

# James Morton Hamilton

*June 26, 1901 — February 20, 1987*

James Morton Hamilton was born in Sutton West, Ontario. He received his B.S. A. degree from the University of Toronto in 1924. In 1929 he was awarded his Ph.D. degree from the University of Wisconsin, where he majored in plant pathology. He became an American citizen in 1934.

Jim joined the Department of Plant Pathology as an associate in research at the New York State Agricultural Experiment Station in Geneva in 1930. From 1930 to 1936 he was in charge of fruit disease control investigations at the Poughkeepsie Laboratory in the Hudson Valley. He was transferred to Geneva in 1936 and was promoted to chief in research (professor) in 1939. He served as head of the Department of Plant Pathology from 1951 until shortly before his retirement. He was made professor emeritus of plant pathology on his retirement in 1967.

While headquartered in the Hudson Valley, Jim developed fungicide programs for the control of apple scab, black rot, and cedar-apple rust. After his transfer to Geneva he continued his field experiments on the control of apple diseases and initiated research on fungal and bacterial diseases of pears, peaches, and cherries.

In the 1930s Jim pioneered the development of greenhouse-laboratory facilities and techniques for research on fungicide action in relation to disease control. With great persistence and detail he formulated and developed many of the major concepts of how and why fungicides control plant diseases. His investigations established the parameters of fungicide activity: protection, eradication, redistribution, and systemic action.

Jim and his colleagues established that particle size was critical to the effective performance of fungicides and that retention and redistribution of fungicides on the plant foliage and fruits were important for obtaining maximum disease control. He also discovered that certain fungicides were capable of killing disease organisms after they had become established in the tissues of the host plant, a phenomenon later to become known as the “after-infection” phase of disease control.

Jim developed rapid, inexpensive methods of evaluating possible new fungicides and bactericides in the laboratory and greenhouse, thereby eliminating the need for more-expensive field testing of materials that were ineffective or phytotoxic. Those accomplishments brought him worldwide recognition in the field of fungicide evaluation.

His research findings in the 1930s made major contributions to the development of the organic fungicides that replaced the highly injurious lime-sulfur and Bordeaux mixture fungicides. His research resulted in the discovery

of ferbam, which in laboratory and field tests was found to be effective for the control of apple scab and cedar-apple rust. He later demonstrated it to be highly effective for the control of Botrytis of stone fruits, peach leaf curl, and cherry leaf spot. His researches were responsible for the introduction of the dithiocarbamates, dodine, and glyodin. These findings have led to more-effective disease control in orchard fruits and resulted in increased yields of superior-quality fruits worth millions of dollars to the fruit industry of New York and neighboring states.

Jim was extremely critical and objective about his fungicide evaluations and was often unusually frank in his remarks about their effectiveness, or lack thereof, in his presentations of his research findings at the pesticide conferences held annually at Ithaca and at grower and scientific meetings. Although much of his grant funds for fungicide evaluations came from commercial companies, he did not hesitate to lambaste new fungicide candidates that showed little or no promise.

During his tenure Jim published 103 scientific papers and numerous popular articles on fungicides and disease control. He frequently delivered his research findings directly to the growers at extension meetings, which were usually well attended.

In 1967 he received the Award of Merit, the highest honor the Northeastern Division of the American Phytopathological Society can confer on one of its members. On his retirement Jim was cited by the New York State Horticultural Society for a “lifetime of productive research in solving orchard disease problems.” Jim was a member of Phi Sigma, Sigma Xi, Gamma Alpha, the New York State Horticultural Society, the American Association for the Advancement of Science, and the American Phytopathological Society.

He is survived by a sister, Mrs. Blaine (Jean Ann) Moore of Gananoque, Ontario, and several nieces and nephews.

*Rosario Provvidenti, Michael Szkolnik, Alvin Braun*