

UCCE Approved Acala and Pima Variety Trials

Bob Hutmacher, UCCE Extension Agronomist, Dept. of Agronomy and Range Science,
UC Davis and Shafter REC; Phone: (661) 746-8020; e-mail: rbhutmacher@ucdavis.edu

Cooperators: Ron Vargas, Tome Martin-Duvall (UCCE-Madera and Merced Counties); Steve Wright, Gerardo Banuelos (UCCE-Tulare and Kings Counties); Dan Munk, Jon Wroble (UCCE-Fresno County); Brian Marsh (UCCE-Shafter REC and Kern County); Mark Keeley, Raul Delgado (Shafter REC)

The objectives of these studies with Acala and Pima varieties are to evaluate approved Acala varieties and Pima varieties submitted for testing under different environmental conditions and management across the San Joaquin Valley region of California. In order to provide a reasonable limit on the number of varieties in the tests, the entries include newly-approved varieties (approved by the San Joaquin Valley Cotton Board) for the current year, varieties released last year that are in their second year of testing, plus the top 4 or 5 previously-approved varieties (in terms of planted acreage). The new varieties are the focus of tests, but only remain in tests for a minimum of two years following release unless that variety moves into the top 4 or 5 varieties in planted acreage. Released varieties also may not show up in tests if companies request that the variety is for a special market and don't want it in multiple location testing, or when seed supplies are inadequate. The Pima tests focus on approved varieties, but in the past two years have also included a non-approved hybrid that has been of interest due to yield performance.

Acala Trials Summary – 2005. The goal of this project is to provide independent University data on yield and fiber quality performance of newly-available and widely planted Acala cotton varieties in the San Joaquin Valley of California. A "rule base" has been set up to determine entries in this Approved Acala Variety testing program. The list of varieties tested in any one year does not include all Acala varieties currently approved for the SJV, but rather the newest approved varieties in a comparison with some widely planted approved varieties. The emphasis is on providing information on "new" varieties after approval by the SJV Cotton Board, for comparison with a "standard" variety and other varieties that have achieved some success in the market (based upon acreage planted). Additional details are available (but not presented here) for plant map summaries, evaluations of *Verticillium* wilt incidence, and other field observations on plant performance and characteristics. Eleven Approved Acala varieties were planted in UCCE variety trials at 8 locations in 2005, 6 of them in large grower fields in Kern, Tulare, Kings, Fresno, Madera and Merced Counties. At 2 locations at West Side and Shafter Research and Extension Centers, these same eleven varieties were planted, plus one additional Approved Acala for which there was limited seed, and three non-Acala CA Upland varieties for yield comparisons. Average lint yields in Approved Acala trials were 1304 lbs per acre in 2005, considerably lower than the very high yields of 2002 and 2004 in these trials. A difficult, cool planting season followed by unfavorably high mid-summer day and night temperatures combined with moderate to high insect pressure in some areas to produce highly variable yields and fruit set problems in many areas of the San Joaquin Valley production area. These 2005 yields can be compared with across-site Acala trial averages of 1820 lbs per acre (2004), 1414 lbs/acre (2003), 1625 lbs/acre (2002), and 1326 lbs/acre (2001). Of the Approved Acalas in the seven-location analysis, 8 out of the 11 varieties had significantly higher yields than the Approved Acala SJV Cotton Board standard "Maxxa" averaged across seven sites. These 8 varieties were Phytogen-78 at 122% of Maxxa yields, Phytogen-72 at 114%, CPCSD-C702 at 111%, CPCSD-Riata RR at 109%, DynaGro-UAP-DGOA-265BR at 106%, CPCSD-Summit at 105%, CPCSD-Sierra RR at 105%, and Delta Pine DP-6207 at 104% of Maxxa average yields across all sites. Summaries of 2005 and prior year trial results are available at <http://cottoninfo.ucdavis.edu>. In addition, results are presented at the Cotton Workgroup meetings, in printed form in CA Cotton Review newsletter, and presented at winter and spring grower/PCA meetings of the University of California.

Acala - Approach for 2006. Five of the test sites for 2006 are large-scale evaluations at grower sites in Tulare, Kings, Fresno, Madera and Merced counties. At these locations, most trials are about 1300

foot run lengths, although some may be as short as 1000 feet and others as long as 2600 feet. 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. At the large-scale county grower locations, a total of eight approved Acala varieties were planted at each of the test sites. The Acala varieties included in the test:

Company providing seed	Variety Name	Company providing seed	Variety Name
CPCSD	Summit **	Phytogen Seed	Phy-710R
Phytogen Seed	Phy-72	CPCSD	Fiesta RR
Phytogen Seed	Phy-78	Delta and Pine Land	DP-6222R
Delta & Pine Land	DP-6207		
United Ag Products	DGOA-265 BR		
* <i>CPCSD</i>	<i>Daytona RF</i>		
* <i>Delta & Pine Land</i>	<i>DP-444 BR</i>	* <i>USDA-ARS Ulloa</i>	<i>AGC-375</i>
* <i>Bayer / Fibermax</i>	<i>FM 966 LL</i>	* <i>USDA-ARS Ulloa</i>	<i>SJ-U86</i>

- ** varieties identified with (*) and in italics are non-Acala CA Upland varieties included in the test as a comparison – these varieties were only planted as comparisons at the Shafter REC and West Side REC sites, and were not included in the grower field sites in the counties.*
- ***included as the new Acala “standard” variety of the San Joaquin Valley Cotton Board for 2006 (decided at March, 2006 Board meetings)*

At the West Side REC and Shafter REC locations, there are a total of 13 varieties in the tests (the eight Acala approved entries shown above plus five non-Acala CA Upland or USDA-ARS experimental Upland varieties for comparison purposes. The three CA Upland comparison varieties used in 2006 trials at the West Side and Shafter Research and Extension Center locations were CPCSD Daytona RF, Delta and Pine Land Co. DP-444 BR, and BayerFibermax FM 9666 LL, while USDA-ARS experimentals from Dr. Mauricio Ulloa’s program included AGC-375 (recently released) and SJ-U86.

Pima Trials – 2006. The overall objective of this project is to develop a data base on growth, development and yield and quality parameters of approved Pima varieties. Varietal performance is analyzed at each individual location, across all locations and by years. A vital part of improving seedcotton yields in Pima and in maintaining high quality standards is to determine yield and quality component sensitivity under current management (irrigation, planting date, fertility, pest management) practices. This variety trial subjects all varieties to essentially identical cultural and management conditions at individual locations, and the overall trial represents multiple locations to allow evaluation of location effects. Verticillium wilt incidence is evaluated only in the S-7 and Phy-800 varieties, but these analyses are done at each test location. Pima varieties have in the past exhibited less sensitivity to Verticillium wilt than most non-Acala Uplands and some Acala varieties, a relative plus for planting Pima in some areas. The over-location and yearly data base continues to provide information with unbiased data regarding varietal performance. Data from this experiment and that produced in a four location study by Dr. Shane Ball as part of the San Joaquin Valley Cotton Board approved variety tests are the only public Pima varietal performance data generated in CA that are available to growers for review in making varietal selections.

Entries in the Pima trials are decided based on available newer entries approved by the San Joaquin Valley Cotton Board plus existing approved varieties still planted on significant grower acreage plus the San Joaquin Valley Cotton Board “standard” variety.

At the large-scale county grower locations, a total of eight Pima varieties were planted at each of the test sites. The Pima varieties included in the test:

Company providing seed	Variety Name	Company providing seed	Variety Name
Public Variety	S-7	Phytogen Seed	Phy-800
Delta & Pine Land	DP-340	Delta & Pine Land	DP-744
Delta & Pine Land	DP-353	CPCSD	Cobalt
CPCSD	E-503	<i>Hazera Seed LLC</i>	<i>HA-195 *</i>
<i>CPCSD</i>	<i>Platinum *</i>	<i>Phytogen Seed</i>	<i>Phy-810 R *</i>
		<i>* USDA-ARS Ulloa</i>	<i>05MU-1061</i>

** varieties identified with (*) and in italics are CA- Pima varieties (HA-195 is a hybrid) included in the test at Grower and Farm Advisor request as a comparison – this HA-195 variety is not included at all locations (included or not as each grower/cooperator decides) . At some test locations, other CA - Pima varieties were only planted as comparisons at the Shafter REC and West Side REC sites, and were not included in the grower field sites in the counties.*

Summaries of 2005 and prior year trial results are available at <http://cottoninfo.ucdavis.edu>), and 2006 results will be available at that same site upon completion of the data collection and analysis. For the past five years or more, the available data posted on the UC cotton web site has included HVI fiber quality data collected as part of the trials. In addition, results are presented at the Cotton Workgroup meetings, in printed form in CA Cotton Review newsletter in January or February of each year.