Fertilization of Avocado for Increased Yield Potentials

David Crowley
Professor Emeritus, Department of Environmental Sciences
University of California, Riverside

Biography. David Crowley is a retired professor who worked for 26 years at the University of California, Riverside as a research scientist and professor in soil and environmental sciences. His primary field of research was soil microbiology and plant soil relations. While at UCR, Dr. Crowley led a research program funded by the California Avocado Commission on avocado salinity tolerance and various aspects of avocado tree nutrition. This work culminated in the development of decision support tools DST for determining the relationships between individual elements and fruit yields. Since retiring, Dr. Crowley and his wife reside at their family farm near Springfield, Kentucky, where they continue to engage in horticulture and a part time business (iwannagro.com) with Ed and Karen Grangetto (Escondido, CA). In this business, we interpret plant analysis reports using the DST program. The report generated by this analysis guides avocado tree fertilization practices and can assist the grower in determining the most cost effective fertilizer program.

Abstract. Fertilization of avocado for optimization of fruit yields is a challenging task in that very specific nutrient ranges are required for optimized fruit yields versus those that grow the leaf canopy rather than fruit. It is especially counterproductive when an excess of an expensive fertilizer results in yield reductions. To examine the quantitative relationships between nutrient levels and yield potential in avocado, we collected fruit yield data from individual trees along with their corresponding leaf tissue analysis data; additional data were acquired from the Lovatt research program at UCR. Altogether, this master data set was summarized to look at yield characteristics and used to derive polynomial equations that can predict the relative yield potentials in relation to individual elements. When used to analyze a grove, summary data for individual groves are generated and the elements are ranked according to their effect on % yield potential. Further, the study identifies industry wide trends suggesting both under- and over-fertilization of several macro and micronutrients. This talk will discuss avocado fertilization practices in general, review some of the online tools available for fertilizer calculations, and an overview of the decision support tools and our research findings that can guide avocado tree fertilization.