

Ruth Allen Award

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

George E. Templeton



George Earl Templeton was born in Little Rock, AR, on June 27, 1931. He attended the University of Arkansas, Fayetteville, and received his B.S.A. and M.S. degrees in 1953 and 1954, respectively, majoring in agriculture and plant pathology. He served 2 years at the Fort Detrick Biological Warfare Center in the U.S. Chemical Corps from 1954 to 1956. He then entered the University of Wisconsin-Madison, where he received the Ph.D. degree in 1958 for research on the effect of toxic metabolites from *Fusarium monili-*

forme on germination of barley. He began his professional career as an assistant professor in the Department of Plant Pathology, University of Arkansas, Fayetteville, and rose to the ranks of associate professor in 1962, professor in 1967, university professor in 1984, and distinguished professor in 1991.

Dr. Templeton is honored for his role in establishing the concept that indigenous plant pathogens can be successfully used for biological control of weeds. He has received wide acclaim for his pioneering research on an anthracnose disease of northern joint-vetch, a serious leguminous weed of rice and soybeans, which illustrates the biological, technical, regulatory, and commercial feasibility of controlling weeds with native plant pathogens. His research on developing fungal pathogens as mycoherbicides for biological control of weeds is innovative and has resulted in new concepts in plant pathology, fermentation science, and weed management.

Templeton, with his students and colleagues, recognized the potential of indigenous endemic pathogens for biological control of weeds in annual crops. The innate limitations in dispersing these pathogens were overcome by applying them in the manner of postemergence chemical herbicides. They termed this the bioherbicide tactic, or (more specifically for fungal pathogens) the mycoherbicide tactic. A U.S. patent was issued for the process in 1973. The feasibility of the mycoherbicide tactic for weeds in annual crops was demonstrated in a 12-year effort culminating

in 1982 with registration by the Environmental Protection Agency and commercial sale of COLLEGO by the Upjohn Company. COLLEGO continues to be the alternative of choice for control of this serious weed in rice and soybean fields.

COLLEGO, a dry formulation of conidia of *Colletotrichum gloeosporioides* f. sp. *aeschynomene*, established a number of firsts in plant pathology. It was the first endemic pathogen to undergo the rigors of long-term testing leading to commercial development. The first patent issued for a fungus to be used as a mycoherbicide was issued for this fungus. The first Experimental Use Permit issued by the Environmental Protection Agency for a mycoherbicide was also issued for this fungus. It represents an effective model for interdisciplinary, multiagency, public-private sector collaboration necessary for the innovation of practical biological control agents. This research thus led to a highly selective, environmentally compatible product at lower costs than conventional organic chemicals. This work has had a major impact in encouraging others in biological control research and applications.

In related herbicide research, Templeton has also contributed significantly through his work with tentoxin, a cyclic peptide, which is a chlorosis-inducing toxin of *Alternaria alternata*. He and his colleagues discovered, purified, and characterized tentoxin, which is one of a few microbial toxins with potential as herbicides. A Canadian patent has been issued for its use as a herbicide. Basic interest in the mode of action of tentoxin worldwide has led to a significant body of knowledge contributing to the understanding of chloroplast development. Tentoxin has also been used as a means of determining the cytoplasmic parent in somatic hybrids between resistant and susceptible plant lines.

Templeton's awards are several. He was co-author of a paper judged to be the outstanding contribution to *Weed Science* in 1973, was awarded the John W. White Award for excellence in Agricultural Research by the University of Arkansas (1979), was named a Fellow of APS (1984), received the Distinguished Award in Research from the University of Arkansas Alumni Association (1987), received the University of Arkansas Burlington Northern Award as the Outstanding Faculty-Scholar in Research (1988), and was recognized by the USDA with a Superior Service Award (1990).