Breakthrough

Discover Your Career in Plant Pathology

APS

Healthy Plants • Healthy World

What is a Plant Pathologist?

A plant pathologist is a professional who specializes in the study of plant diseases. Each year, millions of dollars' worth of crops and acres of forest are lost to plant diseases worldwide. Plant pathologists work constantly to help preserve the environment, grow healthy crops, and ensure an adequate food supply. In order to fight these diseases that affect us daily, plant pathologists must understand the organisms and agents that cause disease as well as understand how plants grow and are affected by disease.

Plant Pathologists Strive to Keep Plants Healthy

Plant pathologists are charged with the responsibility of managing the causes of disease in an attempt to keep plants healthy. In order to do this, plant pathologists:

- Monitor and restrict the movement of plant pathogens
- Diagnose the causes of plant disease and recommend solutions
- Unravel the mystery of the genes responsible for causing plant disease
- Teach students, grower groups, and the general public current strategies for disease management
- Work with agriculturists around the world
- Develop disease-resistant plant varieties

I became a plant pathologist because I wanted to do research that would address a global problem. Keeping plants healthy and making agriculture more efficient addresses so many issues: hunger, deforestation, and oil dependency, to name a few.

Kathy Schneider
National Biodefense Analysis & Countermeasures Center

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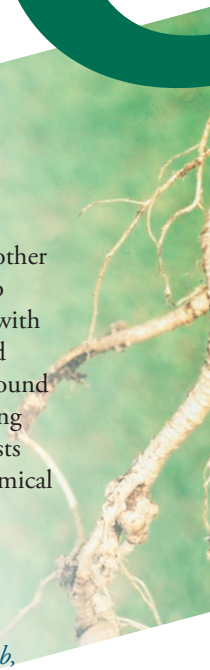
Plant Pathology is an Interdisciplinary Science

Plant pathology integrates knowledge and ideas from other scientific disciplines to understand diseases and how to effectively control them. Plant pathologists cooperate with plant breeders and crop management, insect, and weed specialists in developing integrated, environmentally sound approaches to managing crops and their pests (including pathogens). Plant pathologists also work with geneticists and biochemists to understand the genetic and biochemical interactions between pathogens and plants.

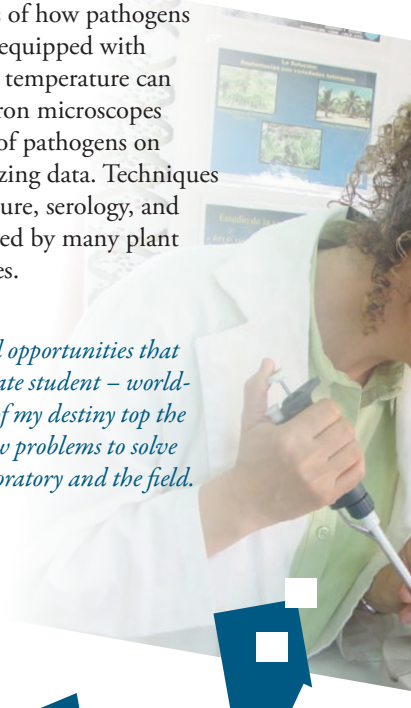


I work with scientists around the world to help create solutions for major diseases that can cause or aggravate world hunger, especially in developing countries. In my job, I look at the fascinating world of microbial interactions with the host plant and soil, which can lead to solutions for environmental pollution.

Dilantha Fernando
University of Manitoba

Advanced Technology is Used to Fight Disease

Plant pathologists utilize modern scientific equipment and techniques to unravel the mysteries of how pathogens attack plants. Research laboratories are equipped with plant growth chambers where light and temperature can be controlled accurately, scanning electron microscopes that provide three-dimensional images of pathogens on plant surfaces, and computers for analyzing data. Techniques for PCR, gene transfer, plant tissue culture, serology, and other modern biotechnologies are utilized by many plant pathologists in their day-to-day activities.



My career in plant pathology has provided opportunities that I couldn't even imagine as an undergraduate student – world-wide travel and the ability to take charge of my destiny top the list. It is never dull, as there are always new problems to solve or new tools to experiment with in the laboratory and the field.

Monica Elliott
University of Florida

Research Leads to Effective Disease Management

Considerable research is necessary before techniques can be recommended that will effectively manage plant diseases in ways that are economical for growers and safe for the environment and consumers. Plant pathologists employed by the Cooperative Extension Service, by industry, or as private practitioners work directly with agricultural producers, food processors, landscape and forest managers, or other professionals involved in growing or managing plants.

As a plant pathologist, I try to identify the causal agents of plant disease. I enjoy diagnostics because it requires logical thinking skills, knowledge about a wide variety of biotic and abiotic factors, and mastery of microbiological techniques in order to solve the mystery behind sick plants. It's like CSI for plants.

Eric Honeycutt
Bartlett Tree Research Lab

Opportunities for Careers in Plant Pathology

The career outlook for future plant pathologists is bright! National and international companies, public agencies, non-profit organizations and universities are looking for people with plant pathology backgrounds to help solve environmental issues, manage natural resources and ensure bountiful food production. Training for a bachelor's degree in a biological science at an accredited college or university is the first step toward becoming a plant pathologist. Graduate work in plant pathology usually is essential to acquire sufficient knowledge of the science to obtain most professional positions. Students interested in pursuing graduate work in plant pathology should consider undergraduate courses in the following areas:

Botany	Biology	Soil Science
Microbiology	Ecology	Biochemistry
Genetics	Plant Physiology	Statistics

Where Do Plant Pathologists Work?
All over the world!

Colleges and Universities—Research, Teaching, and Extension
Biotechnology Companies
Plant Protection Companies—Biological and Chemical
State and Federal Agencies—Agriculture, Forest,
Natural Resources, Environmental Protection
International Agricultural Research Centers
Nurseries and Garden Centers
Public Policy and Non-Governmental Organizations
Golf Courses and Public Parks
Environmental, Agricultural, and Patent Law Firms
Lawn and Landscape Maintenance Companies
Diagnostic Laboratories
Seed, Plant Production and Tissue Culture Companies
Private Consulting Firms—Agriculture and Urban

Discover Your Career in Plant Pathology!

Visit **www.apsnet.org/careers** for information about careers in plant pathology.

The American Phytopathological Society (APS) is the premier society dedicated to high-quality, innovative plant pathology research. APS is driven by a distinctive community of scientists, whose energy and commitment ensure the global advancement of this critical science.

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