may include assistant golf course superintendent, landscape operations manager, turf scout, pesticide technician, tree trimmers, lawn care specialist, landscaping crew supervisor and sports field manager, among others. Turf managers may also work as consultants or sales representatives.

- **Viticulture** is the science, production and study of grapes which deals with the series of events that occur in the vineyard. When the grapes are used for winemaking, it is also known as viniculture. It is one branch of the science of horticulture. So, if you love to be outdoors and are interested in agriculture, then a career in viticulture may be the type of wine job that would interest you.

  From deciding what grape varieties to plant, to pest management, to irrigation and to deciding when is the best time to harvest the grapes, there are many aspects to this field of study and an assortment of career paths one could take. An advanced degree is generally required by someone who wants to pursue work as a viticulturist, which usually leads to positions like vineyard manager (in charge of a single vineyard), director of viticulture (oversees multiple vineyard locations), enology (also often spelled oenology) is the science of wine production or winemaking.

- **Soil Science** is the science dealing with soils as a natural resource on the surface of the earth including soil formation, classification and mapping; physical, chemical, biological and fertility properties of soils; and these properties in relation to the use and management of the soils.

  Soil scientists work for federal and state governments, universities and the private sector. The job of a soil scientist includes collection of soil data, consultation, investigation, evaluation, interpretation, planning or inspection relating to soil science. This career includes many different assignments and involves making recommendations about many resource areas. Soil scientists work in both the office and field. Soil scientists work in a variety of activities that apply soil science knowledge.

  There are a wide variety of soil science careers to choose from in addition to being a soil scientist. A few are:

  - Wetland specialist
  - Watershed technician
  - Hydrologist with Board of Health
  - Environmental technician
  - State soil and water quality specialist
  - Soil Conservationist
  - County Agricultural Agent
  - Landscaping business
  - Farming
  - On-site evaluation
  - Crop consultant
  - Research technician
  - Conservation planner

- District marketing manager for an
- agricultural firm
- County conservationist
- Crop production specialist
- Research scientist

2. To learn more about the job outlook for each of these types of occupational areas you can go to websites like the following:

   - https://www.agcareers.com/career-profiles
   - https://www.agexplorer.com/focus/plant-systems
   - https://www.bls.gov/oes/current/oes191013.htm
   - https://www.learnhowtobecome.org/career-resource-center/careers-with-plants/

Plant Systems Career Pathways Note Sheet

Pathway – What Is…..?	Types of Occupations
Horticulture	
Agronomy	
Forestry	
Turf Management	
Viticulture	
Soil Science	