

**EL DORADO, A NEW HIGH
QUALITY ACALA COTTON FOR
THE SAN JOAQUIN VALLEY**

**J. C. Palmer, H. B. Cooper, Jr., J. W. Pellow,
K. E. McRae, and D. M. Anderson
J. G. Boswell Cottonseed Breeding
Corcoran, CA**

Abstract

El Dorado is a new, high quality Acala cotton variety for California's San Joaquin Valley. Over four years of testing, El Dorado yields were equal to those of Maxxa (the SJV standard cotton variety) in the western and southern San Joaquin Valley. El Dorado was found to exhibit superior fiber and spinning properties that should make it an ideal cotton for use in today's wrinkle free garments. El Dorado planting seed will be readily available in 1996.

Introduction

El Dorado is a new Acala cotton variety, developed for California's San Joaquin Valley by J. G. Boswell Cottonseed Breeding (formerly Phytogen). It was approved for commercial release by the San Joaquin Valley Cotton Board in March, 1995.

El Dorado was originally selected from USDA release 6-021, a bulk of individual plant selections from an F2 population of the cross (C6TE x NMB3080) x (ATE1-57 x Tex E364). To introduce El Dorado to prospective cotton growers and spinning mills, results of yield and fiber quality comparisons will be discussed.

Materials and Methods

Prior to release, El Dorado was evaluated as PHY27 by the San Joaquin Valley Cotton Board at eight locations each in 1993 and 1994 (Bassett, 1995). At each location, El Dorado was compared to Maxxa, the SJVCB standard variety, in a randomized complete block design in four replications. Yield data was collected.

In independent testing by J. G. Boswell Cottonseed Breeding, seventeen performance trials were conducted between 1992 and 1994. At each location, El Dorado was compared to Maxxa in a randomized complete block design in four replications. Yield and fiber quality data were collected. Fiber properties were evaluated on individual instruments at the J. G. Boswell Cottonseed Breeding fiber laboratory. In addition, large scale spinning properties were determined for samples from eight of these locations. These tests were performed at the International Textile Center in Lubbock, Texas. Yield data from all J. G.

Boswell trials were combined with data from all San Joaquin Valley Cotton Board trials for an analysis across thirty-three locations.

Two separate yield trials were conducted in 1994 as part of the National Standards Test. El Dorado and Maxxa were compared in randomized complete block designs with four replications (Bassett, 1995).

In 1995, El Dorado and Maxxa were again compared in trials conducted by J. G. Boswell Cottonseed Breeding at five locations in the San Joaquin Valley. Each trial consisted of four replications in a randomized complete block design.

Farm advisors from the University of California Cooperative Extension also conducted yield evaluations in 1995, comparing all cotton varieties approved for the San Joaquin Valley (Keely, 1995). These trials included El Dorado and Maxxa which were evaluated in randomized complete block designs with four replications at eight locations.

Results and Discussion

A summary of combined J. G. Boswell and San Joaquin Valley Cotton Board yield data from 1992 through 1994 is shown in Table 1. Across locations, Maxxa had a significant 3.2 percent yield advantage over El Dorado. But an analysis of data from the twenty four trial locations in the western and southern San Joaquin Valley showed El Dorado to yield as well as Maxxa.

Summarized yield data from the 1994 National Standards test is shown in Table 2. Yields of El Dorado exceeded those of Maxxa at both locations.

Results of J. G. Boswell Cottonseed Breeding's 1995 Advanced Strain Tests are shown in Table 3. There were no significant differences in yield between El Dorado and Maxxa at any of the five locations, nor across locations.

In Table 4, results of the 1995 Farm Advisor's Approved Variety Trials are shown. Yields of El Dorado exceeded those of Maxxa at two locations. At a third location, El Dorado yielded only one pound per acre less than Maxxa. Across all locations, Maxxa averaged 40 pounds more lint per acre than El Dorado.

Fiber quality results are shown in Table 5. Although there was no length difference between the two varieties, El Dorado had significantly higher uniformity, strength, elongation, and micronaire than Maxxa.

Spinning properties are shown in Table 6. El Dorado produced significantly lower manufacturing waste than Maxxa. Carded 50's yarns spun from El Dorado showed significantly higher elongation, higher skein break factor,

significantly better evenness, and had fewer neps than carded 50's Maxxa yarns.

Combed 50's yarns spun from El Dorado also showed improved elongation, break factor, evenness, and had lower nep counts than combed 50's Maxxa yarns.

With their superior strength, El Dorado yarns should be ideally suited for today's wrinkle free garments.

Summary

Over four years of testing, El Dorado was found to yield as well as Maxxa in the western and southern San Joaquin Valley. Its fiber and spinning properties were superior to those of Maxxa, the current San Joaquin Valley standard cotton variety.

El Dorado planting seed will be readily available in 1996.

References

1. Bassett, D. M. 1995. San Joaquin Valley Cotton Board, 1994 Season, Acala Screening and Variety Test Results.
2. Keeley, M. 1995. Personal communication. U. C. Cooperative Extension, Shafter, CA 93263

Table 1. Combined J. G. Boswell & SJVCB Yield Data (1992 - 1994)

Locations Included	Number of Locations	Maxxa	El Dorado	% Change From Maxxa
Lemoore, Lost Hills, Corcoran, Wasco WSFS, Buttonwillow Alpaugh, Buena Vista	24	1565	1555	-0.6
Los Banos, Firebaugh Madera, Tulare	9	1571	1412	-10.1
All Locations	33	1566	1516	-3.2

* Indicates a significant LSD value at alpha = .05.

Table 2. 1994 San Joaquin Valley National Standards Test Summary¹

Entry	Shafter	WSFS	Mean
Maxxa	625	1780	1203
El Dorado	762	1865	1314

Table 3. 1995 J. G. Boswell Cottonseed Breeding Advanced Strains Tests

Entry	Lint Yield (Lbs/Acre)					
	<u>Richland</u>	<u>Homeland</u>	<u>Buena Vista</u>	<u>Lost Hills</u>	<u>Los Banos</u>	<u>Over</u> <u>Locations</u>
Maxxa	1031	903	1124	977	959	997
El Dorado	1043	920	1115	951	908	989
LSD .05	103	98	85	98	95	54

Table 4. 1995 Farm Advisor's Approved Variety Trials

	Maxxa	El Dorado
Shafter	581	643
WSFS	1142	1038
Kern	490	479
Kings	1250	1287
Tulare	1008	919
Fresno	1317	1247
Madera	700	699
Merced	1245	1101
Over Locations	967	927

Table 5. Fiber Quality Traits (J. G. Boswell Lab, 17 Locations, 1992-94)

	Maxxa	El Dorado
2.5% Span Length	1.14	1.14
Uniformity	46.9	49.0 *
Strength T1 (gms/tex)	23.2	24.2 *
Elongation	6.4	6.9 *
Micronaire	3.9	4.1 *

* Indicates a significant LSD value at alpha = .05.

Table 6. Spinning Properties (ITC Lab, 8 Locations, 1992-94)

	Maxxa	El Dorado
Manufacturing Waste (Total)	20.0	17.5 *
Single Yarn-Carded 50's-Elongation	4.51	5.05 *
Single Yarn-Combed 50's-Elongation	4.68	5.17
Skein/Evenness-Carded 50's		
Break Factor	2362	2577
Evenness	23.52	21.98 *
Neps	1588	1101
Skein/Evenness-Combed 50's		
Break Factor	2679	2848
Evenness	17.93	17.31
Neps	247	230

* Indicates a significant LSD value at alpha = .05.