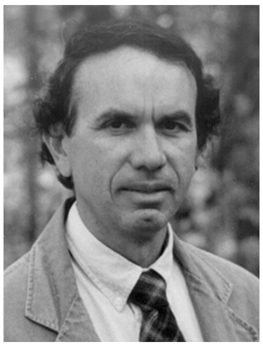
Fellows

Seven members of The American Phytopathological Society were honored as Fellows of the Society at the 1999 APS Annual Meeting in Montréal, Québec, Canada. Election as a Fellow is a reflection of the high esteem in which a member is held by colleagues. The award is given in recognition of outstanding contributions in extension, research, teaching, or other activities related to the science of plant pathology, to the profession, or to the Society. Publication no. P-1999-1130-01O

Robert A. Blanchette



Robert A. Blanchette, born 30 July 1951, lived in Concord, MA, for most of his early years. He received his B.A. degree from Merrimack College in 1973; his M.S. degree in forest resources from the University of New Hampshire in 1975, where he worked with Alex Shigo; and his Ph.D. degree in plant pathology from Washington State University in 1978, under the direction of C. Gardner Shaw. After a brief period as postdoctoral research and teaching associate at Washington State University, he joined the Department of Plant Pathology at the University of Minnesota in 1980 as assistant professor and forest pathologist. He was promoted to associate professor in 1984 and to professor in 1988.

Dr. Blanchette has made many notable contributions to plant pathology, forest mycology, and forest products pathology. Among these is his work on identifying the mechanisms of wood decay in living trees and wood products, research on the biology and ecology of forest pathogens, and pioneering efforts to utilize forest fungi for industrial uses. His research on wood decay has elucidated decay processes by fungi with a focus on how some pathogenic white rot fungi attack trees and other saprophytic species decompose woody substrates. Ultrastructural immunocytochemical and biochemical investigations have revealed the progressive stages of lignin degradation in wood and other lignocellulosic substrates. His paper in the *Annual Review of Phytopathology* in 1991 summarized his research on delignification by fungi and gave insight into how these fungi could be used for industrial bioprocessing purposes. The use of white rot fungi for biological pulping has shown that pretreatment of wood with selected fungi can reduce environmental pollution, lower energy usage for mechanical pulping, and improve paper strength properties. In 1997, Dr. Blanchette shared a group award for Research in Environmental Science with scientists from the U.S. Forest Products Laboratory, Madison, WI, for their significant accomplishments in developing biopulping technology. Another accomplishment of his research currently being used in industry is the use of fungi to remove resinous extractives from wood before paper production. Dr. Blanchette has 13 U.S. patents and numerous foreign patents for using fungi and bacteria in various bioprocessing applications for the forest products industry.

Dr. Blanchette's expertise on wood decay has been sought nationally and internationally by museum scientists, archaeologists, and students of antiquity to help investigate decay of archaeological wood and determine appropriate conservation methods. He has worked on ancient wooden objects from Egypt and ancient furniture from Tumulus MM in Gordion, Turkey; the 3,000-year-old Uluburun shipwreck; wood deterioration in Anasazi Pueblos at Chaco Canyon National Historic Park in New Mexico; and many other historic sites and ancient treasures. He currently is working on a project in Antarctica to identify active deterioration and help preserve several historic huts built by Captain Robert Scott and Ernest Shackleton during the Antarctic exploration. Dr. Blanchette has also done intriguing investigations on fungi used by the indigenous people of North America. He discovered collections of forest fungi in natural history museums that have provided important new information on how fungi were used in early Native American culture. He identified carved sporophores of *Fomitopsis officinalis* used by Pacific Northwest Coast shaman in rituals to cure the sick. He also found that the aromatic fungus *Haploporus odorus* was the sacred fungus used by the northern plains Indians to cure illness and symbolize spiritual power.

His work on discoloration and decay in trees has led to projects in southeast Asia, where he is working to preserve an endangered tropical rainforest tree species. This tree produces a valuable resin that has been harvested from old growth trees for centuries for cultural uses by Buddhists and Moslems. He found that the resin is produced as a host response to wounding and microbial invasion and could be induced in young trees. Dr. Blanchette, with colleagues from The Rainforest Project Foundation and from Vietnam, established plantations and technology to produce sustainable yields of resin. Another international project that Dr. Blanchette has been involved with is the biological control of sapstain, a new method of controlling detrimental stain fungi that is being tested in the field at several sites in the United States and New Zealand. Among his most outstanding accomplishments as a scientist, however, have been the basic studies to unravel nature's mysteries about how fungi interact with wood in forest ecosystems.

Dr. Blanchette has served as an associate editor of *Plant Disease* and as a member of the editorial boards for *Applied Environmental Microbiology* and *International Biodeterioration and Biodegradation.* He was elected a Fellow of the International Academy of Wood Science in 1989 and received the Hans Merensky Award in 1991 for research in wood science. He has coauthored two books and published over 150 refereed papers or book chapters. Dr. Blanchette is an enthusiastic teacher and has a gift for presenting information in a clear, accurate manner. He has had 8 Ph.D. students and 10 M.S. students during his tenure at the University of Minnesota. His research with graduate students has covered a wide range of forest tree diseases including the pinewood nematode, Armillaria root rot, stem rusts of pine, dwarf mistletoe of black spruce, and several other forest pathogens.

Geneviève Jeanne Défago

Geneviève Jeanne Défago was born in Val d'Illiez, Vallais, Switzerland. She studied natural sciences at the University of Lausanne and received a M.S. degree from the Swiss Federal Institute of Technology (ETH) in Zürich with majors in biology and biochemistry. Her Ph.D. dissertation was awarded the Silver Medal in 1967, the highest prize given by the ETH. From 1967 to 1969, she was a Canadian Research Council postdoctoral fellow at the Prairie Regional Laboratory in Saskatoon, where she studied the reproductive physiology of *Pythium.* In 1969, Dr. Défago returned to Zürich and was appointed head of the scientific staff at the ETH Institute for Special Botany. Since 1977, she has served as deputy director of the Phytopathology Department and was acting director from 1986 to 1988 and from 1996 to 1998. In 1990, in recognition of her leadership and service to the Institute for Plant Sciences, she was named professor by ETH on recommendation of the Senate. Dr. Défago has distinguished herself as an accomplished scientist, an instructor, an administrator, and a champion for international development in plant pathology.

Dr. Défago is widely regarded as one of the world's leading biological control scientists. She has been a pioneer in the application of biotechnology to understand how biocontrol *Pseudomonas* strains work and how they can be improved. She was one of the first to demonstrate that the physical and chemical properties of disease-suppressive soils can determine their capacity to support antagonistic *Pseudomonas*. She isolated *P. fluorescens* CHA0 from a suppressive soil and characterized this strain's unparalleled repertoire of biocontrol and growth-promoting mechanisms. Dr. Défago, in collaboration with Dr. D. Haas, was the first to clone gacA from CHA0, a key global regulatory gene for bacterial secondary metabolism.

Dr. Défago's group was the first to implicate bacterial siderophore production in induced systemic resistance and to link classical PR proteins with bacteria-induced resistance. Her group developed molecular and biochemical techniques to show that the relative contribution of cyanide, various antibiotics, and siderophores to disease suppression depends upon both the host and the target pathogen.

Dr. Défago and her colleagues demonstrated that minerals such as zinc and copper can influence biocontrol effectiveness by modifying signal compounds from pathogens. They found that copper and zinc significantly improved biocontrol activity of strain CHA0 against *Fusarium oxysporum* f. sp. *radicis-lycopersici* in soilless tomato culture. Copper, but not zinc, had a direct effect on disease suppression. The improvement in biocontrol activity by zinc resulted not from the stimulation of antibiotic production, as initially thought, but rather in the reduction of fusaric acid produced by *F. oxysporum* f. sp. *radicis-lycopersici.* Fusaric acid at concentrations as low as 0.12 mg/ml repressed production of 2,4-diacetylphloroglucinol, a key biocontrol metabolite by strain CHA0.

Dr. Défago's work has important applications for improving biocontrol of soilborne pathogens. Her group was among the first to use transgenic bacteria that overproduce antibiotics for improved biocontrol. She was one of the first to use mixtures of bacteria and fungi for enhanced biocontrol. Dr. Défago has had long-term collaborations with industry to develop better biocontrol strains for greenhouse crops. Her recent discovery of environmental signals, particularly pathogen toxins, that modulate bacterial antibiotic biosynthesis may streamline strain selection procedures and enable inoculants to be customized for better performance in specific environments.

Dr. Défago has made major strides to establish scientifically based assessment of inoculant biosafety. She has an active program to evaluate the impact and benefits of transgenic inoculants in the environment. She is vice president of the Swiss Biosafety Commission and an international consultant for establishing European guidelines.

Besides her biocontrol work, Dr. Défago is renowned for seminal work elucidating the role of sterols in the reproductive physiology of *Pythium* and the role of tomatine in plant defense, and for her early biochemical studies of fungal wilt toxins initiated under E. Gäumann and H. Kern. Incidentally, through Gäumann, Dr. Défago is a direct descendent of A. de Bary, founder of plant pathology. Currently, she has active research programs in biocontrol of bindweeds using pathogenic fungi and in control of postharvest problems in tropical yams. She has had numerous collaborations in Europe, North America, Asia, and Africa. She has coauthored many scientific publications.

Dr. Défago has long been regarded as an extraordinary instructor by her peers and students. Her teaching excellence was recognized as early as 1977 when she was awarded the title '*venia legendi*' by the ETH natural sciences faculty. Currently, she teaches eight undergraduate and graduate plant pathology courses at ETH. Her intensive practical course in plant pathology for biology majors is credited for record enrollments of graduate students in plant pathology. She has developed special courses in Iran and Norway and has sponsored scientists from developing countries to work in her laboratories. She has directed many Ph.D. and M.S. students, and has served on numerous other Ph.D. committees in Switzerland and France. Her original thinking, balanced with a zest for life, has always empowered those she mentors to produce only their best efforts.

Dr. Défago has been a major force in European and international plant pathology for 3 decades. She was a founder and the first president of the Swiss Society for Phytomedicine, which brings together phytopathologists, entomologists, and weed scientists. She was a charter member of the European Foundation for Plant Pathology and has served on its Council since 1989. She has served on the board of the International Society of Plant Pathology since 1985 and is a member of the Steering Committee for the International Organization for Biological Control. She is an active member of APS, French Society of Phytopathology, German Society of Phytomedicine, Swiss Botanical Society, Swiss Microbiology Society, and the American Society of Microbiology. She is an editor for the *European Journal of Soil Biology* and a reviewer for U.S. and European grant boards. She has organized several international conferences and edited two proceedings on biological control.

Brian J. Deverall

Brian J. Deverall, born 3 January 1935 in Birkenhead, England, graduated from the University of Edinburgh, Scotland, with first class honors in botany in 1957. He also attended Imperial College, University of London, where, in 1960, he was awarded D.I.C. and Ph.D. degrees in plant pathology. During this period, he worked with R. K. S. Wood, which was the start of his many contributions to elucidating the role of phytoalexins in plant disease resistance.

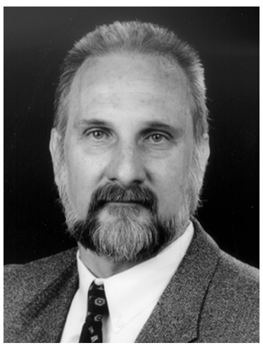
In 1960, Dr. Deverall was awarded a Harkness Fellowship of the Commonwealth Fund, New York, with the first 12 months spent in the Department of Plant Pathology, University of Wisconsin. During this period, he initiated work that eventually led to the finding that bean leaves resistant to halo blight caused by *Pseudomonas phaseolicola* had a higher level of galactolipase than did leaves that were susceptible. During the second year of his Harkness Fellowship, Dr. Deverall moved to the Department of Plant Pathology, University of Nebraska, where his investigations on expression and elicitation of resistance to rust fungi in plants were initiated.

In 1962, Dr. Deverall was appointed as a lecturer in the Department of Botany and Plant Technology, Imperial College, where he remained until 1970. This was a highly productive period for his research on phytoalexins in collaboration with R. P. Purkayastha, J. A. Bailey, and J. W. Mansfield. Wyerone acid was characterized as a phytoalexin, and critical investigations on the role of phaseollin accumulation in response to fungal and bacterial infections of beans were conducted. He was awarded the Huxley Prize for research achievements by Imperial College in 1971. In 1970, Dr. Deverall was appointed principal scientific officer at the Agricultural Research Council Unit on Systemic Fungicides, Wye College, University of London, a position he held until his appointment to the chair of plant pathology at the University of Sydney in 1973. While at Wye, he continued research on phytoalexins and wrote several reviews on their role in resistance. It was also at this time that Dr. Deverall was cofounder of *Physiological Plant Pathology*, an international journal for which he was coeditor for the next 10 years.

Dr. Deverall's move to Australia was to be a real bonus both to The University of Sydney, which acquired an academic with the rare combination of outstanding research skills and excellent teaching abilities, and to Australia, which gained a person with exceptional foresight who would play an important role in determining future directions of plant pathology research in a country in which primary production is so important to the nation's economy.

During the 25 years since Dr. Deverall has been in Australia, he has published a wealth of research papers, written monographs, and edited books. The theme is expression of resistance and its specific elicitation and systemic activation. He has played a dynamic role in educating young Australian scientists to be highly motivated and productive, has continued to contribute his time and energy into the editing and dissemination of plant pathology literature throughout the world, such as editing the newsletter of the International Society for Plant Pathology, and has set standards for the future of plant pathology research in Australia.

Tim R. Gottwald



Tim R. Gottwald was born in Lynwood, CA. He received a B.S. degree in botany from California State University, Long Beach, in 1975 and a Ph.D. degree from Oregon State University in 1980. He joined the USDA-ARS in 1980 as a research plant pathologist. For his Ph.D., Dr. Gottwald worked on eastern filbert blight in Oregon and Washington. This work led to the description of taxonomic variations in developmental schemes in the family Diaporthaceae. He described the cause of eastern filbert blight and the spread within a tree, between trees, and between orchards. Dr. Gottwald worked at the ARS Fruit and Tree Nut Research Laboratory in Bryon, GA, during his first 5 years with the USDA. His work focused on the epidemiology of fungal pathogens of pecan and peach and on the biocontrol of arboreal insect pests by entomopathogenic fungi. His significant findings that the pecan scab causal organism (*Cladosporium caryigenum*) was dispersed by air movement as well as by splash dispersal helped to explain the long-distance spread within and between orchards. He reclassified the scab fungus to *Cladosporium caryigenum* comb. novo sp. In cooperative research, he demonstrated that epizootics of the fungal parasite of insects, *Beauvaria bassiana*, significantly suppressed populations of the troublesome pecan weevil. He cooperated in a study to determine the effect of several diseases on the photosynthesis of pecan leaves and fruit. They found that powdery mildew was mostly a cosmetic disease and, therefore, intense measures to control mildew were not necessary. Additionally, he found that some pesticides in the standard spray schedule were largely cosmetic after a certain point in the season. His work with pecan spray programs resulted in reduced spray costs in the southeastern United States and less exposure of the environment to pesticides. Dr. Gottwald and coworkers transmitted a phytoplasma in pecans for the first time, proving that it was the causal agent of bunch disease.

At Byron, Dr. Gottwald used his engineering skills to develop a drone aircraft with an 8-foot wingspan to trap and monitor aerial populations of fungal spores and insects. He developed a new type of particle trap for this plane. For the biocontrol of insects, the plane was used to disperse small quantities of bacterial cells and fungal spores over large areas of crop canopies, which previously could not be done with conventional equipment. The project generated considerable attention from the media and even some interest from the Pest Management Board of the United States Army.

Over the years, Dr. Gottwald also developed a series of devices culminating in a sophisticated, computer-controlled, environmental chamber to study aerial release of spores of ascomycetes and hyphomycetes. The effects of relative humidity, temperature, red and infrared light, leaf wetness, vibration, and rain events can be studied with a controller and data acquisition system, all managed through computer software he developed. Dr. Gottwald also developed a noninvasive, stomatal-inoculation apparatus to evaluate different strains of bacterial pathogens on citrus. With this devise, he found that infection was not related to stomatal size, as previously suspected, and was able to demonstrate infection with single bacterial cells.

In 1985, the USDA moved Dr. Gottwald to the U.S. Horticultural Research Laboratory in Orlando, FL, to address an emerging citrus canker problem. He developed an aggressive, multifaceted research program in collaboration with other scientists. Since citrus canker was a quarantined pathogen, a great deal of innovation was required to establish field plots needed to determine the relative pathogenicity of different canker strains and their epidemiology.

Insight on movement of true citrus canker bacterium in citrus groves and nurseries was obtained through studies in Argentina. In research plots in simulated citrus nurseries near Beltsville, MD, and in north Florida, he showed that citrus bacterial spot (CBS) was not an aggressive pathogen and was unlikely to persist in commercial plantings. Dr. Gottwald and cooperators used a detached leaf assay to catalog strains of CBS for pathogenicity and to define the susceptibility of commercial citrus cultivars, rootstocks, and breeding lines to CBS and citrus canker strains. He also studied the interaction of numerous citrus cultivars and citrus relatives with the pathogens and the propagation and survival of the bacteria in situ. Dr. Gottwald used disease expression to define differences among CBS strains and between CBS and citrus canker. These findings prompted the reclassification of the CBS pathogen as a distinct pathovar and led to its deregulation by state and federal agencies. It is now considered a minor disease. His collaborative work on the etiology, epidemiology, and biology of citrus canker and CBS and the differences between these two diseases was recognized by his receipt of the Lee M. Hutchins Award in 1994 with Dr. Jim Graham. A recent outbreak of citrus canker in urban Miami has spurred new work on dispersal of citrus canker in an urban situation, in which interactions with the recently established Asian citrus leaf miner, human factors, and tropical weather events all play a role. He backtracked the spread of bacterial canker on dooryard citrus in Miami and determined that the spread of canker was primarily during major storms, spreading up to 7 miles in a single storm. Dr. Gottwald showed that windbreaks were superior to chemical or other control strategies to reduce the spread of the disease. He found that the spread of canker in citrus could be substantially slowed by the use of windbreaks and copper bactericides and that surfactants used in traditional spray programs induced stomatal flooding in citrus, enhanced infection, and intensified epidemics of citrus bacterial diseases. Innovative spatiotemporal analyses applied by Dr. Gottwald are currently being used by the Citrus Canker Eradication Agency and by the USDA/APHIS to guide eradication efforts.

Research on citrus canker stimulated Dr. Gottwald's interest in the etiology and epidemiology of other citrus pathogens exotic to U.S. agriculture, including severe strains of *Citrus tristeza virus* (CTV), citrus huanglungbing (greening), and citrus variegated chlorosis. In collaboration with scientists from the United States, Taiwan, Spain, Costa Rica, Nicaragua, and the Dominican Republic, Dr. Gottwald developed the first detailed information on the spatiotemporal dynamics of CTV movement in the field. These studies contrasted the differences in disease dynamics of two CTV pathosystems characterized by the presence of different predominant aphid vectors.

In collaboration with Dr. Gareth Hughes, University of Edinburgh, Scotland, Dr. Gottwald determined that the field sampling methodologies to determine CTV incidence were inadequate. They developed a new sampling strategy for CTV based on sampling at one spatial hierarchy (group level) to predict the incidence at the individual plant level. The results of these investigations have been used by the Central California Tristeza Eradication and other programs to revise approaches on surveys for, and eradication of, CTV. Dr. Gottwald also developed quantitative models to estimate the progress of citrus greening. He demonstrated the acceleration of greening epidemics when contaminated nursery stock was used and described the dynamics of disease clustering in citrus groves as influenced by the movement of the psyllid vector. His research program also includes work on domestic diseases of citrus including citrus scab, greasy spot, and melanose. Dr. Gottwald is now considered one of the leading international authorities on spatio-temporal analyses of arboreal epidemics. He and collaborators developed software, LCORII, to perform complex, spatial, autocorrelation analyses. This software has been requested by more than 100 epidemiologists worldwide.

Dr. Gottwald has served APS as a senior editor of APS Press, as an associate editor of *Phytopathology*, and through participation on numerous committees. He has published over 130 papers and 80 abstracts and has been an invited participant in numerous national and international conferences and workshops.

Rafael Jiménez-Díaz

Rafael Jiménez-Díaz was born 14 April 1945 in Écija, in the Province of Seville, Spain. He obtained a M.S. degree in plant pathology from Cornell University. He served at the University of Córdoba as assistant professor of genetics, associate professor of statistics, and associate professor of plant pathology. While teaching at the University of Córdoba, he jointly served for 9 years as research plant pathologist at the Instituto Nacional de Investigaciones Agrarias (equivalent to the USDA-ARS). After receiving his Ph.D. degree in 1976 from the Polytechnic University of Madrid, he was named professor of plant pathology at the Escuela Técnica Superior de Ingenieros Agrónomos of the University of Córdoba. In 1988, he also became professor of research and head of the Department of Crop Protection in the Institute of Sustainable Agriculture in the Spanish Council of Scientific Research. Dr. Jiménez-Díaz currently serves in all three positions. He recently returned to Cornell University for a second sabbatical period.

Dr. Jiménez-Díaz is a leading scientist, agriculturist, and plant pathologist not only in Spain, but throughout the Mediterranean region. He played a significant role in promoting plant pathology in Spain during the post-Franco period, when plant pathology and agricultural research in general were in need of a strong leader to help envision and direct their growth. He provided this leadership and was the primary force behind the establishment of the Spanish Phytopathological Society. His contributions to research are evidenced by the 144 publications and book chapters that have come from his laboratory. Close to 30 students that he has mentored and the positions of importance they now occupy are evidence of his extraordinary ability as a teacher. As an administrator, Dr. Jiménez-Díaz has accepted important appointments at local, regional, national, and international levels that have fostered the advancement of Mediterranean agriculture and the science of plant pathology. He served as research coordinator for the FAO Network on Diseases of Sunflower in Europe, vice president for research at the University of Córdoba, director of the Institute of Agronomy and Plant Protection, scientific coordinator for agricultural research of the Spanish Council for Scientific Research, and a member of the board of directors and vice president of the Mediterranean Phytopathological Union.

Dr. Jiménez-Díaz has worked on the etiological, epidemiological, and control aspects of foliar and soilborne diseases affecting numerous crops important in Spain and the Mediterranean region. In his research, Dr. Jiménez-Díaz has addressed diverse strategies such as assessment of disease importance and distribution; molecular characterization of pathogens; pathotypes and races; quantitative epidemiology; cultural, biological, and resistance management of disease; nematode-fungus interaction breaking resistance; and modeling of diseases losses. His work in the phenotypic and molecular characterization of the causal agents of Fusarium wilt and Ascochyta blight of chickpeas significantly contributed to the breeding of a number of resistant chickpea germ plasm lines and cultivars now used in the Mediterranean region. Similarly, his work in the quantitative epidemiology of Fusarium wilt of chickpea and Verticillium wilt of cotton provided knowledge and tools that facilitated the implementation of integrated management of these diseases in Mediterranean environments. Other diseases of importance investigated by Dr. Jiménez-Díaz's laboratory are Verticillium wilt of alfalfa and olive trees, Fusarium wilt of melons, yellow leaf blight of corn, damping-off of cotton, pyricularia blight of rice, downy mildew and charcoal rot of sunflower, and lesion and other plant parasitic nematodes of chickpeas.

Dr. Jiménez-Díaz has supervised over 20 students obtaining doctorate degrees and 8 students obtaining master degrees in plant pathology. Three of his former students are currently full professors of plant pathology at different universities in Spain, two students are associate professors of plant pathology at the universities of Córdoba and Venezuela, and six students hold research plant pathology positions in five different research centers throughout Spain.

Much of his efforts have been devoted to the promotion of plant pathology in Spain and in the Mediterranean region. He serves in several professional societies devoted to the science of plant pathology. An active member of APS since 1974, he frequently reviews manuscripts submitted for publication in APS journals and other international publications. He is a member of the British Society of Plant Pathology, the Mediterranean Phytopathological Union, the Spanish Society of Horticultural Sciences, and the New York Academy of Sciences. He helped organize numerous national and international scientific meetings, congresses, conferences, seminars, and workshops in Spain and other countries in Europe and the Mediterranean region, often helping in obtaining the necessary resources. He was a consultant to the directorate general VI of the European Union to evaluate research proposals and to the Spanish directorate general of research and universities to prioritize agricultural research and allocate funding to national research programs.

Among his most recent awards are the Agricultural Research Award "FINUCOSA" in commemoration of the XXV Anniversary of the University of Cordoba in 1997; Best Research Presentation at the VII International Congress of the Latin-American Phytopathological Society in 1995; and the "Jorge Pastor Award" by the Spanish Ministry of Agriculture in 1991 and 1993.

Roland F. Line

Roland F. (Rollie) Line was born in Winona, MN, in 1934 and graduated from high school at Cromwell, MN, in 1952. He received his B.S. degree in 1956 and M.S. (1959) and Ph.D. (1962) degrees in plant pathology and genetics from the University of Minnesota. As a research associate at the University of Minnesota (1959 to 1963), he was responsible for research on the ecological potential and survival of the stem rust pathogen. His data showed that it was possible to create isolates of *Puccinia graminis* that were more aggressive at low temperatures and that selection for aggressiveness at low temperatures reduced aggressiveness at high temperatures. With coworkers, he showed that new races could arise by sexual and somatic crosses between *Puccinia graminis* f. sp. *tritici* and *Puccinia graminis* f. sp. *secalis.*

During 1963 to 1968, Dr. Line led a cooperative U.S. Army, USDA, and experiment station project on stem rust epidemiology and loss assessment from Oklahoma to North Dakota. It was the most innovative, extensive, and comprehensive study of its type in the history of cereal rust research, and it set the stage for subsequent research on the subject. In 1968, Dr. Line assumed the leadership of a USDA program for the control of rusts and smuts at Pullman, WA. Stripe rust and flag smut were the most urgent problems facing the wheat industry in 1968, but within 3 years, he had implemented a control program that reduced flag smut to a minor disease, saved the wheat industry millions of dollars, and prevented the loss of an export market.

Dr. Line established a rust research program that had an even greater impact on the wheat industry. He developed a monitoring program that provided early warning to breeders and growers to enable them to take action to prevent major losses. He identified the environmental and managerial factors that contribute to rust epidemics and, with Stella M. Coakley, developed the first working model for predicting stripe rust. Since 1979, he has used predictive models and monitoring data to forecast wheat stripe, leaf, and stem rust, and this program has proven equally effective in predicting barley stripe rust. Dr. Line and his students and postdoctoral trainees have used data on rust virulence and DNA polymorphism to develop concepts on the evolution of the stripe rust pathogens, the relationships among pathogenic forms and races, the origin and distribution of races, and the genetics of virulence and resistance.

In cooperation with Pacific Northwest wheat breeders, Dr. Line identified several unique types of resistance to stripe rust, including the most useful type, high-temperature, adult-plant (HTAP) resistance. Because of his research, over 45 wheat cultivars with HTAP resistance have been released and over 90% of the wheat acreage is planted with durable, HTAP-resistant cultivars. Use of HTAP resistance and multiline cultivars has prevented multimillion dollar losses to the wheat industry. Dr. Line has contributed to the release of two multiline, durable cultivars that are among the few multiline cultivars in the world that are extensively grown. Dr. Line and coworkers have identified 41 race-specific genes for stripe rust resistance, of which 29 were not previously known. They determined the location of 31 of the genes on 17 of the 21 wheat chromosomes, identified eight HTAP resistance genes, and identified molecular markers for use in breeding for resistance. Similar accomplishments have been obtained with barley stripe rust resistance genes. Most recently, he and his coworkers developed a new, widely acclaimed technique for efficiently identifying molecular markers that are directly associated with resistance genes.

Dr. Line was the first U.S. scientist to show that application of systemic, foliar fungicides was a feasible approach for the control of wheat rusts. Use of fungicides in 1981 prevented losses of more than $3 million in Washington state alone. Subsequently, Drs. Line and Ramon Cu developed a computerized, expert system called MoreCrop (Managerial Options for Reasonable Economical Control of Rusts and Other Pathogens), available on the internet at http://pnw-ag.wsu.edu/morecrop/ for predicting and managing wheat diseases. It is widely used by growers, teachers, scientists, and advisors.

Dr. Line is recognized for his wealth of knowledge and experience in plant pathology and genetics and his international reputation for excellence. He is an authority on cereal rusts and smuts, expert systems, disease forecasting, crop loss assessment, chemical control, resistance, and disease management. He has published more than 70 refereed papers and book chapters and more than 260 technical publications. Dr. Line has served as the major advisor for 14 graduate students and has guided at least seven postdoctoral fellows and visiting scientists.

Dr. Line has served on numerous national committees including the National Wheat Improvement, the Wheat Crop Advisory, and the Wheat Crop Germplasm. He has also served on numerous APS committees including Collections and Germ Plasm, Disease Control, Epidemiology, Genetics, Integrated Pest Management, and Office of International Programs. Most recently, he was a member of the USDA TCK team that provided the biological justification for removing the Chinese import barrier to Pacific Northwest wheat. In recognition of his contribution to wheat research and the wheat industry, he was a recipient of the O. A. Vogel/Crop Improvement Award and USDA Certificates of Merit. His dedication to his profession is unquestioned and, with the exception of the 1963 meeting, he has attended every national APS meeting since 1956.

Laurence V. Madden

Laurence (Larry) V. Madden, born in Ashland, PA, received his B.S. degree from Pennsylvania State University. After being inspired by Dr. William Merrill's introductory plant pathology course, he received his M.S. and Ph.D. degrees in plant pathology. His graduate research included the development of a forecasting system for early blight of tomato, the development and testing of general nonlinear disease and crop loss models, and a comparison and classification of naturally occurring epidemics using multivariate statistical techniques. Dr. Madden joined the Department of Plant Pathology at the Ohio Agricultural Research and Development Center, Ohio State University, Wooster, in 1980 as a senior researcher to work on the epidemiology of maize virus diseases and the population biology of their insect vectors. He rose through the ranks to professor in 1990.

Dr. Madden is known as a leading international authority in quantitative epidemiology. He has pioneered the use of many mathematical and statistical models and methods to analyze, compare, and understand the spatiotemporal components of epidemics. Of great significance is his early work on the development and interpretation of flexible nonlinear models for describing disease progression and the evaluation of proper statistical methods for estimating and comparing model parameters. His research has shown how the inherent cumulative nature of disease progress curves requires special statistical techniques for proper estimation of rates of disease increase and for comparison of rates for different epidemics. He has also demonstrated the proper methods for estimating parameters of linked differential equations that cannot be solved analytically, so that researchers can relate empirical data to theoretical predictions from complex models. Working with colleagues from two other countries, he recently expanded on the work of Vanderplank to develop theoretical models that directly link the population dynamics of insect vectors with the temporal progression of viral diseases.

Due to the research of Dr. Madden, the understanding of the spatial component of epidemics has been dramatically increased. He demonstrated the dynamic and predictable change of disease aggregation or clustering over time, and he was the first to characterize this dynamic process using spatiotemporal autoregressive moving-average (STARIMA) models. This research has led to new ecological concepts of spatiotemporal processes inherent in epidemics. Dr. Madden's recent research with Gareth Hughes on the dispersion of disease incidence has altered how plant pathologists assess aggregation of this important variable. This work is also leading to revised methods of sampling for disease incidence, determining the effects of experimental treatments on disease, and predicting disease dynamics at multiple levels in a spatial hierarchy (such as leaves, plants, and fields).

For more than a decade, Dr. Madden has conducted pioneering research on rain splash dispersal of fungal plant pathogens in order to develop an understanding of this important means of pathogen dissemination comparable to our understanding of spore dispersal by wind. Among other things, he and his postdoctoral associates have characterized the entrainment of spores into splash droplets, determined the physical relations between properties of impacting raindrops and resulting trajectories of splash droplets, demonstrated the pronounced effect of surface topography (ground cover) and plant canopy on splash dispersal, characterized the multifaceted effects that rain intensity has on spore dispersal, and showed that extremely short-duration rains are sufficient for spore dispersal. Physical and empirical models have been developed to characterize the general splash dispersal process and integrate numerous experimental results.

Throughout his career, Dr. Madden has improved the understanding of disease/loss relations by developing linear and nonlinear, univariate and multivariate crop loss models for diseases caused by single pathogens or the interactions of pathogens and has given a sound set of statistical protocols for analyzing and modeling crop losses in response to disease severity. With colleagues and postdoctoral scientists, he has characterized crop losses in potatoes and wheat in relation to fungal diseases and has developed regression and discriminant models to quantify the disease/loss relationships and relate crop loss variation to effects of plant genotype and environment. Most recently, he showed how to link disease progress models to models for yield as a function of "time of individual plant infection" and implemented new methodology for validating crop loss and other epidemiological models.

Dr. Madden has always been able to combine basic research on the mathematical and statistical aspects of epidemics with more applied research to solve agricultural problems. His forecasting model for tomato early blight (FAST), developed as a graduate student, is the original basis for TOMCAST, a predictive system for tomato disease management that is used in several states and Canada, resulting in documented annual savings of millions of dollars. More recently, with colleague Mike Ellis, graduate students and postdoctorates, Dr. Madden has conducted numerous field and controlled-environment studies relating microenvironmental conditions to components of disease cycles (e.g., infection and sporulation) for several pathogens of fruit crops, and he used the results to either develop forecasting systems or predict the risk of disease under various conditions. He has also contributed his expertise in epidemiology, ecology, and statistics to several interdisciplinary projects focusing on the development or evaluation of IPM and biocontrol strategies for disease management. Moreover, Dr. Madden's work on rain splash has shown how the proper use of straw mulch or other ground cover can greatly decrease the incidence of diseases with splash-dispersed spores in horticultural crops. This work has given the theoretical underpinning for investigations on how ground cover influences disease spread in different pathosystems.

Dr. Madden's research has been extremely productive. He has authored or coauthored many refereed articles, book chapters, and proceedings. He is a coauthor with C. Lee Campbell of the principal textbook in botanical epidemiology and is an elected Fellow of the American Association for the Advancement of Science (AAAS) and of The Linnean Society of London.

In addition to his extensive research, Dr. Madden has a long history of distinguished service to APS and the profession. He was a senior editor of *Phytopathology* and APS Press for 3 years and then became editor-in-chief of *Phytopathology* for a 3-year term, perhaps the youngest person to hold this position. He also was the first chair of the APS Publications Board and guided the board through the setup of policies and procedures for coordinating all publication matters of the society. He was elected APS vice president in 1994 and served as president in 1996–1997. In this role, he was very active in promoting communication issues, overseeing the development and growth of the Offices of Electronic Communications and Public Affairs and Education. As president, he initiated a monthly column in *Phytopathology News* to help inform APS members of the many issues facing the society and profession.

Excellence in Extension Award

This award was established in 1988 by the APS Council in recognition of excellence in extension plant pathology. The award is presented to those involved in formal plant pathology extension with recognized superior contributions in creating, developing, or implementing extension-related programs or materials, or to those who have provided significant leadership in local, regional, or national honor societies or professional organizations in the area of extension plant pathology.

Gregory L. Tylka

Gregory L. Tylka was born in Greensburg, PA. He received a B.S. degree in biology magna cum laude from California University of Pennsylvania in 1983 and remained at the university to obtain a M.S. degree in biology summa cum laude under the direction of Dr. Barry B. Hunter in 1985. He joined the Department of Plant Pathology at the University of Georgia, where he, guided by Dr. Richard S. Hussey, received a Ph.D. degree summa cum laude in 1990. He then joined the faculty of the Department of Plant Pathology at Iowa State University with responsibilities in research, extension, and teaching.

Dr. Tylka has emerged as a national leader in efforts aimed at the management of the soybean cyst nematode (SCN), *Heterodera glycines*. In less than a decade, he has built a remarkable record of productivity and leadership for SCN education and management efforts. Dr. Tylka is one of the most requested speakers for local extension meetings because of his expertise, effective speaking style, and professional manner. He has presented information about SCN and other plant-parasitic nematodes to more than 10,000 agriculturists at over 300 extension programs in Iowa. He is one of the most frequently interviewed extension specialists at Iowa State University and, in addition to numerous popular articles in farm-related publications, he has authored several extension bulletins. The high demand for his expertise was recently demonstrated when he conducted 41 taped interviews in a single day at the 1998 National Association of Farm Broadcasters meeting.

Dr. Tylka recognized early in his career at Iowa State University that viable management practices for SCN existed. However, they were not being used because of lack of awareness among growers. In addition to his traditional educational efforts, Dr. Tylka established two websites to provide easy access to information about SCN and its management. These websites include very useful components, such as PowerPoint presentations, that can be downloaded for use by the public. He also increased awareness by establishing and promoting a low-cost soil testing service for farmers in Iowa and surrounding states that has allowed thousands of farmers to identify SCN problems. In 5 years, the number of samples received by the testing service at Iowa State University has grown

10-fold to a level of more than 5,000 samples per year. As lead principal investigator on a project that surveyed hundreds of fields in six midwestern states, Dr. Tylka and his colleagues determined that two-thirds of the fields in these states were infested with SCN.

Dr. Tylka's most prominent recent achievement, which has impacted the entire northcentral United States, is the creation of the SCN Coalition, a multifaceted organization that involves university research and extension specialists, state soybean boards, industry, and agricultural media specialists. The goal of this group is to develop educational materials and provide training to crop producers and agricultural industry personnel. A novel strategy that emerged through the Coalition was the use of a marketing firm to "sell" farmers the idea that SCN costs them money. Marketing experts devised radio and print advertisements, different from those conventionally used in extension. Surveys of soybean producers in the North Central region indicated that farmer awareness of SCN increased 13% within 1 year.

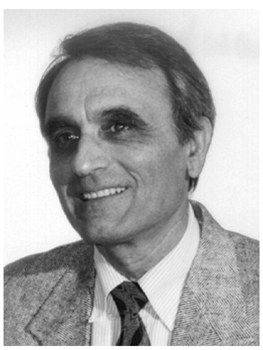
Other aspects of Dr. Tylka's multidisciplinary program impact his extension efforts. He and his team have investigated many aspects of SCN biology and the effects of production practices on this nematode. These include development of extensive documentation for demonstrating significant yield losses associated with SCN, in which no above-ground symptoms can be observed; collaboration on a project that identified optimal tillage practices for fields infested with SCN at different population densities; investigation of interactions of weeds, herbicides, and insect pests with SCN; the benefits of resistant varieties and crop rotation for SCN management; development of SCN management strategies using the tools of precision agriculture; and investigation of factors that influence hatching of SCN eggs. Two patents for chemicals that influence SCN egg hatch have been issued and one additional patent application is under consideration.

Dr. Tylka also has been active in teaching a graduate level plant nematology course, has served as an associate editor of *Plant Disease* and the *Journal of Nematology*, and is the Society of Nematologists' (SON) representative to the Council for Agricultural Science and Technology. He has served on numerous committees of both SON and APS and chairs the SON Extension and Public Awareness committees.

Lee M. Hutchins Award

The Lee M. Hutchins Fund was established in 1979 by gifts from the estate of Dr. Lee M. Hutchins. The award, consisting of a certificate and income from the invested fund, is given for the best contribution to basic or applied research on diseases of perennial fruit plants (tree fruits, tree nuts, small fruits, and grapes including tropical fruits but excluding vegetables). The results of the research must have been published in an official journal of the Society.

Adib Rowhani



Adib Rowhani, a native of Iran, earned his B.S. degree in plant protection at Pahlavi University in Shiraz, Iran, in 1971 and his M.S. and Ph.D. degrees in plant pathology at McGill University, Montreal, Canada, in 1977 and the University of British Columbia in Vancouver in 1980, respectively. From 1980 to 1988, Dr. Rowhani was a postgraduate research plant pathologist in the Department of Plant Pathology at the University of California, Davis. In 1988, he was appointed as a plant pathology specialist in the Department of Plant Pathology and was responsible for the clean stock programs at the University of California Foundation Plant Materials Service. He develops assays and procedures for the identification, detection, and characterization of viruses and graft-transmissible agents of perennial crop plants important to California agriculture, including fruit and nut crops, grapevines, and strawberries.

Dr. Rowhani's principal contributions have been in the development and improvement of detection methods for fruit tree pathogens and in gaining a better understanding of the etiology of these diseases. As a postdoctoral associate at Davis, he and colleagues elucidated the etiology of walnut blackline disease. They demonstrated that the disease was due to *Cherry leaf roll virus* and was not a genetic disorder. The virus was successfully purified and characterized and its relationship to other strains determined. Later, a rapid and reliable assay was developed.

Dr. Rowhani has made significant contributions to the understanding and detection of viruses causing grape fan leaf. In spite of the great difficulties of working with grape tissues, which contain potent inhibitors to the polymerase chain reaction (PCR), he was successful in developing a PCR assay for grape fan leaf. Although the assay was successful as a research tool, he continued with his work to make it a practical tool for processing large numbers of samples by incorporating a direct binding or immunocapture procedure.

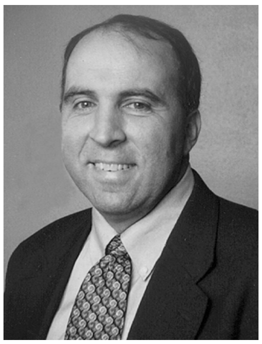
Dr. Rowhani has compared serological and biological assays for the detection of grapevine leaf roll-associated viruses. He found a good relationship of ELISA results and indexing, demonstrating the usefulness of ELISA. He has recently developed a sensitive colorimetric-PCR assay for detection of viruses in fruit trees. When combined with immunocapture of virions, the colorimetric procedure made it feasible to process large numbers of samples.

Dr. Rowhani's goals in developing serological and molecular methodologies have produced rapid assays for a bacterium and several plant viruses and graft-transmitted pathogens. In addition, he has produced antisera to several of the more important viruses occurring in fruit/nut trees and grapevines. Several of the ELISA protocols have been adopted and are now used routinely by personnel of the California Department of Food and Agriculture (CDFA) Nursery Services Branch for the service testing of source trees for ilarviruses and grapevines for *Grapevine fan leaf virus* used in the California Nursery's Registration and Certification Program. CDFA annually tests 20,000 collections of trees used for budwood and seeds and 16,000 collections of vines for these viruses. Dr. Rowhani serves as technical advisor and supplies reagents (antisera of *Prune dwarf virus, Prunus necrotic ringspot virus,* and *Grapevine fan leaf virus*) to CDFA.

Novartis Award

Sponsored by Novartis Crop Protection, this award is given to individual plant pathologists who have made significant contributions to the advancement of knowledge of plant diseases or their control. The award consists of a trophy and an expense-paid trip to Basel, Switzerland.

Albert K. Culbreath



Albert K. Culbreath was born in Hartselle, AL, in 1959. He is a graduate of Roane State Community College and Auburn University. In 1985, he received his M.S. degree in plant pathology and nematology from Auburn University and, in 1989, earned his Ph.D. degree in plant pathology with a minor in crop science and plant breeding from North Carolina State University. Following graduation, he was hired as an assistant professor in the Plant Pathology Department at the University of Georgia, Coastal Plains Experiment Station, Tifton, and began work on epidemiology and control of fungal foliar diseases of peanut and *Tomato spotted wilt virus* (TSWV) in peanut and tobacco. In 1994, he was promoted to associate professor.

Dr. Culbreath's work on leaf spot diseases of peanut caused by *Cercosporidium personatum* and *Cercospora arachidicola* has dealt largely with chemical control, fungicide resistance management strategies, and integration of partial resistance to *C. personatum* with fungicide use for leaf spot control. Dr. Culbreath demonstrated that 'Southern Runner', a peanut cultivar with partial resistance to *C. personatum*, also has resistance to stem infections by the same pathogen. In cooperative efforts with Drs. Norman Minton and Tim Brenneman, Dr. Culbreath showed that resistance to late leaf spot was not affected by root-knot nematodes, but that partial resistance to *Sclerotium rolfsii* in 'Southern Runner' may be negated by nematode infestation. Dr. Culbreath has been a leader in the integration of new systemic fungicides into peanut disease control systems, particularly related to strategies for preventing development of fungicide resistance in the pathogen populations. He demonstrated that tank mix combinations of low rates of ergosterol biosynthesis inhibiting fungicides with the protectant fungicide chlorothalonil provides excellent control of leaf spot, and he received a statutory patent for demonstrating synergistic effects of cyproconazole and chlorothalonil for leaf spot control. His work with use patterns and tank mixes of tebuconazole has resulted in significant improvements in control of leaf spot, southern stem rot, and Rhizoctonia limb rot of peanut. He further showed that tank mix combinations and/or alternations of benomyl with the protectant fungicide chlorothalonil can prolong the efficacy of benomyl in fields with populations of *C. personatum* that are benomyl insensitive.

Dr. Culbreath's work on thrips-vectored TSWV has resulted in progress toward a better understanding of this serious new problem for the southeastern United States. Although there are no tobacco cultivars available with resistance to TSWV, Dr. Culbreath has shown that there is resistance in some tobacco breeding lines that may provide a source for future cultivar development. By cooperative efforts with other scientists, he produced transgenic tobacco with the coat protein gene for TSWV.

In his work with TSWV on peanut, Dr. Culbreath worked very closely with virologists Drs. J. W. Demski and H. R. Pappu, entomologist Dr. J. Todd, and peanut breeders Drs. B. Branch and D. Gorbet. His efforts have led to the documentation of the slower epidemic development in the peanut 'Southern Runner' than in 'Florunner', the susceptible cultivar that in the mid-1980s was grown in over 90% of the peanut acreage in the southeastern United States. Dr. Culbreath showed that significant portions of the peanut population in a particular field were infected with TSWV but did not show symptoms. Dr. Culbreath received the Wallace K. Baily Award from the American Peanut Research and Education Society and the National Peanut Council Research and Education Award for this work. Due to the efforts of the Culbreath and Todd team in 1998, over two-thirds of the peanut acreage in Georgia and Florida will be planted to a peanut cultivar with a moderate level of field resistance to TSWV.

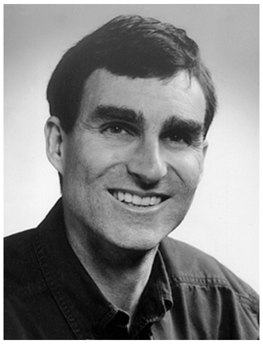
In cooperation with Drs. Todd and S. Brown, Dr. Culbreath has developed a spotted wilt management program that integrates the use of partial resistant cultivars, manipulation of planting date, increased seeding rates, and the use of phorate to greatly reduce incidence and severity of spotted wilt, even when any one of these factors individually would not provide sufficient control. They have developed a Spotted Wilt Risk Assessment Index by which growers and/or advisors calculate the relative risk of losses to spotted wilt based on a combination of the factors they plan to use.

Dr. Culbreath is the author or coauthor of over 50 refereed journal article and book chapters as well as numerous abstracts and other publications. He is currently the president of the APS Southern Division and a member of the American Peanut Research and Education Society and the Georgia Association of Plant Pathologists. He has chaired the APS Chemical Control and Placement committees and is a current member of the Host Plant Resistance Committee. Dr. Culbreath is an associate editor of *Plant Disease.*

Ruth Allen Award

The Ruth Allen Memorial Fund was established in 1965 by gifts from the estate of Dr. Ruth Allen through the generosity of her heirs: Sam Emsweller, Mabel Nebel, Hally Sax, and Evangeline Yarwood. The award, consisting of a certificate and income from the invested fund, is given for outstanding contributions to the science of plant pathology.

Bruce A. McDonald



Bruce A. McDonald received his B.S. degree in plant science from the University of California, Riverside, in 1982 and his Ph.D. degree in genetics from the University of California, Davis, in 1987. He joined the Department of Plant Pathology and Microbiology at Texas A&M University as an assistant professor following his graduation and was promoted to associate professor in 1994. Dr. McDonald recently moved to the Swiss Federal Institute of Technology in Zurich as professor of plant pathology in the Institute of Plant Sciences.

Dr. McDonald's scientific contributions to science and, in particular, plant pathology have been far reaching. His expertise in population genetics and pathogen-plant coevolution has been sought by national and international colleagues alike, as illustrated through his many collaborations, presentations, and publications (original and review articles). His 1993 review article on the population genetics of plant-pathogenic fungi has been used in many plant pathology classrooms and has stimulated other pathologists to enter this research area.

Dr. McDonald's work has demonstrated the power of molecular tools to address questions in population genetics. His analysis of population structure with neutral DNA markers provided new insight into the evolutionary processes that affect plant pathogens. In 1990, Dr. McDonald was the first plant pathologist to combine hierarchical field sampling with restriction fragment length polymorphism (RFLP) markers to demonstrate that the majority of genetic diversity could be distributed on a small spatial scale within the field. He used DNA fingerprints to show that a single lesion could be occupied by many pathogen genotypes. Shortly thereafter, his was the first work to use neutral genetic markers to infer the degree of gene flow between discontinuous pathogen populations in Oregon and California. Dr. McDonald and his colleagues demonstrated that isolates can share the same multilocus haplotype (e.g., have the same alleles at each of 10 loci), yet be different genotypes (e.g., have different DNA fingerprints).

Widespread recognition of Dr. McDonald's groundbreaking efforts is illustrated by acknowledgment of his work by scientists outside of Texas. Two of Dr. McDonald's collaborations have been with Dr. Jeremy Burdon (CSIRO, Australia) on the barley scald pathogen *Rhynchosporium secalis* and with Dr. Chris Mundt (Oregon State University) on *Mycosphaerella graminicola* (anamorph *Septoria tritici*) on wheat. It is with this latter pathogen that Dr. McDonald's pioneering work has been most noted and recognized by the national and international community. *M. graminicola* is an important, splash-dispersed, fungal pathogen whose genetics had not been well characterized prior to the initiation of Dr. McDonald's research. His group conducted field experiments with *M. graminicola* to isolate the effects of various factors on the genetic structure of pathogen populations.

Dr. McDonald's team developed RFLPs in nuclear and mitochondrial DNA as genetic markers to study the amount and distribution of genetic variation in *M. graminicola* populations and to assess the importance of gene flow, genetic drift, and selection in the evolution of this fungus. DNA fingerprinting techniques based on multilocus analysis of probes that hybridized to single RFLP loci and of individual probes that hybridized to highly variable, dispersed RFLP loci were used to identify individual clones in fungal populations. The effects of sexual and asexual reproduction on population structure were assessed using measurements of gametic disequilibrium among RFLP loci on different linkage groups. These techniques demonstrated that sexual reproduction was a common occurrence in this fungus, even though the sexual stage was not conspicuous. A large, replicated field experiment conducted in collaboration with Dr. Mundt's group illustrated the complex and dynamic interactions between immigration, recombination, and selection in determining the genetic structure of *M. graminicola* populations on resistant and susceptible wheat cultivars.

It may be argued that this represents the most complete work on the population genetics of any plant pathogen, as it has addressed all the major questions of this discipline including the roles played by mating system, gene flow, genetic drift, and selection in an agroecosystem. Dr. McDonald's influence in developing the field of population genetics within plant pathology has been substantial. He will continue to contribute to our understanding of the population biology of plant disease.