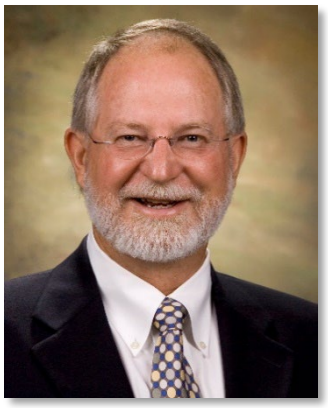
Bruce A. Roberts

Presented by Phillip Smith



"If one believes education is an end, then he doesn't understand the meaning of means and ends" (A. Saint-Exupery). In 1975, Bruce Roberts defined his career objective and his reason for applying to the graduate program at Utah State University: "I believe a career in Cooperative Extension would be an excellent foundation to prepare one for college teaching". This belief/hypothesis was formed by his fortunate opportunity to augment his classroom education at Fresno State by summer employment with Fresno County U.C. Cooperative Extension advisors. During these formative years, professors prepared him academically while summers spent with advisors Don May, Les Stromberg, and Bill Fisher introduced him to applied research and how important knowledge is to solving problems in production agriculture. Bruce also developed friendships with individuals whom he would work closely with during his extension career.

Raised in Chowchilla, CA, Bruce is the son of parents who migrated to California from Arkansas as the New Deal and WW II shaped the future of this country. His father arrived with the Civilian Conservation Core (CCC) program and enlisted in the US Army when the war broke out. His mother arrived on the west coast as an 18-year-old wife of a soldier traveling east to the European Theater. She lived with her parents in Berkeley who had also moved to California to build ships for the war effort. After the war, his parents moved from Oakland to the central valley where other relatives had settled, and the countryside showed great promise. Bruce was exposed early to agriculture from his father's involvement in dry-land farming and a 40-acre irrigated family farm. An Elberta peach orchard was planted on half the acreage. On the open ground, his father grew cotton, a crop that was to become a significant interest to Bruce in his later career.

After high school, Bruce held various jobs while attending Fresno City College until he was drafted in 1969. Following his tour of duty with Uncle Sam, Bruce returned to Fresno City with a renewed hunger for education fed with his GI Bill. Completing his AA degree, he was accepted to Humboldt State where he enrolled in a course on conservation of natural resources. It was in this course that he was made aware of the science of soils and of the importance this resource is to society. Because of this new awareness plus the distance from where his future wife Amy resided, he transferred to Fresno State's Plant Science Department. He received the Soil Improvement Committee's scholarship thanks to Jim Brownell's soils class, and his career trajectory was set.

Bruce graduated from Fresno State in 1975, then pursued graduate studies at Utah State University where he completed a master's degree in Soil-Plant-Water Relations. His first job following graduate school was with Basic Vegetables in King City, CA. He was a member of the research group conducting applied research on onions and garlic. This position, while narrow in its work with alliums, broadened his geographic experience with western agriculture. He conducting field trials from Imperial County to Monterey County. While with Basic, the Cotton Farm Advisor position in Kings County opened for recruitment. Bruce applied and was hired, thus began his career with Cooperative Extension in Kings County.

During the two decades Bruce served as Farm Advisor in Kings County, California experienced two major floods and two long droughts. These were exceptionally challenging times for California farmers, especially for growers in the Tulare Lake bottom. Flooding disrupted crop rotations and late spring rains caused delayed plantings with outbreaks of seedling diseases. The droughts forced researchers and growers to explore means of conserving irrigation water. Practices and limitations that have continued to challenge California farmers. The extension program Bruce conducted in Kings County addressed many production constraints related to agronomic crops produced in the San Joaquin Valley. Applied field research and extension outreach meetings addressed issues of seedling disease, soil fertility, variety evaluations, pest management practices, pre-harvest preparations and storage of moduled seed-cotton. Evidence of Bruce's extension efforts are reflected in changes of cotton lint yields over those 20 years. Average lint yields, as reported in the Kings County Crop and Livestock Reports rose from 2 bales in 1983 to 3 bales per acre in 2004 - a 47 percent increase in cotton lint yields across the county. By 2004, there were several growers reporting 4 bale per acre yields from new varieties and careful/better management practices. Bruce's extension program was also involved with the introduction of new crops. Garbanzo beans was introduced as a viable alternative to winter cereals, and Kings County played a significant role in the acceptance and approval of long-staple Pima cotton for the San Joaquin Valley (SJV).

"Working with plants and soils is rather straight forward, working with people is the challenge." Bruce faced some "challenging people" during his extension and academic years. He was "at odds" with many of the UC entomologists about the importance of early-season pest control. The IPM approach discounted early foliar damage as cosmetic. Bruce showed through growth chamber studies, field trials, and in-field root system evaluations that early thrip damage reduced overall production. Today early season control of thrips is an accepted practice across the US Cotton Belt. Of all his professional activities, Bruce is most proud of his collaborative work other scientists. In soil fertility: Teaming up with Ken Cassman and his graduate students at UC Davis was an exciting and challenging opportunity to resolve a long-standing controversy on potassium fertility. The nitrogen work coordinated with UC Davis and UCCE farm advisors was incredibly productive and contributed to his future research interests. Bruce also collaborated with a group of scientists from the National Oceanic and Atmospheric Admin. on an energy balance study of irrigated cotton. His association with the National Aeronautics and Space Admin. (NASA) introduced precision agriculture tools to the SJV. Bruce conducted the first variable rate nitrogen and defoliation studies on cotton in the SJV. Both field studies utilized state-of-art technology of aerial imagery and ground application equipment to demonstrate improved efficacy of applied variable rate treatments and cost savings. The Precision Ag Field Days held in Kings County drew over 300 participants.

In 1998, Bruce was granted a sabbatical leave to attend UC Davis where he was accepted into the Graduate Group of Ecology. His dissertation research delved into the domain of soil ecology. Using microbiology and chemistry, he partitioned and quantitatively measured the decomposition products produced by distinct microbial groups. Using cotton residues labeled with nitrogen (N15) he followed the mineralization of plant residues into organic pools over a three-year cropping cycle. He demonstrated that different microbial communities dominated specific soil types, which influenced the decomposition of crop residues at different rates and produced quite different residual pools of conserved nitrogen. The different carbon/nitrogen ratios and solubilities of these organic fractions affects the stability of soil organic matter. His research elevates the specific importance of biological contributions to H. Jenny's soil formation processes.

Following his year at UC Davis, Bruce realized the opportunity to make the transition to complete his earlier career goal. The J.G. Boswell Chair of Agronomy was created at Fresno State and the recruitment process had begun. He applied for the position and was selected to be the first holder of the endowed chair in the Plant Science Department. Thus, his decade of teaching began.

While at Fresno State, he taught classes focused on soil and agronomic production with an ecological emphasis. Bruce encouraged students to reinstate the Plant Science Club and become active in attending national meetings and applying for society sponsored scholar programs. He also encouraged students to become active in the national soil judging competition and helped formed the Soil Judging Team. He developed ties with industry to support student involvement and travel to these professional opportunities. In 2010, Bruce was selected as a Fellow of the American Society of Agronomy, and in 2015, he received the Salgo-Noren Outstanding Teacher Award for the College of Agriculture Science and Technology. He continued his research interests through overseeing graduate student's thesis and hiring a post-doc scientist and team to develop a life-cycle carbon footprint model for the pistachio industry. Bruce was honored to be the faculty advisor for Alpha Gamma Rho, the national agriculture fraternity. He served this role for 10 years and developed a sincere appreciation for this exceptional group of young men.

Bruce Roberts spent the last decade of his career testing his early hypothesis that an extension career would be a beneficial foundation to prepare one for college teaching. It turned out to be an excellent foundation for training the future generation of agriculture producers, scientists, and life-long learners for California. Bruce is honored to have known and worked with such a brilliant and dedicated group of scientists, farmers, and students over his career in extension and teaching. His involvement with these men and women has been inspiring and encouraging. His hope is that those he has encountered will realize that education is not an end, but a life-long means to a good and satisfying life and that some of his lessons will be helpful in solving future challenges.

Bruce is a past president of CA ASA (2005) and served previously on the board of directors. His research has been presented in book chapters, scientific publications, and at international symposiums, national conferences, and statewide professional meetings. He retired in 2016 and has turned his interests to pursuits he has always wanted to do. Travel to exotic places and painting watercolor landscapes are his new goals. In retirement, Bruce plans to paint his masterpiece.