

**DP 491, A NEW DELTA AND PINE LAND VARIETY WHICH COMBINES  
HIGH YIELD WITH OUTSTANDING FIBER QUALITY**

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**Abstract**

DP 491 is a conventional, mid-full season variety which combines high lint yield with exceptional fiber quality. DP 491 provides a fiber length previously unavailable in upland varieties adapted to the lower Southeast, lower Midsouth and South Texas.

**Introduction**

Developing high fiber quality (combined fine, long and strong fiber) varieties that also have high yield and adaptation has historically been very difficult. This, however, has been accomplished with the development of DP 491.

**Discussion**

**Development**

DP 491 was selected and developed in the Midsouth Cotton Research program located at Scott, Ms. It was derived from the cross DP 5415 x DP 2156 which was made by the D&PL Hybrid program in 1992. A F4-derived progeny row was bulked in 1996 to form the line 926553-2028-401-503. After testing and advancement the line was designated 99X02. DP 491 has been evaluated in replicated tests since 1997. Agronomic Services testing began in 2000. Foundation seed increases began in 1999.

**Agronomic Traits**

DP 491 is a mid-full season variety with medium plant height. It has a moderately determinant, close fruiting habit. DP 491 begins fruiting at a low node and tends to have fewer fruiting nodes than other varieties. Leaf pubescence is light. The boll size is large with good storm resistance. Seed size is medium with generally good seedling vigor. DP 491 has very good resistance to Fusarium and Verticillium wilt.

**Fiber Characteristics**

Lint percent for DP 491 is high relative to other varieties (Table 1). Micronaire has generally been in the premium range, and it is lower than that of competitive varieties. Fiber length for DP 491 has shown to be one staple length or greater than any other variety in comparison. Fiber strength is also high. Fiber value in head to head comparisons has shown to be at the top for DP 491, and generally equal to or better than other varieties.

Box mapping data taken at Scott, Ms in 2001 has indicated that DP 491 uniquely maintains its high fiber length throughout the growing season (Figure 1). Results also indicate that micronaire for DP 491 is more stable throughout the growing season than comparative varieties (Figure 2).

**Lint Yield**

DP 491 has shown competitive performance in the mid to full season growing environments of the Southeast, Midsouth and South Texas. In head to head test comparisons in these regions, DP 491 significantly outperformed ST 474, DP 565, FM 966 and FM 989 (Figure 3). Comparisons with DeltaPEARL indicated that DP 491 yielded similarly. DP 491 has shown not to be adapted to Arizona.

In summary, DP 491 combines a unique combination of high lint yield with long, fine and strong fiber. Seed supplies for 2002 planting will be very limited.

Table 1. Head to head comparisons in the southern tier areas (S AL, S AR, FL, GA, LA, S MS, S SC, ST)

Comparison	Lint Yield	Sig <sup>1</sup>	Lint Percent	Micro-naire	Staple	Uniformity	Fiber Strength	Elongation	Fiber Value <sup>2</sup>
DP 491	1116	*	39.0	4.3	37.3	82.7	30.4	9.2	51.5
ST 474	1060		38.1	4.7	34.9	82.5	28.4	10.6	48.5
No. Locs	63		63	63	63	63	63	21	34
DP 491	1170		39.9	4.3	37.4	82.9	30.6	9.7	51.5
DeltaPEARL	1182		38.8	4.5	36.5	82.4	29.0	9.7	51.4
No. Locs	74		74	64	64	64	64	26	28
DP 491	1184	***	39.8	4.3	37.4	82.9	30.6	9.7	51.5
DP 565	1113		37.2	4.5	35.9	82.8	29.4	10.6	50.8
No. Locs	75		75	66	66	66	66	26	30
DP 491	1090		40.7	4.4	37.4	83.1	30.8	9.7	51.7
FM 958	1071		39.4	4.5	36.4	83.1	30.3	9.0	52.0
No. Locs	33		33	26	26	26	26	5	11
DP 491	1150	*	41.2	4.4	37.4	83.2	30.7	9.7	51.8
FM 966	1119		39.1	4.5	36.2	83.8	31.7	8.7	50.5
No. Locs	38		38	29	29	29	29	5	11
DP 491	1114	***	39.8	4.3	36.9	82.3	30.7	8.8	51.5
FM 989	969		37.3	4.2	35.6	82.1	31.2	9.0	51.1
No. Locs	43		43	35	35	35	35	4	24

<sup>1</sup> \*, \*\*\* = difference significant at the 0.05 and 0.001 probability level.

<sup>2</sup> \$.50/lb basis.

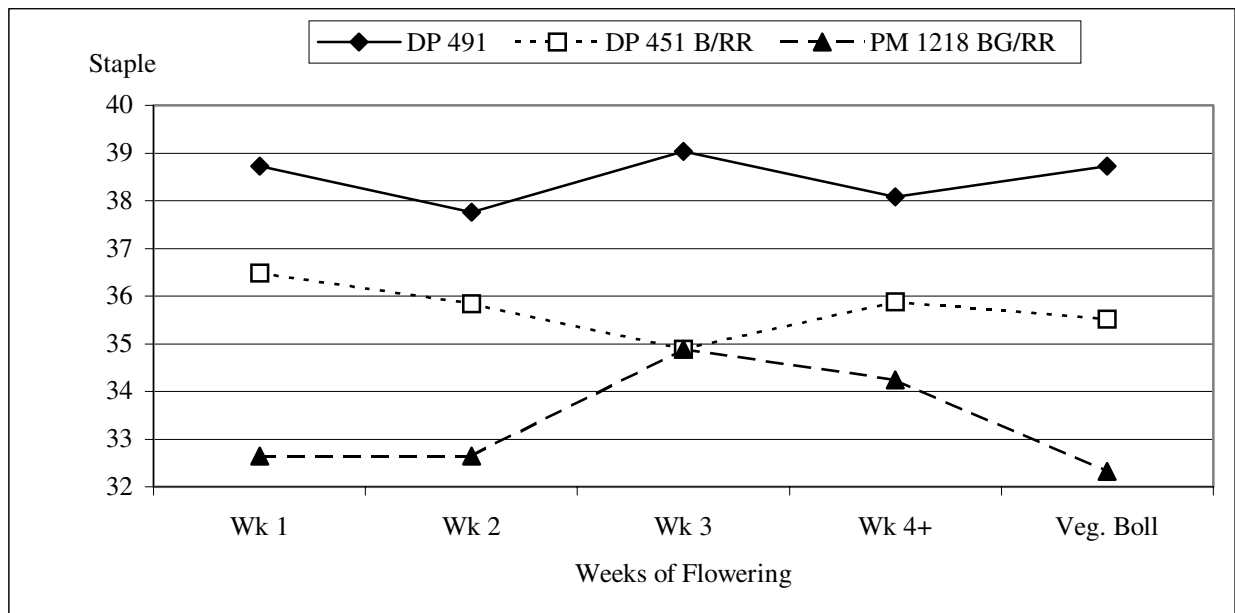


Figure 1. Fiber length change by date of boll set.

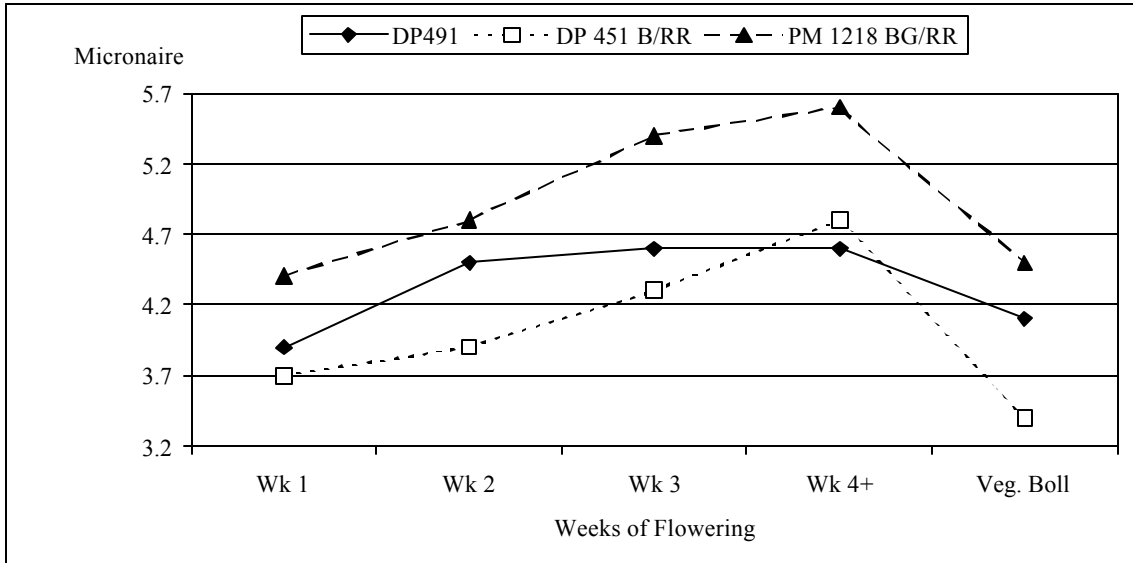


Figure 2. Micronaire changes based on date of boll set.

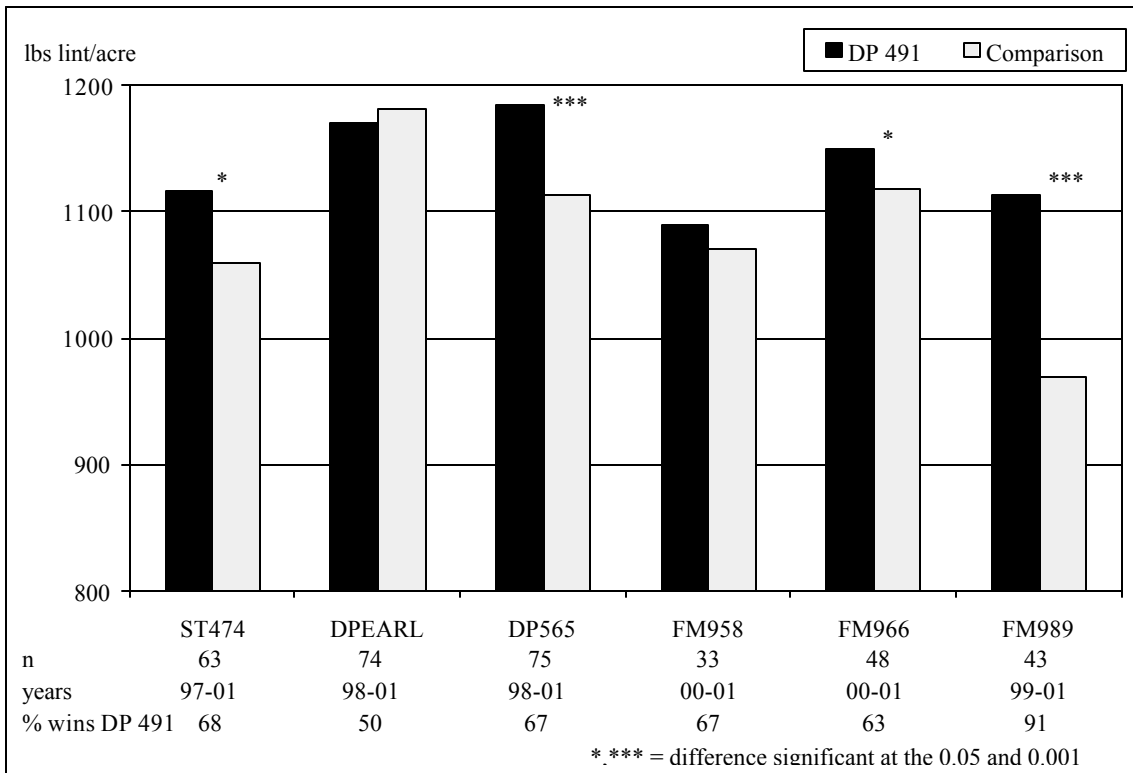


Figure 3. Lint yield head to head comparisons in Southern Tier (S AL, S AR, FL, GA, LA, S MS, S SC, ST).