Carlyle Newton Clayton, 1912 to 1998

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Dr. Carlyle Newton Clayton died on 29 November 1998 after a long battle with Parkinson's disease. He was born on 20 December 1912 in Liberty, SC. He graduated from Clemson College, Clemson, SC, in 1934 with a B.S. degree in horticultural science. He then attended graduate school at the University of Wisconsin, Madison, where he was awarded a Ph.D. degree in plant pathology in 1940. His professional career as a plant pathologist began at the South Carolina

Agricultural Experiment Station in Charleston, where he conducted research on vegetable diseases. In 1945, Dr. Clayton came to North Carolina State College (now North Carolina State University [NCSU]), Raleigh, where he remained until his retirement in 1978. During his long and distinguished career, Dr. Clayton published more than 130 papers on fruit diseases; helped to educate more than 20 graduate students; taught graduate courses in plant pathology; and participated in the development of improved apple, grape, and peach varieties.

Few people have had as much impact on an industry as Dr. Clayton had on the North Carolina fruit industry. During the 1940s and 1950s, major disease losses occurred in most fruit crops and effective control measures were lacking. Dr. Clayton developed effective management programs for diseases of apples, peaches, blueberries, grapes, strawberries, and other fruit. The development of effective control procedures for apples, blueberries, and grapes was a key to the expansion of these industries in the state. Dr. Clayton not only understood the diseases of each crop, but also was an excellent horticulturist from whom growers sought information.

Dr. Clayton's initial objectives in North Carolina were to develop control procedures for apple diseases. In the 1940s, apple diseases often caused more than 50% crop loss. Dr. Clayton developed an effective fungicide spray program for North Carolina apple growers, and he and his students did extensive research on the etiology and epidemiology of many of the most important diseases.

Dr. Clayton's numerous contributions to the understanding of peach diseases and the leadership that he provided to this industry are widely recognized throughout the Southeast. He developed an effective fungicide spray program for fruit and foliage diseases, pioneered in the use of soil fumigants for nematode control, and conducted key research leading to a better understanding of the peach-tree-short-life syndrome (PTSL). His studies on PTSL are particularly significant, because they established a basis of the Ten-Point-Plan for managing this problem throughout the southeastern United States. Dr. Clayton was also instrumental in establishing a regional project for evaluating peach rootstocks.

Dr. Clayton was instrumental in establishing a peach breeding project, recognizing the need for high-quality varieties with resistance to bacterial spot. Along with Professor Franklin Correll, Dr. Clayton developed what was regarded in the 1960s and 1970s as the premier peach breeding program in the United States. Through this program, more than a dozen high-quality peach varieties and one nectarine variety with resistance to flesh browning and bacterial spot were released. To assure growers of the availability of disease-free trees of these new varieties, Dr. Clayton provided leader-

ship in establishing a nursery, administered through the North Carolina Foundation Seed Producers.

During the 1960s, muscadine grape acreage in North Carolina increased substantially because of the high price paid by the wineries. However, many of the young vineyards were seriously affected with diseases, resulting in 10 to 50% fruit loss. Through Dr. Clayton's research, an effective fungicide program was developed that allowed expansion of the industry. Dr. Clayton's bulletin entitled *Diseases of Muscadine and Bunch Grapes in North Carolina and their Control* is one of the most complete references on muscadine grape diseases available today. In recognition of his contributions to the industry, the North Carolina Grape Growers Association presented him the first annual Raymond C. Smith Award in 1971.

Dr. Clayton also directed the research program in blueberry diseases from 1945 to 1963. During the 1950s, the blueberry industry expanded rapidly. However, disease losses were often severe. He developed a fungicide program for blueberry stem and leaf diseases, and he and his students conducted detailed studies on many of the other important diseases.

Dr. Clayton's pioneering efforts played a major role in assuring the health of the strawberry industry in North Carolina. He was instrumental in setting up a Foundation and Registered Plant Program for producing disease-free plants. He was also widely recognized for the application of soil fumigants for strawberry root disease control.

Most of Dr. Clayton's work was broadly cooperative across departmental and state lines. He exemplified that rare type of individual who not only had extraordinary scientific interest and curiosity, but also had the compulsion to translate scientific findings into useful application for the grower. Although never having an appointment in the Cooperative Extension Service, Dr. Clayton often played a major role in delivering usable information to those who needed it most.

Dr. Clayton played a leading role in the establishment of the Plant Disease Clinic at NCSU in 1951, one of the first in the United States, and remained a strong supporter of the Clinic not only as a diagnostic service but also as a training center for graduate students and county agents.

A member of numerous scientific and honorary societies, Dr. Clayton was awarded life memberships in the North Carolina Apple, Peach, and Grape Growers Associations. In 1975, he was awarded the Gamma Sigma Delta Award of Merit by the North Carolina State chapter. In 1978, Dr. Clayton was elected the Outstanding Plant Pathologist in the Southern Division of The American Phytopathological Society. Dr. Clayton was described as one completely dedicated to what he considered to be his principal mission in plant pathology, that of reducing plant disease losses and improving the quality of horticultural crops.

Following his retirement in 1978, Dr. Clayton continued his interest in fruit by growing more than 80 acres of peaches, apples, and grapes and managing a nursery on his farm in Norman, NC.

Dr. Clayton was married to Adelaide Shumate in August 1935. He is survived by Mrs. Clayton; a daughter and son-in-law, Jo Ann and William A. Leist of Asheboro, NC; a son and daughter-in-law, Andrew and Anne Gardner Clayton of Cary, NC; five grandchildren; and two great grandchildren. In his memory, the "Carlyle Clayton Graduate Research Fund" was established for students in plant pathology at NCSU (North Carolina Agricultural Foundation, NCSU, Box 7645, Raleigh, NC 27695-7645).