

## Reported Death

### C. Fred Andrus

C. Fred Andrus, a retired horticulturist from the U.S. Department of Agriculture, Agricultural Research Service died on July 14, 2007, near his long-time home in Charleston, SC. He was 101.

Andrus was an ASHS fellow (elected in 1972) and a member of the ASHS Hall of Fame (inducted in 2002). He was born in Mt. Carmel, IL, on January 21, 1906. Andrus received a Certificate in Agriculture from State Normal College in Illinois in 1925. Subsequently, he transferred to George Washington University in Washington, D.C., where he obtained an A.B. degree with distinction and honors in botany in 1931 and an M.A. degree in botany and plant pathology in 1932. Andrus took graduate courses in plant pathology and genetics at the University of Maryland from 1932 to 1937. He was awarded an honorary degree of Doctor of Science by Clemson University in 1967.

Andrus started his USDA career in Washington, D.C., as an assistant scientific aid in 1928. From 1932 until 1938, he worked full-time as an associate plant pathologist for the USDA in Washington, D.C., and Beltsville, MD. In 1938, he transferred to the USDA Southeastern Regional Vegetable Breeding Laboratory (later called the U.S. Vegetable Breeding Laboratory and now known as the U.S. Vegetable Laboratory) in Charleston, SC, where he served as a plant pathologist until 1948. In 1948, Andrus was reclassified as a horticulturist, but he continued his work developing vegetable cultivars with improved disease resistance and horticultural traits. Andrus remained at the USDA laboratory in Charleston, SC, for the remainder of his career. He served as horticulturist and investigations leader at the Charleston laboratory from 1963 to 1970. He retired in 1970.

During his 42 years of USDA service, Andrus compiled an outstanding record of accomplishment. He worked on diseases of bean, pea, tomato, watermelon, and cantaloupe. His cultivar releases included the cantaloupe cultivar Gulfstream; the tomato cultivars Southland, Homestead, and Homestead No. 2; the watermelon cultivars Congo, Ironsides, Fairfax, Dunbarton, Charleston Gray, Blackstone, Garrisonian Graybelle, and Summerfield. He also released the watermelon breeding lines 59-1 (Sugar Baby type), 59-6 (Sugar Baby type), Tetra 1, Tetra 2, Tetra 3, and 55-6 wilt-resistant Congo-type. Many of the vegetable cultivars he developed were widely utilized by industry, and several became predominant cultivars. Many of



Andrus' cultivars and breeding lines were utilized for decades as parental lines by other vegetable breeders.

'Charleston Gray' watermelon (released in 1954) and 'Homestead' tomato (released in 1952) were groundbreaking discoveries that changed the way growers were doing business. They remained as the premier cultivars for decades. The tetraploid breeding lines and the Sugar Baby type breeding lines that Andrus released in the early 1960s provided the basis for the major types of watermelons that are extremely popular today, i.e., seedless triploid cultivars and small-fruited Sugar Baby type cultivars.

The development of 'Charleston Gray' watermelon is a textbook example of a classical plant breeding success story. This innovative watermelon cultivar combined everything into one package. It had an oblong shape and hard rind that made it easy to stack and ship. It was widely adapted and could be grown over a much broader geographical area than earlier watermelon cultivars. 'Charleston Gray' was resistant to the serious watermelon diseases anthracnose and fusarium wilt. Most importantly, it was high in soluble sugars and tasted good. 'Charleston Gray' is one of the most successful vegetable cultivars ever released.

Andrus' 1950 introduction of 'Congo', the first anthracnose resistant watermelon, made a dramatic impact on the watermelon industry. 'Congo' demonstrated that new watermelon cultivars should have anthracnose resistance in order to succeed in the southern states. His 1952 introduction of 'Homestead' tomato resulted in 'Homestead' quickly becoming the predominant cultivar for the green-warp tomato industry. It literally revolutionized the green-wrap tomato industry in the southern United States.

Many of the vegetable cultivars introduced by Andrus over 40 years ago not only were widely grown in the U.S. by commercial growers, but also became popular home garden cultivars. For example, as recently as 2004, 38 of 274 retail seed catalogs still listed 'Charleston Gray' watermelon, according to Garden Seed Inventory published by the Seed Savers Exchange of Decorah, IA. Also, 14 of 274 seed catalogs still listed 'Homestead' tomato, and 15 of the 274 catalogs still listed 'Congo' watermelon.

Andrus demonstrated the importance of a cooperative testing program in developing vegetable cultivars adaptable over a wide geographic area. He organized the Southern Tomato Exchange Program (STEP). The STEP trials had tomato tests in over 30 locations in 14 continental states as well as Hawaii. This innovative program resulted in a very effective screening and evaluation of candidate tomato cultivars over varied environments (diseases, insects, weather, and soil) and production systems. Cooperators could and did encourage and support the release of a variety from another state, particularly if it showed promise for growers in their own states. The "exchange" portion of the acronym STEP was intentional on Andrus' part and proved to be important to the collaborating vegetable breeders. All breeders were encouraged to utilize breeding lines submitted for STEP testing in their own programs. The concept of this exchange and testing program was extended to other crops and was found to be of great value in watermelon, southernpea, and other vegetable crops.

Andrus spent his entire 42-year career with ARS. He was a horticultural research icon, and his status as a vegetable breeder clearly showcased ARS vegetable crops breeding programs worldwide. He received the USDA Superior Service Award in 1955; the Florida Fruit and Vegetable Association's Annual Research Award in 1956; and was elected to membership in the Clemson University Chapter of Gamma Sigma Delta "in recognition of his scholarship and services to agricultural science" in 1960. He was a member of the American Association for the Advancement of Science and the Agricultural Society of South Carolina.

Andrus was married to Margaret Grow of Virginia, who predeceased him in 1977. He is survived by two sons, Jan F. Andrus, Ph.D., of Summerville, SC, and Charles A. Andrus, M.D., of Summerville, SC; one sister, Mary Andrus Swindells of Indianapolis, IN; and four grandchildren and three great-grandchildren.

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