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DP 493, A NEW MID-FULL SEASON DELTA AND PINE LAND VARIETY WITH EXCELLENT YIELD POTENTIAL

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Abstract

DP 493 is a conventional, mid-full season variety which combines the potential for outstanding yield with good fiber quality. DP 493 is well adapted to the mid-full season growing regions of the Cotton Belt.

Introduction

The research programs of Delta and Pine Land Company continue to develop superior conventional cotton varieties. Primary emphasis in each of the company's ten breeding programs is placed on selection of progenies from conventional crosses, which have both the potential for excellent lint yield, and desirable fiber properties. Superior lines from each of the breeding programs are entered in a wide-scale testing program referred to as the Advanced Testing Program. This program enables the identification of products from each breeding program that have a broad adaptability and are suited to regions outside a breeder's primary area of responsibility. DP 493 was originally developed and tested at Delta and Pine Land Company's research program in Australia. Upon testing of DP 493 in the US this variety proved to be an excellent variety for the mid to full-season growing regions of the US Cotton Belt combining both the potential for high lint yield and good fiber properties.

Discussion

Development

DP 493 was selected and developed by Deltapine Australia located in Lochabra, Australia. It was derived from the cross DeltaPEARL x CS 50 which was made in 1995. DP 493 is the result of a F_2 single plant selection, which was reselected in F_3 and F_4 progeny rows. After testing and advancement the line was designated as experimental line 00Q01. Following excellent performance in replicated yield trials in Australia the line was entered in the US advanced testing program. Testing by the seven US breeding programs confirmed the superior yielding ability and wide adaptation of DP 493. DP 493 has been evaluated in replicated tests in the US since 1999 including company wide research and technical services trials as well as Official Variety Trials conducted by public institutions.

Variety Description and Performance

DP 493 is a mid-full season variety of medium to tall plant height averaging 12.6 fruiting branches. It is a smooth leaf variety with moderate storm resistance. DP 493 is resistant to race 18 of bacterial blight and has good tolerance to Fusarium wilt, Verticillium wilt and reniform nematode.

Gin turnout for DP 493 is high in comparison to other varieties (Table 1). Fiber strength is very good and length and micronaire are considered average. Length uniformity is considered good.

DP 493 has shown excellent yield performance in the mid to full season growing regions of the cotton belt. In head to head test comparisons in these regions, lint yield of DP 493 exceeded that of ST 474, DeltaPEARL, DP 565, FM 958, FM 989 and DP 491 (Table 1).

In summary, DP 493 is a new conventional cotton variety combining both the potential for excellent yield potential and desirable fiber properties. DP 493 is currently being used as a parent in developing superior transgenic products to provide the newest technologies in the best conventional genetic backgrounds.

Table 1. Head to head comparisons in the mid-full season areas of US (AL, AZ, FL, GA, LA, SC, S.TX) for lint yield, fiber characteristics and crop value.

Comparison	Lint Yield	Turn out	Micro-naire	Staple	Uniformity	Fiber Strength	Crop Value [2]
DP 493	1473	40.9	4.6	35.6	82.1	29.2	944
ST 474	1234	38.7	4.8	34.6	82.7	28.0	791
No. Locs	34	34	34	34	31	34	34
DP 493	1349	41.6	4.8	35.6	82.5	30.0	883
DeltaPEARL	1220	39.0	4.7	36.8	82.4	30.1	806
No. Locs	57	57	57	57	56	57	57
DP 493	1392	41.4	4.6	35.7	82.3	30.0	917
DP 565	1213	37.7	4.6	36.3	83.1	29.9	805
No. Locs	66	66	66	66	65	66	66
DP 493	1012	38.9	4.9	34.8	81.5	29.7	656
FM 958	872	35.9	4.7	35.9	82.4	30.7	578
No. Locs	25	25	25	25	24	25	25
DP 493	1186	40.7	4.7	35.1	81.9	30.0	779
FM 989	894	36.7	4.4	35.8	82.5	31.8	559
No. Locs	30	30	30	30	30	30	30
DP 493	1340	41.2	4.7	35.8	82.3	30.2	882
DP 491	1225	39.7	4.6	37.6	82.4	31.3	819
No. Locs	68	68	68	68	67	68	68

[2] value per acre at $0.65/lb