

## Thomas Earle Smith, 1910–1980

G. B. Lucas, E. L. Moore, Arthur Kelman, and Robert Aycock



Thomas Earle Smith, a distinguished tobacco plant pathologist and former member of the faculty at North Carolina State University, died of a heart attack at his home in Laurinburg, NC, on August 22, 1980.

Dr. Smith, one of eleven children, was born March 15, 1910, on his father's farm near Anderson, SC. He received his early education in the public schools of Anderson and Kershaw counties. He earned a B.S. degree in agronomy at Clemson University (1931) and an M.S. degree in bacteriology at Virginia Polytechnic Institute (1932). During 1933–1934, he worked on Dutch elm disease with the USDA Bureau of Entomology and Plant Quarantine. He began his work as a tobacco disease investigator with the USDA in 1934 at Upper Marlboro, MD, and was transferred to the USDA Tobacco Research Station at Oxford, NC, in 1935. He completed his graduate work during the early years of his tenure at Oxford and had the distinction of receiving the first Ph.D. degree (1938) granted in plant pathology at North Carolina State College.

He was fortunate to join a team with Dr. E. E. Clayton, senior plant pathologist (USDA), whose ambitious goal was to produce a cultivar resistant to all the major diseases of tobacco. E. E. Clayton, Tom Smith, and their successors did develop commercially acceptable cultivars resistant to four major diseases—bacterial wilt (caused by *Pseudomonas solanacearum*), black shank (caused by *Phytophthora parasitica*), root knot (caused by *Meloidogyne incognita*), and Fusarium wilt. Some of these cultivars also showed tolerance to brown spot (caused by *Alternaria alternata*), a serious leaf disease. These were remarkable achievements that profoundly affected the economy of tobacco-growing states for years to come.

During the years of the Great Depression, tobacco farmers in North Carolina suffered devastating economic hardship. The adverse effects of the depression were exacerbated by the widespread outbreaks of a destructive wilt disease, particularly in the sandy soils of the Coastal Plain and the rolling hills of the Piedmont. Bacterial wilt was not a new disease. According to F. L. Stevens' classic bulletin, published in 1903, the problem had been known since 1881, when it was discovered in fields near the little village of Hester in Granville County. For a time, it was confined to an area between the Tar and Neuse rivers. The disease continued to spread through the years, however, and losses from 25 to 100% occurred in many fields. In the meantime, the disease had become known as Granville wilt, after the county in which it was discovered. From 1920 to 1940, many tobacco farmers sold out or lost their farms, living standards declined, and there was a general migration of farm families to other parts of the state. They fled "like refugees from a plague." During these discouraging years, losses amounted to \$30–40 million annually in Granville County, alone.

Smith and Clayton believed that a wilt-resistant tobacco cultivar was the most practical solution to the problem because chemical and other control measures attempted since the early 1900s had proven ineffective for controlling this soilborne pathogen. They believed that somewhere in Mexico, or Central or South America, the native homes of tobacco, a variety or species resistant to Granville wilt could be found. Therefore, at Clayton's insistence, special tobacco seed collectors of the USDA were sent to these regions. The collectors brought back more than 1,000 seed collections. Plants from each of these collections were tested for resistance in experimental plots at Hester, where the wilt first appeared.

Twelve percent of the collections showed some resistance. One collection (TI448A) from a small field in Colombia, South America, was the most resistant. It was used in crosses with desirable North Carolina cultivars. Succeeding generations of these crosses were evaluated for yield and quality on test plots at the USDA Tobacco Research Station at Oxford, which had been established in 1911 for the purpose of discovering measures to control bacterial wilt. After 10 years of laborious and intensive efforts, a commercially acceptable cultivar, Oxford 26, was obtained; it yielded profitably on "wilt land" and retained the levels of resistance of TI448A. In 1947, about 80,000 acres, practically all of which was infested with the wilt pathogen, were planted to Oxford 26.

On July 12, 1945, the little town of Oxford, NC, held a banquet to celebrate the release of Oxford 26. Governor Gregg Cherry, United States Senator W. B. Umstead, Commissioner of Agriculture W. Herr Scott, and James H. Jensen, head of Plant Pathology at NCSU, attended to honor Tom Smith and his colleagues. These officials recognized the importance of Oxford 26 to the agriculture of the state and more importantly its importance in improving the economic welfare of thousands of tobacco farmers.

It was also soon apparent that the successful development of wilt resistance in tobacco provided guidelines and techniques that enhanced the search for wilt resistance in other highly susceptible crops such as tomato and potato.

In addition to the highly successful breeding work, Dr. Smith also conducted extensive studies on the effect of long term rotation sequences in reducing the severity of bacterial wilt. These studies showed that certain crops in the rotations were effective in reducing the incidence of other pathogens as well, particularly nematodes. Root-knot nematodes, in addition to causing direct yield losses, were able to predispose even resistant tobacco plants to infection by the bacterial wilt pathogen.

In 1947, Dr. Smith joined McNair Yield Tested Seed Company of Laurinburg, NC, where as a leader of the Experiment Farm Group, he developed two new tobacco cultivars with Granville wilt and black shank resistance, and four corn hybrids. He also isolated several lespedeza cultivars resistant to root-knot nematodes.

For several years, beginning in 1958, Dr. Smith did research at New Mexico State University, Las Cruces, where he worked on Verticillium wilt, bacterial blight, and rust of cotton.

In 1963, he joined Brown and Williamson Tobacco Corporation in Louisville, KY. He became engaged primarily in proprietary research and public relations, and he dealt extensively with farm groups, communicating useful information about plant diseases and breeding for disease resistance. After his retirement in 1979, he was recognized as a "tobacco great" by the North Carolina Agricultural Extension Service for his outstanding contributions to tobacco agriculture.

Dr. Smith is survived by his wife, Margaret Louise Osterhout of Laurinburg, NC; two daughters, Marjorie Smith Elliot of Belleville, IL and Susan Smith Spear of North Reading, MA; and one son, Thomas E. Smith of Pamplico, SC.

Tom Smith was highly committed to his scientific and professional responsibilities. In addition, he was a good citizen. He participated in civic affairs in all the communities where he lived. Among the activities that claimed a special interest was his work with Laubach Literacy International, an organization devoted to eliminating illiteracy worldwide. He left a rich legacy of accomplishments that will serve as an inspiration to those seeking answers to perplexing agricultural and biological problems in the years ahead.