Ralph Merrill Caldwell, 1903-1976

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Ralph Merrill Caldwell, Professor Emeritus of Botany and Plant Pathology at Purdue University, died November 2, 1976 at College Station, Texas. He was born in Brookings, South Dakota, on June 27, 1903, graduated from South Dakota State University with a B.S. (Agronomy) in 1925, and earned an M.S. (Botany) in 1927 and the Ph.D. (Plant Pathology) in 1929 from the University of Wisconsin. From 1928 to 1930, he was the U.S. Department of Agriculture State Leader in the barberry eradication program in Wisconsin.

Dr. Caldwell came to Purdue in 1930 as Associate Plant Pathologist in the U.S. Department of Agriculture. He took charge of the wheat leaf rust project and directed much of his effort to breeding rust-resistant wheats, studying the nature of resistance and the biology of the pathogen, and evaluating losses. Dr. Caldwell firmly believed that disease resistance was useless unless it was put into an agronomically suitable plant type. Under his leadership, the breeding program expanded from improving rust resistance to incorporating resistance to all of the significant diseases that afflict cereal grains in the eastern U.S. and to improving yield potential as well as milling and baking qualities. His early work with entomologists led to development of wheats resistant to Hessian fly. More importantly, this led to interdepartmental and interagency cooperation in the small grains breeding program which still exists today. By 1950, the breeding team led by Dr. Caldwell consisted of scientists from Entomology, Agronomy, Botany and Plant Pathology, and the U.S. Department of Agriculture. The talents of this group made Purdue a center of small grains breeding. During his tenure, Dr. Caldwell was a co-developer of 40 cultivars of soft red winter wheat, oats, or barley. Notable among these were the wheat cultivars Knox and Arthur. Each of these has been grown on 1 million hectares or more during one or more crop years. Today, Arthur wheat or closely related derivatives are the most widely grown wheat cultivars in the U.S.

In 1937, Dr. Caldwell left the U.S. Department of Agriculture to become Head of the Purdue Department of Botany and Plant Pathology. While Head, Dr. Caldwell administered a greatly expanded program of graduate and undergraduate teaching in Agricultural Botany. He strengthened the department's efforts in the development of disease-resistant cultivars of small grains, corn, soybeans, apples, and tomatoes so that the department gained distinction in these areas. He was particularly influential in bringing his views on disease resistance and crop improvement to this broader range of crops. His combined administrative and research load became so heavy that he finally had to choose between them. In 1954, he returned to full-time research and cereal breeding.

During his career, Dr. Caldwell authored or co-authored some 40 journals papers, and numerous research bulletins and cultivar release statements. He was major professor for 13 students, several of whom were foreign, and he advised numerous other students working under his colleagues in the small grains area.

Dr. Caldwell was a member and Fellow of the following professional societies: The American Phytopathological Society, the American Society of Agronomy, the Crop Science Society of America, and the American Association for the Advancement of Science. He was a member of the Indiana Academy of Science. He served the American Phytopathological Society as Business Manager and Treasurer, 1944-46; Associate Editor of the journal PHYTOPATHOLOGY, 1954-57; Councilor-at-Large, 1964-66; and President of the North Central Division, 1949-50. He received the Crops and Soils Merit Award of the Indiana Crop Improvement Association in 1954 and the Purdue Agricultural Alumni Association's "Certificate of Distinction" in 1965.

As Dr. Caldwell observed the development of disease-resistant cultivars of our major crops he noted the comparatively short period of usefulness cultivars had before they succumbed to new, virulent races of plant pathogens. He developed an intense interest in more stable types of genetic resistance and later devoted most of his research to this. Unfortunately, the pressures of the breeding program were so great that he could not do as much in this area as he wished, nor did he find time to publish all of his work. However, his enthusiasm for this concept prompted him to discuss it with cereal breeders throughout the world whenever opportunity arose and to extol its virtues with a missionary zeal. Perhaps this advocacy served a greater purpose than additional research reports on the subject, because in recent years research on more stable forms of resistance has increased greatly, due in part, we believe, to the efforts of Dr. Caldwell.

On several occasions, Dr. Caldwell served as consultant to the international wheat breeding program of CIMMYT, working in Mexico with scientists and graduate students from throughout the world. After retirement (June 20, 1971), he served as wheat breeding consultant to DeKalb Seed Company.

Dr. Caldwell, a man of strong determination and conviction, had a consuming interest in all aspects of the cereal grains, from their basic biology to their utilization. These traits made him the focal point of an effective and productive breeding and research program. Plant geneticists and pathologists throughout the world benefited from his ideas, and farmers of Indiana and surrounding states profited from the improved productivity of the small grain cultivars Dr. Caldwell and his colleagues developed.

Dr. Caldwell and his wife Margaret, who preceded him in death in 1973, were the parents of one daughter, Janet (Mrs. R. W. Storts), of College Station, Texas. He is survived by her and three grandchildren.