

Paul George Rothman, 1923-1992

A. P. Roelfs



On 15 November 1992, those concerned with resistance to rust in oats lost a long-time colleague and friend. Paul G. Rothman spent his career with the United States Department of Agriculture, Agricultural Research Service, transferring resistance from primitive to cultivated oats. He died at the age of 69 after a brief illness.

Paul Rothman was born on 16 April 1923, in Detroit, MI, and was an honors graduate of Michigan State

University, East Lansing. He earned a B.S. degree in Farm Crops, in 1950, an M.S. degree, in 1952, in Farm Crops with a Botany minor, and a Ph.D. degree from the Department of Plant Pathology, University of Illinois, Urbana, in 1955, with a Major in Agronomy/Plant Pathology. Paul was employed by USDA-ARS Oat Investigations as an agronomist in 1955 and was assigned to Stoneville, MS. At Stoneville, Dr. Rothman was in charge of studies of the agronomic and pathological phases of winter oat investigations with an emphasis on stem rust resistance. Dr. Rothman found that barley yellow dwarf virus (BYDV) survived the summers (monoat growing season) in *Brachiaria platyphylla* (*Brachiaria*), *Cyperus rotundus* (nutgrass), *Eleusine indica* (goosegrass), *Panicum ramosum* (browntop millet), *Phalaris angusta* (*Phalaris*), and *Setaria glauca* (yellow foxtail); except for yellow foxtail, this was the first time these plants were identified as BYDV hosts. Through a colchicine-doubled line of Saia (*Avena strigosa*) × a colchicine-doubled line of *A. strigosa* var. *glabrescens* × Japanese strigosa (an autotetraploid) × *A. sativa* cultivar Florida 500 intercross, a stable amphidiploid was selected that had the desired resistance characteristics of the diploid oats; this line was released as Obee.

During July 1967, Paul Rothman was transferred to the USDA-ARS Cereal Rust Laboratory at the University of Minnesota, St. Paul. Here he spent the next 19 plus years working first on stem rust resistance in oats and then, after Matt Moore's retirement in 1973, on both stem and crown rusts of oats. Matt served the university as the oat pathologist for 44 yr. At the Cereal Rust Laboratory, Dr. Rothman gained international recognition for his oat germ plasm lines, which generally had combined

resistance to stem and crown rusts and BYDV. Many of these lines were the result of many hours of tedious work and waiting for reluctant diploids and their progenies to germinate and then the long process of selections for the few resistant lines that were fertile and genetically stable and that could be crossed with cultivated hexaploid oats.

A combination of *Pg-11* (adult plant resistance) with *Pg-12* (a seedling resistance that has less effectiveness at the adult plant stage) was an early germ plasm release. *Pg-12* also was combined with a "slow rusting" resistance from *A. sterilis*, giving rise to widely resistant *Pg-a* in lines designated as Alpha and Omega. Resistance from Alpha has been used in the development of commercial cultivars Mesquite II and TAM-O-386. These lines were later intercrossed with two crown rust-resistant lines, and a line with good crown and better stem rust resistance was released as Aojss. Paul Rothman also combined *Pg-6* and *Pg-7* from *A. strigosa* in hexaploid oats; this line was designated Delredsa. Among the most interesting germ plasm developed were lines from the cross of tetraploid *A. magna* with diploid *A. longiglumis*, providing a fertile hexaploid oat, designated Amagalon. Several derivatives are in the National Oat Collection.

Dr. Rothman was an adjunct faculty member of the Department of Plant Pathology at the University of Minnesota, where, over the years, he was a regular participant in seminars. He was also a part of the oat-breeding team at the university and, with Matt Moore, was always pressing for increased use of disease resistance in the program. He was a member of Alpha Zeta, Phi Kappa Phi, Sigma Xi, the American Phytopathological Society, the International Society of Plant Pathology, the American Society of Agronomy, and the Crop Science Society of America. Paul greatly enjoyed a visit to Tel Aviv University, Israel, in 1980, the cooperative program in which he took part with the cereal group in Mexico, and his long relationship with Quaker Oats and other oat workers.

Along with his professional attainments, Paul was active in Lutheran Church activities. Paul spent many hours in home remodeling projects and enjoyed his vegetable and flower gardens. Paul Rothman married Sigrid Kaarre in 1951 and is survived by Sigrid; daughters Sally Tai, Jane, Susan Holmsten, and Amy Schminke; son Tom; and the eight adored grandchildren.