Dr. James E. Ayars – CA-ASA Honoree

USDA-ARS Research Agricultural Engineer
Water Management Research Lab, Parlier CA

Jim Ayars grew up in Penns Grove, New Jersey (the Garden State), where his interest in agriculture started at an early age. Some of his earliest memories and work experiences on his uncle's farm helped shape the way he looked at problems and solutions. This led him to pursue an education where he could use engineering principles to solve problems in agricultural production and efficient use of natural resources.

After completing a Bachelor's degree in Agricultural Engineering at Cornell University, he served in the Air Force at the Little Rock Arkansas Air Force Base as a Missile Combat Crew Commander. He was in charge of a Titan II missile station where he spent nearly a year underground. It was in Arkansas that he met his wife Jeanne. After completing his tour in the Air Force, he was employed by the New York State Department of Environmental Conservation. A desire to work in international agriculture led him to complete both M.S. and PhD degrees in Agricultural Engineering at Colorado State University in Fort Collins. After graduate school Dr. Ayars became an Assistant Professor on the faculty at the University of Maryland teaching Agricultural Engineering, until USDA-ARS was fortunate enough to convince him to accept a position and move to the West. In 1980, Jim started his long-time position as a Research Agricultural Engineer with the USDA Water Management Research Unit here in the San Joaquin Valley; first at the original Hammer Field terminal building next to the main Fresno airport, then at the Peach Avenue location and finally at the new USDA-ARS facility (San Joaquin Valley Agricultural Sciences Center) in Parlier.

Dr. Ayars' research efforts have been diverse and demonstrate a wide range of capabilities and interests. As the interest in micro-irrigation expanded during the past three or four decades, Jim was a key researcher in field testing of drip irrigation practices which ultimately provided improved management principles for both annual and perennial crops, including the development of crop coefficients to guide irrigation water needs under microirrigation. Jim's efforts to improve our understanding of best practices for drainage water management, the use of saline irrigation water to meet crop water needs, and impacts of groundwater salinity on crop water use have been of international interest. In that work, he has utilized small plot research sites, column and monolith lysimeters, and multiple very large scale on-farm research sites over the years. These efforts have provided validation and tests of management principles at multiple research scales and sites that also provided important opportunities to test models of potential use in management. Complex equipment that Jim and collaborators installed, such as weighing lysimeters for crop water use research, facilitated not only their research, but also continuing water management research in the San Joaquin Valley in future years. His research has resulted in over 200 publications, including several book chapters and a Microirrigation book for which he served as co-editor.

Much of his Jim's research has been collaborative and it has made good use of the different areas of expertise of his collaborators. On many projects, Jim has been the driving force in getting the work initiated, but he also demonstrated appreciation and valued listening to and working with others to better understand complex field situations and to develop and test useable management strategies.

In addition to being an honoree of the CA Chapter of the American Society of Agronomy, Dr. Ayars has received multiple other awards including long-term membership in the Sigma Xi, Gamma Sigma Delta and Alpha Epsilon Honor Societies in Agriculture and Agricultural Engineering. He was awarded the Sir Frederick McMaster's Fellowship by CSIRO in Australia for support of multiple sabbatical research efforts in South Australia and New South Wales, a distinguished award associated with some of his multiple and extended research trips serving in Australia. He has been the recipient of multiple awards for outstanding research papers (American Society of Civil Engineers, American Society of Agricultural Engineers). Dr. Ayars also received the USCID Merriam Award for Improved Irrigation in 2014. He recently received the Royce J. Tipton award from Environmental and Water Resources Institute for the American Society of Civil Engineers for his work in irrigation and drainage water management.

Over the past 40 years, Dr. Ayars has served the research community and agricultural industry in a wide range of offices and committee assignments for diverse groups such as the American Society of Agricultural Engineers, the American Society of Civil Engineers, USCID, USAID, the UN, and the International Commission on Irrigation and Drainage (ICID). This service has been in many roles (committee member, chair, planning or organizing committees, program review), and represented diverse areas of expertise, including drip irrigation, drainage and salinity management, regional planning for droughts, horticultural crop water use, shallow groundwater management and regional water use and management decisions. His work has been of national as well as international interest, and we have been lucky to have him "stationed" here in the San Joaquin Valley for such a long period of his productive career. Locally, on multiple occasions he served as the Acting Research Leader of the USDA-ARS Water Management Research Unit in addition to his duties as a Research Scientist. Jim's long-term research and education efforts and those of his many collaborators have served the agricultural community well over the years, helping define problems, develop options and provide workable solutions for a wide range of problems. As part of the Carter Peace Initiative in the Middle East he sponsored scientists from Israel, Jordan, and the Palestinian Authority for a year. Besides his sabbatical leaves in Australia, he has served on scientific delegations to Jordan and China in addition to his extensive experience working on a United Nations Development Project in Uzbekistan to improve irrigation and drainage water management.

Even though Jim had a very active and busy career, he and his wife Jeanne and their daughters, Amanda and Alicia, also have been generous and active members of their communities, with a long-time commitment to providing support and care to many people in need of their time and friendship. This will undoubtedly continue after retirement, but with more time to also enjoy their children and grandchildren and maybe even some more travel adventures.