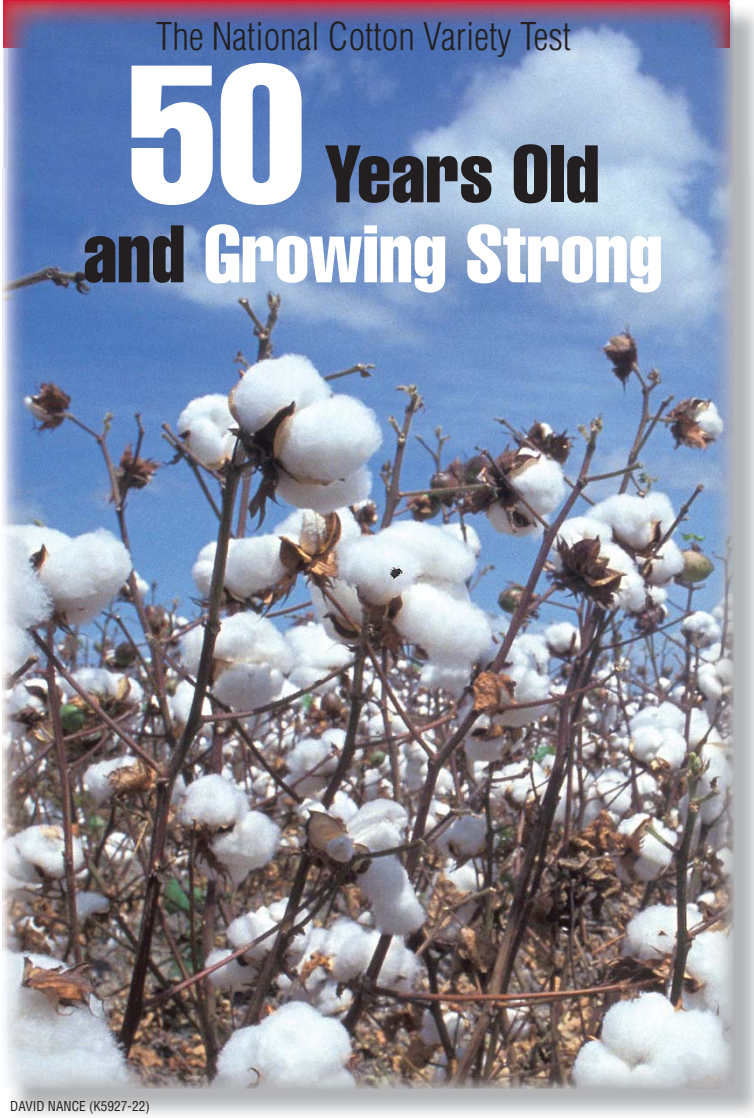
The National Cotton Variety Test

50 Years Old and Growing Strong



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Quite a bit of science has gone into American cotton over the years. Take, for example, the Agricultural Research Service-led National Cotton Variety Test (NCVT). Celebrating its 50th anniversary this month, the NCVT was originally created in 1960 to standardize collection and analysis of field data necessary for objectively evaluating new upland and pima varieties.

To that end, the NCVT called for partitioning the U.S. Cotton Belt—which spans from Virginia south to Georgia and west to southern California—into six distinct growing regions, dubbed Eastern, Delta, Central, Blackland, Plains, and Western. A separate test was organized in 1961 for pima cotton species. This arrangement has allowed researchers to systematically test new, region-specific varieties and establish national standards in every test to serve as a link between regions. The four or five national standards are designated for 3-year cycles, and at the end of the cycle, two or three of these varieties will be replaced by new national standards.

ARS geneticist Charles F. Lewis was the principal organizer and motivator for the NCVT. The test was organized to encourage the sharing of exotic germplasm and breeding information. Its design also allows for appropriate statistical analysis and flexibility in the management of test locations.

To date, the NCVT program has tested more than 1,300 varieties, germplasms, and strains. In 1964, a special test called the "regional high quality" (RHQ) test was organized and extends across five of the six national regions. "Periodically, we compare the top cotton varieties of yesteryear with those of today to measure our breeding progress," says geneticist William R. Meredith, Jr., in ARS's Crop Genetics and Production Research Unit at Stoneville, Mississippi.

One of the greatest accomplishments coming out of the RHQ program was the release of variety DES 56. The parents of this variety were ARS germplasm PD 2-164 and the commercial variety Stoneville 213. DES 56 is the parent or grandparent of almost all varieties grown in the Eastern, Delta, and Central regions (encompassing South Carolina, North Carolina, Virginia, Alabama, Mississippi, Missouri, Louisiana, and Texas).

The data amassed by the program—which is analyzed by Meredith's and other labs and published annually in reports—documents notable cotton-production trends. The data also helps to determine the contributions of genetics, locations, years, and crop-management methods to fiber yield and quality.

As a result, new regions were established and others modified. A major change in variety testing occurred in the mid-1990s with the introduction of transgenic cottons that resist caterpillar feeding and tolerate glyphosate herbicides.

"Through breeding, many changes have taken place in the characteristics of cotton varieties. Seed and boll (cotton's fruit) have decreased, and the lint percentage and yield have increased," says Meredith. "Cotton today is grown in a much more eco-friendly manner than 50 years ago. Now, much less insecticide and herbicide are applied. You get a much better product and better quality cotton at a cheaper price."

ARS coordinates the program, and other key players include state experiment station personnel who conduct the tests, cotton growers and other industry members, trade groups like the National Cotton Council of America, and agricultural companies. Cooperation is especially critical as American cotton faces increasing competition from abroad, other cash crops, and the synthetic-fibers market.

As it has in the past, the NCVT will prove useful as both a chronicle of change and a guide with which to navigate it.—By **Jan Suszkiw,** ARS.

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