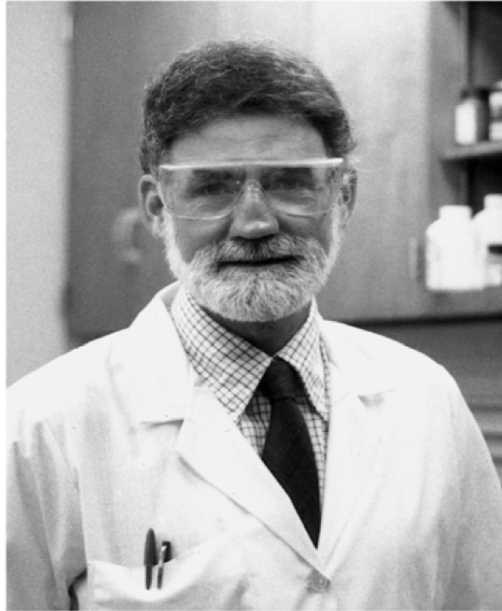


## **In Memoriam**

**Charles “Chuck” E. Castro**  
**Professor of Nematology**  
**UC Riverside**

**November 17, 1931 – January 1, 2007**



Charles Edward Castro was born in San Jose, California on November 17, 1931. He graduated from Santa Clara Union High School in June 1949. He received a B.Sc. in Chemistry from San Jose State College in July 1953. In 1953-54 he studied organic chemistry at the University of Heidelberg (Heidelberg, Germany) as a Fulbright Scholar. In June 1957 he was granted the Ph.D. degree in Physical-Organic Chemistry from the University of California, Davis. From August 1957 until August 1960 he was a Research Chemist with the Shell Development Company, Emeryville, CA. In July 1961 Castro's title was changed from Associate Specialist to Assistant Chemist, a move that suggests a change from a temporarily-funded to a permanently-funded position.

Dr. Charles E. Castro was appointed Associate Specialist in Nematology at the University of California, Riverside. in September 1961. His position in Nematology and the Agricultural Experiment Station responded to a new need created by changes in Federal law relating to pesticides. The Food and Drug Administration modified the Federal Insecticide, Fungicide and Rodenticide Act to include nematicides and mandated that residues of nematicides on edible crops had to be determined and tolerances established. This included bromine residues from

Ethylene Dibromide (EDB) and 1,2 dichloropropane (DBCP). Since the University of California, Division of Agriculture had a policy (set forth in Communication #18 from the Vice-President) that all University recommendations for the use of a pesticide (this included nematicides) would be backed by performance data developed by University personnel (most often developed in cooperation with Farm Advisors, Growers and Pesticide Industry personnel). This also included residue data of the pesticide itself or breakdown products (metabolites) in or on the edible portions of the crop. Dr. Francis Gunther of UCR Entomology Department had one of the strongest programs of this type in the nation and a strong program also existed at UC Davis. However, these laboratories were not able to take on the work load so Dr. Castro was hired at Riverside to do the above work but also to look at the degradation and/or persistence of nematicides in soils.

The research carried out by Castro was chemical in nature and required significantly different laboratory facilities. Fortunately, funds were made available to permit major modification of existing laboratories so that suitable space was available. In addition, there were additional chemists in other departments of the Experiment Station (Gunther, Fukuto, Entomology; Moje, Kolbezon, Plant Pathology) so that specialized space or equipment could be borrowed.

One of the first actions carried out by Castro was to confirm that none of the widely used nematicides (EDB, DBCP, 1,3-D) were found as residues in edible portions of crop plants. Since only degradation products were found (e.g., bromide ion), it was possible to focus on the bromide ion since the chloride ion (from 1,3-dichloropropene) was not physiologically important at the rates found. Working with Shell Development Company scientists, Castro found that neutron activation of bromide ion in raw agricultural products (citrus, grapes, potatoes, beans, etc.) converted bromide ion to a radioactive form that could be counted very accurately to determine the original bromide concentration. Thus, extensive laboratory work and analysis was avoided and accurate results achieved.

Castro's expertise in physical-organic chemistry and knowledge of radioisotopes was used in joint projects with other faculty members in the department. Over the 30 years he was employed, he had a remarkable record of funding for his research by the NSF, NIH and other granting agencies. He became one of a few bona fide experts on the fate of nematicides in soil and their mode of intoxicating nematodes. He was appointed Chemist and Professor in the College in July 1970. He retired in 1993.

Prepared from excerpts written by the Department of Nematology. Edited by Paul Nability.

Sources: History of the Department of Nematology  
<http://nemaplex.ucdavis.edu/History%20of%20Nematology%20in%20California.pdf>