

## David McKendree Kline, 1923—1972

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Dr. David M. Kline, USDA Plant Pathologist and Professor at North Carolina State University, died suddenly of a heart attack at his home in Raleigh on December 23, 1972. He was born November 15, 1923 at Charlottesville, Virginia, son of Mary Lee and Solomon David Kline, and attended primary and secondary schools in that city.

From 1941 to 1943 he studied at the University of Virginia. Dave then served in the U.S. Armed Forces from 1943 to 1945. He was assigned to the Medical Corps and did pre-medical study at the University of Idaho and at Stanford University. While in service he contracted tuberculosis and underwent treatment for 4 years. In 1949, he returned to the University of Virginia and received the B.A. degree in biology from that institution in 1950. A graduate assistantship there enabled him to continue working toward the M.A. degree, which was granted in 1952, the year he also won the Andrew Fleming Prize in Biology.

Dave received his Ph.D. in plant pathology from the University of Wisconsin in 1956. He worked on the apple scab program, with D. M. Boone and G. W. Keitt, as a half-time research assistant from 1952-1955 and then as a full-time research associate until August of 1956. At that time he accepted a position with the USDA to work on cereal diseases and was stationed at North Carolina State University, where he remained until his death. He was a very active member of the Department of Plant Pathology and was promoted to associate professor in 1962 and to full professor in 1968.

Dave Kline's contributions to plant pathology were many. At Wisconsin he worked with biochemical mutants of *Venturia inaequalis*, the causal agent of apple scab. He and his coworkers demonstrated that the loss by the fungus of the ability to synthesize certain metabolites could result in a loss of pathogenicity which could be restored in some cases by the addition of the missing metabolite to the infection court.

His interest in pathogen variation and the genetics of pathogenicity continued in his work with cereals. He collected isolates of *Rynchosporium secalis*, the causal agent of scald in barley, and determined their pathogenic variation. He also studied variation in ultraviolet-induced cultural and biochemical mutants and related the

observed changes to pathogenicity. His repeated attempts to produce the perfect stage of this organism were not successful.

A comprehensive study of pathogenicity in *Helminthosporium* species was then undertaken in cooperation with R. R. Nelson. They showed by inoculating a wide range of gramineous species with many isolates of *Helminthosporium* from different hosts and from different parts of the world that the pathogenic capacities of the isolates far exceed those usually ascribed to the species, and that the capacity to attack various hosts is controlled by numerous genes within each species. Analysis of ascospore progenies of certain crosses revealed that the pathogenicity of an isolate on a given host was controlled by a single gene in some cases and by two genes in other cases. The majority of genes for pathogenicity to different hosts were inherited independently but some were linked. Certain progenies attacked hosts that neither parental isolate could attack. They also demonstrated another system of genes which determined the ability of isolates to produce a blighting reaction in certain hosts.

Another aspect of Dr. Kline's work was a search for sources of resistance to diseases in small grains. He screened the world collection of wheat varieties for resistance to *Septoria nodorum* and evaluated hundreds of barley varieties for resistance to scald, spot blotch, net blotch, stripe, and other diseases. He was also active in the estimation of losses caused by small grain diseases, and in the evaluation of seed treatments for disease control.

Dave served as associate editor of *Phytopathology* and as a member of various committees of The American Phytopathological Society. At North Carolina State University he taught in the Plant Pathology Department and was rated among the top teachers by the students. He was chairman or member of the Advisory Committees of numerous graduate students and was advisor for undergraduates in the School of Agriculture and Life Sciences. This deep concern for students was also reflected in the many years he worked with the Raleigh Wesley Foundation of which he was Chairman of the Board of Directors for some time. Subprofessional employees of the Department of Plant Pathology also went to Dave regularly for advice since he was always willing to give freely of his time to help others.

Surviving are his wife, Mrs. Helen B. Kline; two sons, David M., Jr., and John Alan; and two brothers, Edward S. Kline of Fredericksburg, Va., and Dr. Raymond Kline of Xenia, Ohio.