

**CPCSD ACALA GLS: A GLANDLESS COTTON
VARIETY FOR THE SAN JOAQUIN VALLEY**

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Abstract

Dr. Scott McMichael found the glandless trait in the cotton variety Hopi Moencopi at the U.S.D.A. Cotton Research Station, Shafter, CA during the 1950's. The glandless trait is controlled by two recessive genes, *gl2* and *gl3*, and a plant homozygous for these two genes produces a cotton plant and seed nearly devoid of gossypol glands. Normal cotton plants and seed contain many of these gossypol-producing glands. Glandless cottonseed is low in gossypol content and provides an excellent protein source for animal and human consumption when compared to normal cottonseed.

In March, 1999 the San Joaquin Valley Cotton Board (SJVCB) approved the California Planting Cotton Seed Distributors (CPCSD) experimental cotton variety CPCSDC-166 for commercial production in the San Joaquin Valley (SJV) of California after three years of evaluation in the SJVCB testing program. CPCSD C-166 has been renamed CPCSD Acala GLS and is the first glandless cotton variety released in the SJV.

CPCSD Acala GLS combines excellent fiber quality with the low gossypol glandless trait (Table 1.). CPCSD Acala GLS often produces lint yields comparable with, or exceeding, the SJVCB Standard Acala Maxxa, while the fiber quality of Acala GLS rivals Acala Prema. Commercial production of CPCSD Acala GLS may require a different insect management strategy than used for normal glanded varieties because observations suggest that glandless cotton fields should be closely monitored for lygus insect pressure, especially mid to late-season.

CPCSD Acala GLS is full-season acala cotton variety adapted for the SJV that combines excellent fiber quality and low gossypol glandless trait with excellent yield potential.

Table 1. SJVCB Comparison of CPCSD Acala Varieties

Yield (lbs/A)	Maxxa	GLS	Prema	LSD.05
Avg. Lint Yield	1222	1137	1098	105
Mod-wilt Soils	1383	1314	1209	124
Seedcotton	3462	3315	3483	ns
Gin Turnout (%)	35.3	34.3	31.5	1.6
Fiber Quality				
HVI Length (in)	1.164	1.222	1.187	0.008
HVI Strength (T-1)	31.0	33.2	32.6	0.8
HVI Micronaire	3.94	3.86	3.74	0.07
Yarn Tenacity (22s)	145	160	159	3
Seed Traits				
Gossypol Glands	normal	glandless	normal	--
Fuzzy Seed Index	12.2	12.8	12.8	ns
Seeds/pound	4200	3880	3950	150
Plant Traits				
Boll Size (g)	6.5	6.9	7.2	1
Vert Wilt (% defol.)	67	65	65	7
Maturity (% open Oct 1)	67	65	65	ns
Height (inches)	45	47	48	ns
Lint %	42.2	40.7	39.1	1.6
Plant Mapping				
Height (inches)	43.3	46.3	45.9	1.6
Total nodes	23.1	23.9	23.7	ns
# Veg nodes	5.6	5.8	6.6	0.3
# Fruit branch	17.5	17.3	17.2	ns
95% Yield Zone	11.2	10.6	11.2	ns
% Ret FB 1-5	57	61	55	5
% Ret 95% Yield Zone	51	51	48	ns
Cottonseed Analysis				
% Moisture	8.6	8.3	8.6	ns
% Foreign Matter	0.5	0.5	0.6	ns
% Linters	11.3	9.4	9.8	0.5
% Free Fatty Acids	0.4	0.3	0.3	ns
% Oil	19.1	21.4	20.4	ns
%NH3	4.58	4.47	4.24	0.13
Seed Grade	109	120	114	5
% Gossypol	1.16	0.19	0.95	0.09