1991 Registry of Certified Professional Plant Pathologists is established. The process of certifying plant pathologists was initiated with a special committee in 1972 and debated for years. The development of the registry was put in motion by a recommendation from the Private Practice Committee in 1989.

1991 Severe outbreaks of Fusarium head blight (Fusarium gramineum) on wheat and barley in the Midwest from 1991 to 1997. These epidemics resulted in $1.3 billion in total direct losses and had a total economic impact of $4.8 billion. In addition to direct damage, F. gramineum produces mycotoxins, which must be below 0.3–2 ppm in the U.S. Grain with mycotoxins concentrations above this level has a reduced value or may be completely rejected.

1992 First resistance gene cloned. HMT gene in maize provides resistance to race 1 of Cochliobolus carbonum by detoxifying a host-selective toxin.

1992 Hypervirulence of chestnut blight fungus (Cryphonectria parasitica) is determined to be caused by a virus.

1992 Discovery of Type III secretion systems in plant-pathogenic bacteria. Identification of the hly gene clusters from plant-pathogenic bacteria to conserved pathogenicity determinants and secretion systems found in bacterial pathogens of animals.

1992 First bacterium registered by the EPA for frost protection and fireblight control—Pseudomonas fluorescens AS06 (BlightBan A506, Frost Technology Corporation).

1993 Use of competitive exclusion to control aflatoxin. Using atoxicogenic strain of Aspergillus flavus to inhibit aflatoxin contamination.

1993 Discovery of RNA-mediated virus resistance, or posttranscriptional gene silencing. Today, often referred to as RNA silencing or RNA interference (RNAi). The first report of RNA interference in plants, providing a broad spectrum of disease resistance.

1994 APSnet launches—online resource for APS members.

1994 Online job placement service is launched.

1994 The first leucine-rich repeat plant disease resistance gene is cloned (Rps2). Subsequently, dozens of similar genes are cloned from several plants.

1994 First resistance gene to a fungal pathogen identified and cloned—HS1pro-1 for resistance to Cladosporium fulvum of tomato.

1995 First gene for resistance to Xanthomonas oryzae pv. oryzae, cause of bacterial leaf blight, is genetically engineered into rice.

1995 First report of programmed cell death in a plant disease. ABL toxins produced by Alternaria alternata f. sp. lycopersici and fumonisins produced by Fusarium moniliforme are discovered to be structurally similar to sphingotoxin, a mediator of signal transduction in neoplasms and necrosis in animals.

1995 APS Office of Public Affairs and Education is formed to provide leadership for public outreach. A. R. Vidaver was appointed as the acting director in 1993 and C. C. Bergstrom was appointed as the first director in 1996. In 2007, this office is renamed the Office of Public Relations and Outreach.

1995 First transgenic plant resistance to nematodes. Addition of the cysteine proteinase inhibitor (oryzacystatin-I) to roots reduced fecundity of Globodera pallida.

1996 The Tree of Life is formally announced. This online database contains information on the biodiversity and evolutionary relationships of organisms.

1996 APS offers first post-doc memberships.


1996 First report of Karnal bunt (Tilletia indica) on wheat in the U.S. This disease was first described in India in 1931. The disease causes relatively minor damage, relying on favorable conditions during heading for disease development. The major impact of the disease being present in the U.S. has been related to quarantines more than to direct effects of the disease itself. Within the U.S., the disease is restricted to localized portions of Arizona, California, and Texas.

1996 Blue mold of tobacco appears in Connecticut. This disease has been in the U.S. since 1921, causing several destructive epidemics until 1981 when Ridomil was put into service for disease management. In 1996, metalaxyl-resistant strains of the fungus Peronospora tabacina were found, leading to a new epidemic throughout most of the tobacco-producing areas in the U.S. in 1997.

1996 Actigard is developed. The active ingredient (acibenzolar-S-methyl) is a synthetic analogue of salicylic acid that activates the systemic acquired resistance in plants, providing a broad spectrum of disease resistance.

1997 First resistance gene cloned from a plant for nematode control. The H51– gene from sugar beet to control the sugar beet cyst nematode (Heterodera schachtii).