



IN MEMORIAM

Robert Bruce Fridley
Professor of Biological and Agricultural Engineering, Emeritus
Davis
1934 – 2006

Robert Fridley passed away at home in Davis on 19 March, 2006. He is survived by his wife, Jean, sons James, Michael and Kenneth, and eight grandchildren.

He was born in Burns, Oregon on 6 June, 1934, and raised in farming and lumbering communities in Oregon, Washington and California. His family was involved with farming and ranching on a part-time basis, and he worked with livestock and in a fruit-packing shed and a lumber mill to support his college education. These experiences provided a foundation for his stellar research career, focused on engineering to solve problems associated with biological systems.

In 1956 when Bob completed his B.S. program in agricultural engineering at UC Davis (with the degree being issued by the College of Engineering, UC Berkeley) Roy Bainer invited him to join UC Davis as an Assistant Specialist in the Department of Agricultural Engineering. After Bob completed his M.S. in agricultural engineering at UC Davis in 1960, he was appointed Assistant Professor in 1961, and rapidly advanced to Professor in 1969. He received his Ph.D. from Michigan State University in 1973, and became Chair of the Department of Agricultural Engineering in 1975.

Bob and Paul Adrian (USDA agricultural engineer stationed at UC Davis) initiated studies of mechanized harvesting of tree fruit and nuts. Although mechanical harvesting had been used to some extent prior to Dr. Fridley's work, his studies identified the important parameters influencing tree response to vibration and provided the basis for rational design of shakers. He then studied the response of fruit to impact, and how best to design collecting surfaces to minimize bruising. His work led to several patents and advanced mechanization in California, nationally and around the world. Dr. Fridley collaborated with several individuals in addition to Mr. Adrian, most notably Dr. Larry Claypool, a postharvest physiologist in the Department of Pomology, and Development Engineer James Mehlschau in Agricultural Engineering. The most significant of Dr. Fridley's accomplishments included the development of the inertial tree shaker, the integrated shake-catch harvester, shaker clamps that minimized damage to tree bark, and criteria for design of fruit-catching surfaces to minimize bruising of fruit during harvesting and handling. Most tree fruit harvesters are designed from the principles developed by Dr. Fridley, and most growers producing fruit to be mechanically harvested follow guidelines regarding tree shape and pruning that were identified as important during his research. In 1983, Dr. Fridley co-authored, with Michael O'Brien, UC Davis, and Burton Cargill, Michigan State University, the book, "Principles and Practices for Harvesting Fruits and Vegetables."

During Bob's time on the faculty, he became known as much for his leadership and ability to foresee the future as for his creativity, problem-solving ability and productivity. In 1977, Dr. Fridley left the university and put all of these capabilities to good use in pursuing his interest in forest engineering research with Weyerhaeuser Company. He began as Manager of Silvicultural R&D, and advanced through multiple positions to Manager of Diversified Technology R&D. In the latter role he was responsible for all research related to silviculture, agriculture and aquaculture. His team developed technology for reforestation, and

methods for rearing and releasing juvenile salmon for ocean ranching. During his eight years in industry, he maintained close ties with UC Davis and provided many opportunities for internships, summer employment and permanent positions for our students.

Dr. Fridley returned to UC Davis in 1985 as Director of the Aquaculture and Fisheries Program. In this position, he expanded and strengthened the AFP. In 1989, he was asked to lead a special Committee on the Assessment of Technology and Opportunities for Marine Aquaculture in the United States. This effort led to the publication by the National Academy Press of the book, "Marine Aquaculture, Opportunities for Growth."

While directing the Aquaculture and Fisheries Program, Dr. Fridley also chaired the Project 2000 Strategic Planning Steering Committee for the College of Agricultural and Environmental Sciences. The College recognized his excellent organizational skills and his abilities to bring people with diverse backgrounds and interests together to achieve meaningful results, and appointed him Executive Associate Dean in 1989. He retired in 1994, but continued as a Special Assistant to the Dean through 2000. He therefore served with distinction in the CA&ES Dean's office under Deans Webster, Kinsella, Schneeman and Van Alfen.

Dr. Fridley was recognized nationally and internationally for the importance of his achievements. In 1966, he received the Charles G. Woodbury Award (co- recipient) from the American Society for Horticultural Science, and in 1988 he was awarded a Doctor Honoris Causa by the Universidad Politecnica de Madrid. In response to invitations, he consulted and participated in research programs in Canada, China, Denmark, Finland, Germany, Honduras, Hungary, Italy, the Netherlands, Norway, the Philippines, Puerto Rico, Spain, Sweden, Thailand, the United Kingdom, and the USSR.

The American Society of Agricultural Engineers (ASAE) bestowed numerous honors on Bob: five Outstanding Paper Awards (1966, 1968, 1969, 1976, 1986), Outstanding Young Researcher Award for Engineering Achievement (1972), Pacific Coast Region Engineer of the Year (1974), Engineering Concept of the Year Award (1976), ASAE Fellow (1978) and three Presidential Distinguished Service Awards (the latest in 1988). He served as President of the ASAE Foundation (1993-1996) and President of ASAE (1997-98).

In 1985, he was elected to the National Academy of Engineering "for his managerial ability and research toward the mechanization of tree harvests", becoming the fourth faculty member from UC Davis to be honored with NAE membership. He served on the National Research Council's Board on Agriculture and Natural Resources (2000-2002). He was honored by the Cal Aggie Alumni Association with a Citation for Excellence Award (1990), and by the College of Agricultural and Environmental Sciences with an Award of Distinction (2005).

Dr. Fridley seemed to thrive on seemingly unresolvable problems, near- impossible- to- achieve objectives and high- responsibility positions. If Bob Fridley ever had doubt, it certainly was never evident.

William J. Chancellor
John R. Goss
Bruce R. Hartsough