UCCE APPROVED ACALA VARIETY TRIALS

Bob Hutmacher
UCCE Extension Agronomist
Department of Agronomy and Range Science
UC Davis / Shafter REC
(661) 746-8020 / fax (661) 746-1619
rbhutmacher@ucdavis.edu

Cooperators: Ron Vargas, Bill Weir, Steve Wright, Bruce Roberts,
Dan Munk, James Brazzle, Brian Marsh, Mark Keeley, Raul Delgado

1998 Studies

Eleven approved Acala varieties were planted in tests in 1998. Varieties included the standard, Maxxa, plus Phytogen-33, SJ-2, GC-510, Royale, DPL-6204, GC-535, C-141, GTO Maxxa, GC-500 and DP-6211. Tests were located in each of the six San Joaquin Valley cotton-producing counties, plus the Shafter and West Side Research and Extension Centers of the University of CA. Tests in grower fields were large scale, with individual entries grown in 6 to 8 row width plots averaging 1300 feet or more in row length. All studies had 4 replications in a randomized complete block design. Studies at West Side and Shafter locations were smaller, with plots 4 rows in width by 300 feet length. Planting dates, soil type and management practices varied across the locations and with grower differences in inputs and management approach.

It is important to note that the list of varieties in the "approved variety trials" does not include all varieties currently approved for the San Joaquin Valley. Entries included newly-approved varieties for the current year, varieties released last year that are in their second year of testing, plus the top 6 or 7 previously-approved varieties (in terms of planted acreage). The new varieties are the focus of the tests, but they only remain in the tests for the first two year following release unless that variety moves into the top 6 or 7 varieties in planted acreage. Released varieties also may not show up in the tests if the seed companies request that the variety is for a special market and don't want it in multiple location testing. All plots were machine harvested, with six pound seedcotton samples ginned at Shafter. Fiber samples were sent to the USDA Classing Office for HVI fiber quality analyses. Twenty-five plants were evaluated per replication (only in the SJ-2 variety) for presence or absence of vascular streaking and leaf discoloration as an index of incidence of Verticilium wilt at test locations.

Lint yields averaged 1092 lbs/acre (over all varieties and locations). In comparing across recent years in the UCCE Approved Acala Variety trials, the 1092 lbs/acre average in 1998 is 17 percent higher than the 1995 average (935 lbs/acre), 19 percent lower than the 1996 average (1353 lbs lint/acre), and 28 percent lower than the 1997 average (1525 lbs/acre). While the average yields across farm locations in these variety trials is over 200 lbs/acre higher than the USDA estimates (December, 1998) for statewide average yields (about 860 lbs/acre), the low yields of 1998 are some of the worst in many years in parts of CA.

Statistical separation of variety yields is indicated by the LSD (least significant difference) test results (Table 1). Lint yields and gin turnouts which are separated by the amount shown in the LSD column (or more) are statistically different. Looking at 8-location averages, 3 varieties had statistically higher yields than Maxxa. Phytogen-33 average yields were 5 percent (58 lbs/acre) higher than Maxxa, GTO Maxxa was 4 percent (41 lbs/acre) higher, while DP-6211 was 4 percent (46 lbs/acre) higher than average Maxxa yields. All other varieties produced 93 to 102 percent of Maxxa yields.

The incidence of Verticilium wilt was generally quite low in this test, with only one site experiencing a "high" wilt rating (26 percent of plants affected in Tulare County location. Gin turnouts were lower than recent years, with an average over locations and varieties being 32.6 percent in 1998 (Table 1) versus 36.2 percent in 1997.

Table 1. Lint yields, gin turnouts, statistical analyses in 1998 Acala Approved Variety Trials.

Variety	40 " Shafter REC	40" West Side REC	40" Kern Co.	38" Kings Co.	38" Tulare Co.	30" Fresno Co. *	30" Madera Co.	30" Merced Co.	Mean Lint Yield (lbs/ac)	Lint Yield (as % of Maxxa)	Mean Gin T.O. (%)
Maxxa	**747**	**1285**	**818**	**1275**	**985**	**1304**	**1213**	**1089**	**1090**	**100**	**33.4**
Phy-33	956	1395	1009	1280	1031	1174	1191	1144	**1147**	105	**31.3**
SJ-2	840	1213	771	1326	1000	1121	1168	1069	**1063**	98	**30.1**
GC-510	747	1236	908	1177	891	1175	1117	866	**1015**	93	**32.3**
Royale	852	1213	947	1227	981	1184	1030	995	**1054**	97	**32.5**
DP6204	917	1195	940	1287	994	1203	1073	1045	**1082**	99	**30.8**
GC-535	845	1236	927	1253	996	1277	1133	1003	**1084**	99	**32.0**
C-141	886	1272	908	1372	993	1312	1161	1023	**1116**	102	**32.3**
GTO Maxxa	954	1362	854	1390	1026	1365	1042	1053	**1131**	104	**36.4**
GC-500	827	1228	876	1284	1034	1256	1152	1063	**1090**	100	**33.4**
DP6211	918	1301	953	1346	1030	1283	1200	1057	**1136**	104	**33.7**
MEAN	**863**	**1267**	**901**	**1292**	**996**	**1241**	**1135**	**1037**	**1092**	**100**	**32.6**
LSD 0.05	100	56	47	60	70	130	NS	82	33		
C.V. (%)	8.0	3.0	3.6	2.7	4.9	7.3	8.5	5.5	6.0		
P	0.001	0.000	0.000	0.000	0.016	0.016	0.129	0.000	0.000		
Wilt Rating % incidence	0	2	2	10	26	9	1	5			

* = Average gin turnout from other 7 locations used with Fresno Co. site seedcotton yields to determine lint yield
C.V. = coefficienct of variation; P = probability
VARIETY by LOCATION (for yields): (LSD 0.05 = 101; C.V. (%) = 6.7; P = 0.000)

1999 Studies

Eight county test sites were selected for the 1999 County Approved Acala Variety trials. Even though very cool, sometimes wet conditions occurred during the entire month of March and the first few days of April, most of the test plots were planted between April 15 and April 23.

Six of the tests are large-scale evaluations at grower sites in Kern, Tulare, Kings, Fresno, Madera and Merced counties. At these locations, trials range from 800 foot runs to 2600 foot run lengths. Four replications were used at all locations. In addition, there are two smaller tests at both the University of CA Shafter Research and Extension Center and the West Side Research and Extension Center. Even in these smaller tests, plot sizes remain 300 feet in length by four rows in width.

A total of twelve Upland varieties were planted at each of the test sites, including ten Approved Acala varieties and two non-Acala Upland varieties. The San Joaquin Valley Cotton Board has adopted a standard for naming non-Acala Upland varieties; they will be called "California Upland" varieties. The Acala varieties included in the test include Maxxa, GTO Maxxa, Phytogen-33, DP-6211, SJ-2, GC-500, C-141, and three new releases for this year (DP-6207, BR-9605, C-166). The California Upland varieties included in the test for comparison purposes are DP-Nucotton-33B and Stoneville BXN-47.