Francis Alexander Laviolette, 1919–1984

Kirk L. Athow and T. Scott Abney

Professor Francis Alexander Laviolette died December 23, 1984, at his home in West Lafayette, Indiana. Death was unexpected, although Francis had suffered from a debilitating respiratory illness for a year and a half and he had been on disability leave of absence since September 1984. He would have retired officially in February 1985.

He was born November 22, 1919, in Bellingham, Washington, where he lived until enrolling in the school of Agriculture at Purdue University in 1950. He was in the Air Force for three years during World War II, serving nearly two years in the China-Burma Area of Operation.

Francis was married November 7, 1946, to Helen Louise Elliott in her home town of Martinsville, Indiana. Louise, their son Robert (who is a physician in Indianapolis), and two grandchildren survive. Another son, John, died in early childhood.

Professor Laviolette received the BS degree in 1953 and an MS in agronomy in 1956 from Purdue University. He then accepted a research position in the Purdue Department of Botany and Plant Pathology to work with diseases of corn, soybean, and forage legumes, primarily alfalfa and red clover. His work with alfalfa contributed to the development of cultivar Culver, which combined resistance to bacterial wilt, common leaf spot, blackstem, spittle bug, and leafhopper. Several breeding lines of red clover developed during this time were the first to have resistance to both northern and southern anthracnose.

Beginning in 1965, he devoted full time to soybean pathology, for which he is best known. Francis was co-leader, with Kirk Athow, of the soybean pathology project at Purdue which is an integral part of the successful soybean research team involving cooperation among the departments of Botany and Plant Pathology, Agronomy, Entomology, and the Agricultural Research Service of the United States Department of Agriculture. Much of Francis' research was in cooperation with Dr. Athow, but each had specific areas of responsibility. He worked on most of the important diseases of soybean in the northcentral United States including bacterial pustule, frogeye leafspot, downy mildew, brown spot, stem canker, brown stem rot, Phytophthora and Pythium root rots, pod and stem blight, purple seed stain, and tobacco ringspot virus.

Much of Francis' work, along with that of his colleagues, was directed towards solving current soybean disease problems. He was a leader in evaluating the vast reservoir of soybean germ plasm. He tested between 7,500–8,000 plant introductions and germ plasm strains for resistance to frogeye leafspot and Phytophthora and Pythium root rots; and many of the same ones for resistance to downy mildew, brown spot, stem canker, and tobacco ringspot virus. Good sources of resistance to most of these diseases were identified and these were used in developing resistant cultivars. He was actively involved in the development of nineteen soybean cultivars, all of which had disease resistance as one attribute, for Indiana and neighboring states. The cultivars in order of release were Lindarin, Kent, Harosoy 63, Lindarin 63, Beeson, Calland, Cutler, Rampage, Protana, Amsoy 71, Cutler 71, Bonus, Wells, Century, Wells II, Beeson 80, Keller, Miami, and Winchester. The last three cultivars were the first to have two genes for resistance to Phytophthora root rot. At various times, over 50% of the soybean acreage in the United States was planted to cultivars developed in the Purdue program.

Professor Laviolette was involved in identifying two physiologic races of *Cercospora sojina*, the frogeye leafspot fungus, and demonstrating that resistance to each was controlled by an individual dominant gene. Resistant cultivars have played a large part in eliminating the disease from the northcentral United States while the disease is still present in the southeastern states and is a serious problem in Brazil.

His work with tobacco ringspot virus clarified the epidemiology of the disease and the significance of seed transmission. It also demonstrated the effect of time of infection on seed transmission and yield, and first showed insect transmission by *Thrips tabaci*.

A large portion of Francis' time was devoted to Phytophthora root rot during recent years because of its importance in Indiana. He and his colleagues identified 11 physiologic races of the causal fungus, *Phytophthora megasperma* f. sp. *glycinea*, in Indiana, five of which were new. They identified sources of resistance, determined the genes controlling resistance, and the mode of inheritance. They helped clarify the identity of the first three genes for resistance that were described, and gave the original descriptions of seven of the twelve known genes for resistance. At the time of his death, Francis and his colleagues had just completed the selection of breeding lines with three genes for resistance. Hardly a week went by without a request from a domestic or foreign researcher for seed, cultures, or information from this research program.

Francis was a member of Blessed Sacrament Catholic Church of West Lafayette. He also belonged to the American Phytopathological Society, The Society of Sigma Xi, American Institute of Biological Sciences, Alpha Zeta, Ceres, the Indiana Soybean Association, and the American Soybean Association. He was listed in American Men of Science, Who's Who in the Midwest, Notable Americans of the Bicentennial Era, Who's Who in Education, American Men of Science Consultants, and Who's Who in Frontier Science and Technology. In 1975, the Indiana Crop Improvement Association presented its Crops and Soils Merit Award to him for his outstanding contribution to Indiana agriculture.

Professor Laviolette was sought out by growers, seedsmen, and graduate students because of his knowledge and deep interest in agricultural science, and because he always took time to listen to their problems and usually could suggest a solution. He enjoyed his work and took pride in the quality and quantity of the work. He was friendly and kind and always had that quick little story or new joke which became his trademark and was almost anticipated. It is these characteristics that his many friends will remember best about Francis Laviolette.