

**PUBLIC BREEDING EFFORTS IN THE MID-SOUTH AGRONOMIC PERFORMANCE
“IN RETROSPECT”**

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These are my opinions of conditions and situations in public funded cotton breeding in the Mid-South from 1947 until my retirement in January 1985. This was prepared under the umbrella letter of invitation from Dr. Calhoun. During my professional career each of the presenters in this symposium have had a hand in shaping and extending my opinions. It is a great feeling just to be here.

Consider Mid-South cotton production at the end of World War II. The mechanization revolution, beginning in the late 1930s but held back by needs of a total war effort, moved into mainstream production of all crops in the United States — including cotton. Nothing would stop it. In the late 1940s one could hardly drive any Mid-South road without seeing recurring patches of cotton, mostly small patches, many managed by aging fathers or uncles who escaped the war. They had to make do with a drastically reduced labor force. Stoneville 2B, Delfos 9169, Deltapines 11A and 14, Coker 100, Roldo Rowden, and others were the varieties grown. (Note that “variety” is used here instead of “cultivar”). These were good varieties. Many growers, however, felt that new varieties would be needed to serve the new production technology.

In the late 1940s I was helping Tom Richmond harvest his advanced strain tests on the Chance plantation in the Brazos bottoms. We used older women and young children for the small plots. They were from families bussed out of Bryan for plantation harvest. The plantation crew quit at noon one day and took our crew with them. The reason they quit was that George Chance’s new variety was “all cotton and no seed.” They were accustomed to Lone Star or Rowden varieties which weighed 60-70 pounds to the sack full. This new cotton weighed only 40-50 pounds to the packed sack full. That new variety was Deltapine 14. This point is made to show that the new Deltapine 14 was not equally well received by all segments of the industry.

In 1947 a group was organized within Southern Ag Workers to broaden the cotton information base. Major developments in cotton genetics and cytogenetics provided a sound basis for this organization. Support for this effort was largely federal with major research centers in each production area.

If growers were pleased with their variety of choice, why start in new directions? The cotton fiber was being challenged by new families of fiber that offered the promise of “Wash and Wear.” An immediate need was a significant increase in fiber strength, especially in cottons grown in the Mid-South. State funded breeding projects were implemented and we were on our way.

A relic idea, born in the 1930s, was carried over to public cotton breeders after the war ended. This was the concept of a one-variety community. The concept had worked in the western states and was used in other countries. If only one variety should be grown in the Mid-South, that, indeed, would be a super-cotton. My generation of public breeders truly believed that cotton’s gene pool contained the makings of that super-cotton and we set out to find it. But first we had to identify agronomic properties we were wanting in that super-cotton. These four interested me:

1. Vigorous seedling growth
2. Blooming by June 19 and ready to start harvest by Labor Day
3. Gin turnout of 40%, 1 1/8 staple of 90M tensile strength
4. Total yield at least 750 lb/acre

Please remember that this was considered 50 years ago.

Well, I found that super-cotton in Arkansas in my first preliminary strain test in 1954. A different strain wore the crown in 1955. By 1956 it was apparent that my system was not working. A visit with Mr. Early Ewing at Scott and Mr. Bill Manning at Stoneville had a humbling effect on my attitude. Progeny testing in mind boggling numbers and multiple location strain testing were obvious prerequisites for any successful Mid-South cotton breeding project. It was also obvious to me that a successful new variety would come with a high cost. Adequate funding must be assured before starting.

Even so, several new cotton varieties were released in the 1950s-60s by public breeders in the Mid-South. Carl Mooseberg’s “Rex” in Arkansas, Bill Sappenfield’s “Delcot” in Missouri, Bob Bridge’s “DES” series in Mississippi, and Jack Jones’ “Stardel” in Louisiana — each made significant contributions. Others were released but few survived the terrible 70s. Both Bill Sappenfield in Missouri and Bob Bridge in Mississippi had ongoing varieties at the time of my retirement.

So — what are Mid-South public breeders doing with cotton in the 1980s and 1990s? We are developing breeding stocks and studying the cotton plant. My first summer of work in cotton research was at Greenville, Texas, in 1938. I was a brand new high school graduate recording flowering intervals on 3-boll Texas cotton plants. My last cotton research field work in Arkansas in 1984 was recording node numbers and flowering intervals on 10-boll

cotton plants in Desha County in sight of the levee of the Mississippi River. I cannot recall a growing season in Arkansas that we did not count nodes and flowers and bolls in one or more of our research sites. One could say that I learned to count at an early age and never learned when to stop. I am good at it. Even in retirement I count sequential steps on our treadmill and I count sequential slices of the banana used for our morning cereal, 20 slices for my wife's bowl and 20 for mine.

Something will be said by others relative to breeding stocks made available by public breeders in the Mid-South, especially those having resistance to diseases, to insects, or to harmful herbicides needed to control weed pests. Something can be said to justify accumulating node counts and flowering interval data. These kinds of data have been used by Extension cotton specialists and consultants to fit the cotton crop into its most effective production window. The Mid-South has been blessed with outstanding men in these front-line positions. These especially come to mind: Gene Woodall in Arkansas, George Mullendore in

Mississippi, Tom Burch in Louisiana, and Fred Elliott in Texas.

In retrospect the Mid-South public breeders have served effectively to keep the cotton industry healthy. We have survived government regulations, nine dollars a bushel soybeans, Umbaugh fertilization systems, hybrid cotton and attending interest in male stocks, stripper cottons, droughts, narrow rows, the cotton combine, forward selling, and stone washed jeans.

It must be a great time to be involved in things like boll weevil eradication, gene modifications, and new horizons for the cotton fiber. Primary breeding stocks will be needed. I think that public funds should not be used to run a cotton seed business but rather should be used to develop primary breeding stocks of documented value. Proprietary questions will be resolved to everyone's satisfaction in the future. Perhaps, with the same degree of reality, I hope the future finds me looking down through those pearly gates and counting the bales of cotton leaving Mid-South gins.