

# Planting Rates and Dates and Short Season Cotton

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## Lint Yield of Several Cotton Varieties Planted on 5 Dates at 3 Locations in Arizona in 1986.

*D. L. Kittock, Crop Ecologist, and W. C. Hofmann, Crop Physiologist*

### ABSTRACT

*There were some wide variations in cotton variety performance at five planting dates among locations and years. However, on an average, DP 90 and DP 77 performed best when planted between 28 March and 24 April. Stoneville 506 and DP 50 averaged best for May plantings and DP 20, Stoneville 112, and DP 50 averaged best for early June plantings.*

### INTRODUCTION

Many cotton yield tests are planted in Arizona each year, but few compare cotton varieties at several planting dates. In particular, more information has been needed on cotton varieties best suited for replanting or for double cropping after small grains. We have established 3 tests in each of the last 2 years to compare cotton varieties at 5 planting dates.

### METHODS

The experimental format in 1986 was similar to 1985. Twelve upland cotton varieties were planted at the Maricopa and Marana Agricultural Centers. Eight upland and 2 Pima cotton varieties were planted at the Safford Agricultural Center. Some varieties were changed between 1985 and 1986.

There were 5 planting dates and 4 replications in each test. Plots were 4 rows wide with the center 2 rows harvested for lint yield. Plot lengths were 39, 35, and 36 feet at Maricopa, Marana, and Safford, respectively.

The two Pima varieties and Germain 365 were grown only at Safford. Seed from a bag labeled Centennial was planted at all locations in 1986. However, the plants did not resemble Centennial, so data for that unknown variety is not included in this report. Three varieties or experimental strains planted in 1985 or 1986, DP 30, DP 90Y, and Pima P-62 have been discontinued and are no longer available.

### RESULTS

Lint yields for the 3 tests in 1986 are given in Tables 1, 2, and 3. We believe that the 1985 and 1986 data are sufficient to allow us to draw some general conclusions about varieties and planting dates. Therefore, much of our discussion will relate to Table 4, which summarizes lint yield for the 6 tests over 2 years. If a variety had the highest lint yield at a particular planting date for all tests, the mean would be 100%.

DP 77 and DP 90, on an average, produced the highest lint yields for late March and April plantings. DP 90 was particularly productive at Safford, where it continued to do well in May plantings. However, at Maricopa it was second to DP 77 in lint yield for the first planting in 1985 and twelfth for the 1st and 3rd plantings in 1986. We do not know why the complete reversal between 1985 and 1986 occurred. Lack of heat tolerance and susceptibility to early season insect attacks have been suggested as possible causes.

Rapid decline in DP 77 lint yields with later plantings suggests that it is strictly a full season variety. DP 41 was third in average lint productivity for the first three planting dates. Early planting of DP 41 would be risky, because it has lower seedling vigor than other varieties.

Stoneville 506 and DP 50 were best on the average for May plantings. DP 90 should also be considered for May plantings at Safford.

DP 20, Stoneville 112, and DP 50 were best for June plantings. Centennial also should be considered for June plantings. It was highest in lint yield for the 5th planting at Marana in 1985, but was severely affected by verticillium wilt at Safford in 1985.

Care should be taken in adapting this information for farm use. Average results do not necessarily translate to successful results in a grower's field. The complete reversal in DP 90 lint yields for the 1st and 3rd plantings at Maricopa between 1985 and 1986 illustrate the surprises that can occur. However, where other data and experience are limited, these results should offer useful guidelines.

**Table 1. Lint yield of 11 upland cotton varieties planted at 5 dates at Maricopa, Arizona in 1986.**

Planting date				
28 March		11 April	2 May	
Variety	Lbs lint/A		Variety	Lbs lint/A
Stv 112	1861 a <sup>1/</sup>	P	DP 50	1645 a
Stv 825	1822 ab	O	DP 61	1577 ab
McN 235	1797 ab	O	DP 41	1575 ab
DP 50	1792 ab	R	Stv 506	1550 ab
DP 77	1774 ab		Stv 112	1519 ab
Stv 506	1759 ab	S	McN 235	1501 ab
DP 41	1715 ab	T	Stv 825	1498 ab
Coker 139	1671 ab	A	DP 77	1458 ab
DP 20	1642 ab	N	DP 20	1445 ab
DP 61	1631 ab	D		
			Coker 139	1392 b
DP 90	1577 b		DP 90	1348 b
Mean Plant Height	44"	46"		48"
19 May		4 June		
Variety	Lbs lint/A	Variety	Lbs lint/A	
DP 50	1417 a	DP 20	1046 a	
Stv 112	1375 ab	Stv 825	1016 ab	
Stv 825	1336 abc	Stv 112	1006 ab	
DP 90	1331 abc	DP 50	980 ab	
Stv 506	1324 abc	McN 235	967 ab	
DP 41	1257 abc	Stv 506	937 ab	
DP 61	1231 abc	Coker 139	925 ab	
McN 235	1214 abc	DP 41	912 ab	
DP 20	1214 abc	DP 90	872 ab	
DP 77	1250 abc	DP 61	856 ab	
Coker 139	1140 c	DP 77	753 b	
Mean Plant Height	42"		40"	

<sup>1/</sup>Lint yields within a planting date followed by the same letter are not significantly different at the 0.05 confidence level according to Duncan's Multiple Range Test.

**Table 2. Lint yield of 11 upland cotton varieties planted at 5 dates at Marana, Arizona in 1986.**

Planting date					
4 April		24 April		12 May	
Variety	Lbs lint/A	Variety	Lbs lint/A	Variety	Lbs lint/A
DP 90	1776 a <sup>1/</sup>	DP 77	1861 a	DP 50	1851 a
DP 77	1736 a	DP 90	1844 ab	Stv 506	1767 ab
DP 41	1708 ab	DP 50	1777 ab	DP 41	1710 abc
DP 61	1518 abc	DP 20	1755 ab	DP 20	1685 abc
Stv 112	1712 abc	DP 61	1590 abcd		
Stv 112	1441 bc	DP 61	1673 abc	DP 90	1577 abcd
McN 235	1387 bc	McN 235	1614 abc	Stv 112	1570 abcd
DP 20	1385 bc	DP 41	1613 abc	Coker 139	1532 abcd
Stv 506	1379 c	Stv 506	1562 abc		
DP 50	1366 c			Stv 825	1496 bcd
Coker 139	1361 c	Coker 139	1529 bc	DP 77	1413 cd
Stv 825	1271 c	Stv 825	1408 c	McN 235	1357 d
Mean Plant Height	37"		39"		41"
23 May		11 June			
Variety	Lbs lint/A	Variety	Lbs lint/A		
Stv 506	1747 a	DP 20	1044 a		
Stv 112	1644 ab	Coker 139	877 ab		
DP 20	1586 abc	Stv 112	871 ab		
DP 50	1575 abc	Stv 506	854 ab		
McN 235	1567 abc	DP 61	854 ab		
DP 90	1435 abcd	DP 41	803 ab		
		Stv 825	803 ab		
DP 41	1320 bcde	DP 50	795 ab		
Coker 139	1307 cde	DP 90	781 ab		
DP 61	1239 e	McN 235	758 ab		
DP 77	1237 e				
Stv 825	1202 e	DP 77	600 b		
Mean Plant Height	46"		40"		

*1/Lint yields within a planting date followed by the same letter are not significantly different at the 0.05 confidence level according to Duncan's Multiple Range Test.*

**Table 3. Lint yield of 7 upland and 2 pima cotton varieties planted at 5 dates at Safford, Arizona in 1986.**

Planting date					
2 April		21 April		9 May	
Variety	Lbs lint/A	Variety	Lbs lint/A	Variety	Lbs lint/A
DP 90	1393 a <sup>1/</sup>	DP 90	1317 a	DP 90	1323 a
DP 77	1150 ab	DP 20	987 ab	Germ 365	1233 ab
		DP 50	987 ab	DP 77	1149 ab
Pima S-6	970 bc			Stv 112	1130 ab
DP 20	919 bc	DP 77	912 bc	DP 20	1095 ab
Germ 365	917 bc	Germ 365	881 bc	DP 50	1088 ab
DP 50	824 bc	Pima S-6	838 bc	McN 235	1035 ab
Pima P-62	765 cd	Pima P-62	778 bc		
Stv 112	739 cd	Stv 112	722 bc	Pima S-6	957 b
McN 235	446 d	McN 235	599 c	Pima P-62	936 b
Mean Plant Height	25"		26"		28"
23 May		10 June			
Variety	Lbs lint/A	Variety	Lbs lint/A		
DP 50	1082 a	Stv 112	757 a		
DP 90	1011 a	DP 20	701 ab		
Germ 365	1003 a	DP 90	699 ab		
DP 20	996 a	DP 50	677 ab		
Stv 112	986 a	Germ 365	619 ab		
McN 235	968 a	McN 235	611 abc		
Pima P-62	926 a	Pima P-62	433 abc		
DP 77	915 a				
Pima S-6	751 a	DP 77	404 bc		
		Pima S-6	285 c		
Mean Plant Height	30"		32"		

*<sup>1/</sup>Lint yields within a planting date followed by the same letter are not significantly different at the 0.05 confidence level according to Duncan's Multiple Range Test.*

**Table 4. Summary of relative lint production of several cotton varieties planted at 5 planting dates at 3 locations in Arizona in 1985 and 1986.**

<u>1st Planting</u> (28 March to 8 April)		<u>2nd Planting</u> (11 to 24 April)		<u>3rd Planting</u> (1 to 12 May)	
<u>Variety</u>	<u>% of best</u>	<u>Variety</u>	<u>% of best</u>	<u>Variety</u>	<u>% of best</u>
DP 77 (5)1/	95.1	DP 90 (5)	97.1	Stv 506 (2)	94.9
DP 90 (6)	94.5	DP 77 (4)	92.3	DP 50 (6)	94.6
DP 41 (4)	89.3	DP 41 (3)	89.1	DP 41 (4)	94.0
Stv 506 (2)	86.1	DP 20 (2)	84.6	Germ 365 (1)	93.2
Coker 139 (2)	83.2	DP 61 (4)	84.5	Stv 112 (5)	92.5
Stv 825 (5)	82.7	DP 50 (5)	84.3	DP 90 (6)	92.1
DP 61 (5)	82.2	Stv 506 (1)	83.9	DP 30 (3)	91.4
Stv 112 (5)	78.3	Stv 112 (2)	82.3	DP 77 (5)	89.1
DP 20 (3)	77.4	Coker 139 (1)	82.2	DP 61 (5)	88.5
DP 50 (6)	76.7	Stv 825 (4)	80.7	DP 20 (3)	87.2
McN 235 (6)	75.5	Coker 315 (3)	80.0	Stv 825 (5)	85.1
DP 30 (3)	74.3	DP 30 (3)	79.0	Coker 315 (3)	85.1
Pima S-6 (2)	74.2	McN 235 (5)	75.6	McN 235 (6)	83.8
Coker 315 (3)	73.5	Pima S-6 (2)	73.0	Coker 139 (2)	83.7
Pima P-62 (2)	70.1	Germ 365 (1)	66.9	Pima P-61 (2)	80.4
Germ 365 (1)	65.8	Pima P-62 (2)	68.6	Pima S-6 (2)	80.2
Centennial (3)	61.0	Centennial (3)	66.7	Centennial (3)	74.5
<u>4th Planting</u> (19 to 24 May)		<u>5th Planting</u> (4 to 11 June)			
<u>Variety</u>	<u>% of best</u>	<u>Variety</u>	<u>% of best</u>		
Stv 506 (2)	96.7	DP 20 (3)	97.5		
DP 50 (5)	95.9	Stv 112 (4)	92.7		
Stv 112 (4)	95.6	DP 50 (5)	91.5		
DP 30 (2)	94.2	DP 30 (2)	87.7		
Germ 365 (1)	92.7	Coker 139 (2)	86.2		
DP 90 (5)	91.2	Stv 506 (2)	85.7		
DP 20 (3)	89.5	DP 41 (3)	85.6		
McN 235 (5)	86.4	Stv 825 (4)	83.2		
DP 41 (3)	83.5	DP 90 (5)	82.1		
Pima P-62 (2)	82.1	Germ 365 (1)	81.8		
DP 77 (4)	80.5	Coker 315 (2)	80.8		
Stv 825 (4)	79.8	McN 235 (5)	80.5		
Coker 139 (2)	77.7	DP 61 (4)	76.4		
DP 61 (4)	77.3	Centennial (2)	74.6		
Coker 315 (2)	76.7	DP 77 (4)	62.1		
Centennial (2)	71.4	Pima P-62	44.3		
Pima S-6 (2)	65.2	Pima S-6 (2)	25.5		