

The application of regression analysis as an indicator of plant sensitivity to environment should be approached with caution. Under appropriate conditions it may be meaningfully applied as an aid in plant selection. The results of this study indicate that DPL-70, ST-213, DPL-61 and ST-825 appear to contain adequate environmental stability for lint yield. They would make adequate testers to measure new cotton entries against.

Table 1. Joint regression slopes for lint yield pounds per acre (first pick) of four cotton varieties grown in Arizona during 1979 and 1980.

Variety	Regression Slope	
	1979	1980
DPL-70	0.71 \pm .11	1.06 \pm .13
ST-213	0.75 \pm .20	0.91 \pm .10
DPL-61	0.86 \pm .22	1.13 \pm .11
ST-825	1.12 \pm .26	1.08 \pm .10

SHORT STAPLE VARIETY DEMONSTRATION

Bruce Church Ranch - Poston

Agent-in-Charge - Don Howell

Variety	Turnout ^{1/} %	Lint Yield/Acre		Plants/A x 1000
		First Pick	Total	
DPL-70	33.5	1029 a ^{2/}	1246	52.6 a ^{2/}
DPL-7120	33.4	948 ab	1114	46.0 a
DPL-61	32.4	871 bc	1064	39.6 a
McNair 235	31.9	866 bc	1041	55.6 a
ST-825	31.8	849 bc	980	32.0 a
ST-213	29.6	819 bc	975	38.6 a
McNair 220	30.4	716 c	915	36.6 a

^{1/}

Turnouts are based on laboratory gin results.

^{2/}

Values followed by the same letter are not significantly different at the .05 level by the Student-Newman-Keul's Test.

C.V.: Stand = 13.1%; Yield = 8.96%.

CROP HISTORY

SOIL TYPE: Silty Clay - Silty Clay Loam.
 PREVIOUS CROP: Cotton.
 TILLAGE: Disk, chisel, irrigation, disk, landplane, disk, list, mulch.
 PLANTING: March 28 at 16 lbs/A in moisture under cap.
 HERBICIDE: Treflan at 1 1/2 pts/A, sprayed on, disked in 4" depth.
 Layby: None.
 FERTILIZER: Preplant: None. Layby: 100 units of NH₃ water run. 160 units of NH₃ injected.
 IRRIGATION: 1 preirrigation + 11 more irrigations on solid rows ending September 9. Total water use 4.7 AF.
 INSECTICIDE: 4 applications for Heliothis.
 DEFOLIATION: Def-6 at 2 pts/A + Accelerate at 1 pt/A on September 27.
 HARVEST: First Pick on October 15; Second Pick on November 20, 1980.

SHORT STAPLE VARIETY DEMONSTRATION

Dennis Layton - Solomon

Agent-in-Charge - Ron Cluff

Variety	Turnout ^{1/} %	Lint yield/Acre		Plants/A x 1000
		First Pick	Total	
McNair-235	36.0	1200 a ^{2/}	1322	120.0 ab ^{2/}
DPL-41	37.3	1117 ab	1314	107.8 ab
ST-256	36.8	1092 ab	1235	95.5 b
ST-506	34.5	1041 ab	1208	112.3 ab
McNair-220	34.1	1076 ab	1185	122.5 ab
Coker-310	37.7	1046 ab	1181	131.0 a
ST-825	36.2	1037 ab	1181	115.0 ab
DPL-55	35.8	992 ab	1175	121.0 ab
Coker-6101	36.4	971 b	1117	96.5 b
Coker-315	35.9	935 b	1079	104.8 ab

^{1/}

Turnouts are based on laboratory gin results.

^{2/}

Values followed by the same letter are not significantly different at the .05 level by the Student-Newman-Keul's Test.

C.V.: Stand = 12.30%; Yield = 8.74%.

CROP HISTORY

SOIL TYPE:	Sandy Loam.	PREVIOUS CROP:	Cotton.
TILLAGE:	Cut Stalks, Plowed, Drag, Listed, Mulched.		
PLANTING:	May 2 at 30 lbs/A under cap.		
HERBICIDE:	None.	FERTILIZER:	None.
IRRIGATION:	1 preirrigation + 5 more irrigations on alternate rows ending August 28. Total water use 3½ AF.		
INSECTICIDE:	None.		
DEFOLIATION:	2 gal/A of Sodium Chlorate + acid on October 7.		
HARVEST:	First Pick on October 15, Second Pick on November 5.		

SHORT STAPLE VARIETY DEMONSTRATION

Harold Wardlow Farm - Bowie

Agent-in-Charge - Jim Biles

Variety	Turnout ^{1/} %	Lint lbs/A	Plants/A x 1000
DPL-41	34.5	935	48.3 ab ^{2/}
ST-506	31.0	859	42.5 ab
Coker 3114	39.1	849	36.8 ab
ST-825	33.4	845	50.8 a
Coker 3113	33.4	809	34.0 b
Coker 310	37.6	711	42.5 ab
GP-3755	33.9	605	38.8 ab
GP-3774	32.9	571	39.5 ab

^{1/}

Turnouts are based on commercial gin results.

^{2/}

Values followed by the same letter are not significantly different at the .05 level by the Student-Newman-Keul's Test.

C.V.: Stand = 16.1%.

CROP HISTORY

SOIL TYPE: Sandy Loam. PREVIOUS CROP: Fallow field.
TILLAGE: Double disk, float. PLANTING: April 20 at 20 lbs/A.
HERBICIDE: Preplant: Treflan at 1 1/2 pts/A, sprayed on then disked
in to 3 in. Layby: None.
FERTILIZER: Layby: 250 lbs. Urea sidedressed.
IRRIGATION: Watered up on April 22. 7 total irrigations ending
September 1 on alternate rows. Total water use 7 AF.
INSECTICIDE: None. Defoliation: None.
HARVEST: October 10, 1980.

SHORT STAPLE VARIETY DEMONSTRATION

Bob Bennett - Willcox

Agent-in-Charge - Jim Biles

Variety	Turnout ^{1/} %	Lint lbs/A	Plants/A x 1000
GP-3774	31.4	550 a ^{2/}	32.0 a ^{2/}
ST-506	27.7	522 ab	26.3 a
Coker 315	29.9	521 ab	32.0 a
ST-825	25.4	519 ab	41.8 a
McNair 220	27.3	512 ab	25.8 a
ST-213	25.8	501 ab	28.8 a
L-7	30.9	494 ab	30.8 a
Br-1	29.3	475 ab	24.0 a
DPL-41	27.4	454 b	30.5 a

^{1/}

Harvested with a Brush roll stripper.

Turnouts are based on laboratory gin results.

^{2/}

Values followed by the same letter are not significantly different at the .05 level by the Student-Newman-Keul's Test.

C.V.: Stand = 25.4%; Yield = 7.27%.

CROP HISTORY

SOIL TYPE: Sandy loam. PREVIOUS CROP: Cotton.
TILLAGE: Plowed, disk, listed. PLANTING: April 17 at 17 lbs/A, under cap.
HERBICIDE: Preplant: Treflan at 1 1/2 pts/A, sprayed on and disked in to 3" depth. Layby: None.
FERTILIZER: Preplant: None. Layby: Injected 100 lbs/A of NH₃.
IRRIGATION: 1 preirrigation + 7 more irrigations on alternate rows ending on September 10.
INSECTICIDE: None. DEFOLIATION: None.
HARVEST: November 10, 1980.

SHORT STAPLE VARIETY DEMONSTRATION

Art Pacheco - Marana

Agent-in-Charge - Jim Armstrong

Variety	Turnout ^{1/} %	Lint Yield/Acre		Plants/A x 1000
		First Pick	Total	
DPL-55	30.51	786 a ^{2/}	928	48.3 a ^{2/}
DPL-41	31.82	771 a	894	46.0 a
ST-825	29.08	789 a	873	48.0 a
ST-506	28.88	798 a	863	39.5 a
McNair 220	29.06	696 a	732	42.3 a

^{1/}

Turnouts are based on commercial gin results.

^{2/}

Values followed by the same letter are not significantly different at the .05 level of the Student-Newman-Keul's Test.

C.V.: Stand = 10.5%; Yield = 7.47%.

CROP HISTORY

SOIL TYPE:	Loam.	PREVIOUS CROP:	Cotton.
TILLAGE:	Plow, landplane, list.		
PLANTING:	April 22 at 14.5 lbs/A drilled.		
HERBICIDE:	.6 lb/A Carmex (Chemical hoe) after first irrigation, sprayed on 10" band. Layby: 1.7 lbs/A of Caparol + Surfactant.		
FERTILIZER:	Preplant: None. Layby: Water run NH ₃ , 75 units of N.		
IRRIGATION:	1 preirrigation + 5 more irrigations ending on September 4. Total water use 3.24 AF.		
INSECTICIDE:	1 application for Lygus and Perforator.		
DEFOLIATION:	2 gal. of Sodium Chlorate on September 30.		
HARVEST:	First Pick on October 20; Second Pick in December 9, 1980.		

SHORT STAPLE VARIETY DEMONSTRATION

Claude Evans - Casa Grande

Agent-in-Charge - Sam Stedman

Variety	Turnout ^{1/} %	Lint lbs/A	Plants/A x 1000
DPL-732	34.0	1240 a ^{2/}	32.8 b ^{2/}
DPL-7120	37.4	1233 a	32.3 b
DPL-41	38.4	1171 ab	33.5 b
DPL-61	34.2	1153 ab	32.8 b
DPL-70	35.6	1144 ab	42.0 a
ST-213	33.5	1140 ab	37.3 ab
ST-825	32.3	1132 ab	36.0 ab
DPL-55	34.6	1079 ab	36.0 ab
DES-56	33.4	1051 b	32.0 b
ST-506	32.3	1041 b	34.5 ab

^{1/}

Turnouts are based on laboratory gin results.

^{2/}

Values followed by the same letter are not significantly different at the .05 level by the Student-Newman-Keul's Test.

C.V.: Stand = 10.9%; Yield = 6.68%.

CROP HISTORY

SOIL TYPE: Sandy Loam. TILLAGE: Plow, disk, list up beds.
 PLANTING: May 8 at 15 lbs/A under cap.
 HERBICIDE: Preplant: .75 lb/A of Treflan incorporated 4 inches over the bed. Layby: 1.4 lbs/A Caparol.
 FERTILIZER: Preplant: 150 lbs/A of nitrogen.
 IRRIGATION: No information available.
 INSECTICIDE: 4 applications for Pink Bollworm.
 DEFOLIATION: 5 gal/A of Sodium Chlorate.
 HARVEST: October 31, 1980.

SHORT STAPLE VARIETY DEMONSTRATION

St. Francis Farms - Bob Barcello
Magma

Agent-in-Charge - Sam Stedman

Variety	Turnout ^{1/} %	Lint lbs/A	Plants/A x 1000
DPL-7120	35.2	931 a ^{2/}	54.5 a ^{2/}
DPL-41	32.1	883 ab	50.3 a
DPL-70	32.3	819 bc	55.8 a
DPL-61	32.3	795 bc	42.3 b
ST-506	29.9	781 bc	43.8 b
ST-825	31.0	727 c	49.5 ab

^{1/}

Turnouts are based on laboratory gin results.

^{2/}

Values followed by the same letter are not significantly different at the .05 level by the Student-Newman-Keul's Test.

C.V.: Stand = 9.9%; Yield = 6.7%.

CROP HISTORY

SOIL TYPE: Clay Loam. PREVIOUS CROP: Cotton.
TILLAGE: Plow, Disk, Landplane.
PLANTING: May 10 at 12.5 lbs/A, Hill drop.
HERBICIDE: Preplant: Karmex at 3/4 lbs/A + Treflan at 1 1/2 pts/A, Roto mulched to 4" depth. Layby: Caparol at 1 lb/A, sprayed on surface.
FERTILIZER: Preplant: 250 lbs/A of 16-20-0. Layby: 10 gals/A of Uran water run. 175 lbs/A of 21-0-0-24 sidedressed.
IRRIGATION: 1 preirrigation + 4 more irrigations on solid rows ending September 7. Total water use 3.5 AF.
INSECTICIDE: 2 applications for Stink Bug, Lygus, Budworm, Pink Bollworms.
DEFOLIATION: Sodium Chlorate at 2 1/4 gals/A in October.
HARVEST: First Pick on October 28; Second Pick on November 19, 1980.

SHORT STAPLE VARIETY DEMONSTRATION

David Prechel - Coolidge

Agent-in-Charge - Sam Stedman

Variety	Turnout ^{1/} %	Lint lbs/A	Plants/A x 1000
DPL-7120	39.5	1397 a ^{2/}	36.8 a ^{2/}
DPL-61	34.7	1338 a	42.5 a
DPL-70	35.6	1329 a	42.8 a
DPL-41	35.1	1281 ab	33.3 a
ST-825	34.0	1216 ab	38.8 a
ST-213	34.1	1146 ab	38.8 a
ST-506	30.9	1045 b	35.3 a

^{1/} Turnouts are based on laboratory gin results.

^{2/} Values followed by the same letter are not significantly different at the .05 level by the Student-Newman-Keul's Test.

C.V.: Stand = 20.6%; Yield = 10.04%.

CROP HISTORY

SOIL TYPE: Sandy Loam. PREVIOUS CROP: Sorghum.
TILLAGE: Ripped, plowed, disked twice, floated.
PLANTING: April 28 at 12.5 lbs/A, Maximerge planter in moisture with no cap.
HERBICIDE: Preplant: Prowl at 2 pts/A, sprayed on and listed on.
Layby: None.
FERTILIZER: Preplant: None. Layby: Water run Uran at 10 gals/A, side-dressed 11-48-0 at 200 lbs/A, injected NH₃ at 150 lbs/A in two applications.
IRRIGATION: 1 preirrigation + 9 more irrigations ending on September 10.
INSECTICIDE: 4 applications for Lygus and Heliothis Complex.
DEFOLIATION: October 12 with Def-6 at 2 pts/A and Accelerate at 1 1/2 pts/A.
HARVEST: October 23, 1980.

SHORT STAPLE VARIETY DEMONSTRATION

Wilbur Wuertz - Coolidge

Agent-in-Charge - Sam Stedman

Variety	Turnout ^{1/} %	Lint lbs/A	Plants/A x 1000
DPL-41	31.0	1060 a ^{2/}	198.0 b ^{2/}
ST-506	27.9	1052 a	189.3 b
DPL-712	28.8	1021 a	185.3 b
DPL-70	27.5	943 ab	226.5 a
ST-825	24.6	875 b	147.5 c

^{1/}

Harvested with a Finger stripper.

Turnouts are based on laboratory gin results.

^{2/}

Values followed by the same letter are not significantly different at the .05 level by the Student-Newman-Keul's Test.

C.V.: Stand = 7.1%; Yield = 7.5%.

CROP HISTORY

SOIL TYPE: Sandy Loam. PREVIOUS CROP: Barley.
 PLANTING: June 5 at 80 lbs/A in double row. Drilled in.
 HERBICIDE: Preplant: Caparol + Treflan sprayed on and mulched in.
 Layby: None.
 FERTILIZER: Preplant: 200 lbs/A of NH₃. Layby: None.
 IRRIGATION: Total water use 3 AF.
 INSECTICIDE: 2 applications for Lygus and Heliothis Complex.
 DEFOLIATION: First application, Sodium Chlorate. Second application,
 Paraquat.
 HARVEST: November 20, 1980.

SHORT STAPLE VARIETY DEMONSTRATION

Keith Layton - Florence

Agent-in-Charge - Sam Stedman

Variety	Turnout ^{1/} %	Lint lbs/A	Plants/A x 1000
DPL-7120	35.9	1244 a ^{2/}	60.0 a ^{2/}
DPL-41	34.3	1237 a	43.8 b
ST-825	31.9	1237 a	47.3 b
DPL-61	33.7	1162 a	47.5 b
DPL-70	33.6	1135 a	65.5 a
ST-506	31.7	1106 a	38.3 b
New Mexico Hybrid	25.0	645 b	29.3 c

^{1/}

Turnouts are based on laboratory gin results.

^{2/}

Values followed by the same letter are not significantly different at the .05 level by the Student-Newman-Keul's Test.

C.V.: Stand = 8.4%; Yield = 8.64%.

CROP HISTORY

SOIL TYPE: Silt Loam. PREVIOUS CROP: Cotton.
TILLAGE: Disk, chisel plow, disk, renovate, list.
PLANTING: April 25 at 12 lbs/A under cap.
HERBICIDE: Preplant: Treflan at 1.5 pts/A flown on and listed in.
Layby: None.
FERTILIZER: Preplant: Liquid Uran 32 at 15 gal/A. Layby: Sidedressed
Uran 32 at 15 gal/A.
IRRIGATION: 1 preirrigation + 6 more irrigations on alternate rows ending
September 7. Total water use 4 AF.
INSECTICIDE: 4 applications for Heliothis Complex; 2 applications of
Temik for Lygus and Perforator.
DEFOLIATION: 1.5 pts/A of DEF-6 on September 26; Sodium Chlorate + Paraquat
on October 10.
HARVEST: November 4, 1980.

SHORT STAPLE DOUBLE ROW VARIETY DEMONSTRATION

Pete Nalbanian - Magma

Agent-in-Charge - Sam Stedman

Variety	Seed Cotton lbs/A	Plants/A x 1000
ST-825	2059 a ^{1/}	41.0 ab ^{1/}
DPL-41	2048 a	41.3 ab
DPL-7120	2003 a	58.5 a
DPL-70	1935 a	52.0 ab
ST-506	1856 a	37.5 b
DPL-61	1804 a	35.3 b

^{1/}

Values followed by the same letter are not significantly different at the .05 level by the Student-Newman-Keul's Test.

C.V.: Stand Count = 20.4%; Yield = 8.44%.

CROP HISTORY

PLANTING: May 6, 1980 at 20 lbs/A double row, 10 inches apart.
HARVEST: January 8, 1980.