TABLE 2. Annual lint increase due to breeding as indicated in tests comparing varieties with different variety initial release years.

Years of tests[2]	No. of varieties	Release years covered	Average yield of six common varieties[3], lb lint/A	Slope, lb lint/A/year[1]
1967-68	13	1922-62	1,089	9.1a
1978-79	17	1910-78	921	8.5a
1992-93	16	1938-93	780	5.4b
1998-99	38	1938-99	759	4.7b

[1]Significant differences between regression coefficients (slopes) indicated by different letter, as determined by "t" test.
[2]All variety tests conducted at Stoneville, MS.
[3]Six varieties in all tests were DPL Smooth Leaf, DPL 14, DPL 16, Stoneville 2B, Stoneville 5A, and Stoneville 213.

cance at the 0.05 probability level between the slopes of the first two and last two tests.

A subset of 23 varieties in the latest test released since 1983 is given in **Figure 3** and shows no significant trend due to variety improvement (slope = 3.5 lb lint/A/year).

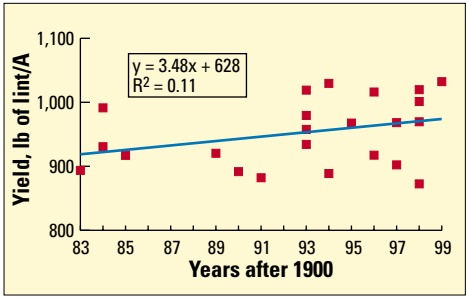

Figure 3. Increase in yield due to breeding from 1983 to 1999.

Summary

Current varieties have a very narrow genetic base with similar pedigrees. The narrowing of the genetic base has been associated with the decline in public germplasm enhancement programs. The use of transgenics with the major objective of "added value traits" has been very effective on the added value traits, but has had no effect on average yields. Research and grower experiences have shown that corn-cotton rotations will result in some yield increase. This practice reduces reniform nematodes and in some cases increases soil organic matter. In all likelihood, there are other factors limiting yield that have not been identified by research or grower experience. These factors probably encompass all areas of cotton production. If the U.S. cotton industry is going to survive in a competitive world, it cannot depend on a strategy of no yield increase. BC

Dr. Meredith is Research Leader, Midsouth Area, USDA-ARS, Crop Genetics and Production Research Unit, 141 Experiment Station Road, P.O. Box 345, Stoneville, MS 38776-0345; phone: 662-686-5322, fax: 662-686-5398.