

NEW COTTON VARIETIES FROM FIBERMAX:

FM 958, FM 966

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Abstract

Aventis Crop Science will release two new FiberMax cotton varieties in 2000, FM 958, tested as IG1017 in 1998 and ACSI EXP0052 in 1999; and FM 966, tested as IG1019 in 1998 and ACSI EXP0222 in 1999. These two varieties began initial development in the CSIRO breeding program, and were selected as elite strains by ACSI, Aventis Cottonseed International, at the Leland, MS, breeding station. FM 958 and FM 966 will replace FM 963 and FM 975 in the FiberMax product line. These two varieties provide adaptability to shorter season production management combined with excellent fiber quality.

Introduction

Aventis, as AgrEvo, entered the cottonseed business in 1997 and offered five FiberMax cotton varieties in the 1998 season. Current varieties had excellent state test and commercial results in many areas of the Cotton Belt. FM 989 performs well in North Carolina, Georgia, Alabama, Missouri, California, high elevation areas of Arizona, and the Rio Grande Valley. FM 832 performs well in South Mississippi, South Texas and Louisiana. FM 819 has been a good replant option and a choice for growers who like the okra-leaf trait, but want an earlier maturing variety. All three of these varieties provide an excellent fiber quality package that allows expansion of lint marketing options.

FM 958 and FM 966 were chosen for extensive testing in 1999 to evaluate a more consistent and stable choice in the MidSouth region, Coastal Bend and mid-southeastern states that offered the same high fiber quality package as FM 989, FM 832 and FM 819. Apparent stability in these regions was identified in 1998 multi-location testing as shown in Table 1 and Table 2.

Discussion

FiberMax FM 958

FM 958 characteristics, shown in Table 3, include normal leaf, early maturity, short stature and indeterminate, compact growth habit with very large bolls. The vegetative growth rate is low and gin turnout high. Relative maturity trials conducted by AgrEvo indicate FM 958 is over 90% open at 120 days after planting, comparable to early-maturing picker

standards. FM 958 was included in 59 individual locations in the state official variety trial program and 10 locations of company testing in 1999. In state and local trials, FM 958 has performed well in Texas, Arkansas, Tennessee and North Carolina. FM 958 will have slightly earlier maturity, improved yield stability, and better fiber quality than FM 963.

FiberMax FM 966

FM 966 characteristics, shown in Table 4, include normal leaf, early-mid maturity, and determinate growth habit. FM 966 is 10% open at 105 days after planting and 90% open at 120 days after planting. In most production situations, FM 966 has a more open canopy than FM 989 and FM 958. FM 966 was included in 51 individual official state variety trial locations and 10 company locations in 1999. In state and local trials, FM 966 has performed well in Texas, Georgia, Virginia and Mississippi. FM 966 has better seed vigor, earlier maturity, improved yield stability and better fiber quality than FM 975.

Yield and Quality

Table 5 includes yield and quality data from South Texas state trials. Yield of both varieties ranked among the top three entries in the test and fiber length and strength were consistently better than the crop average in all locations. Table 6 includes yield summaries for both varieties in Mississippi Delta locations. FM 966 had the highest yield across locations in the Mississippi Delta in 1999 and the highest yield across locations in the Mississippi Hills in 1998. Tables 7, 8, 9 and 10 include 1999 yield summaries for Arkansas, Louisiana, Virginia, and North Carolina respectively. These conventional cotton varieties exhibit excellent adaptation to early season picker management.

Tables 11 and 12 include fiber characteristics of FM 958 and FM 966 in Georgia and North Carolina. Both of these regions had difficult growing seasons with drought contributing to lower staple in Georgia and hurricanes at the end of the season in North Carolina. Strength was more than 30 grams/tex in each location and staple, while reduced in Georgia over North Carolina, remained in the premium range.

Summary

FiberMax FM 958 and FM 966 are new early maturing, high quality cotton varieties being introduced by Aventis in 2000. They are complementary in adaptation to current FiberMax varieties, FM 989 and FM 832, which are mid-full season varieties suitable for some regions of the southeast, south Texas, Louisiana and the west. FM 958 and FM 966 have suitable characteristics for other regions of the southeast, Mississippi Delta and Texas southwest. There will be limited seed availability for FM 958 and FM 966 in 2000.

Table 1. FM 958 state OVT results, 1998.

State	Loca- tions	Rank	Yield			Fiber Quality				Unifo- rity ratio
			Performance			Length inches	Strength g/tex	Mic units	%	
			Entries	lbs/ acre	lbs/ acre					
Alabama	2	7	31	936	875	107	1.15	32	4.8	87
Arkansas	2	2	20	1106	959	115	1.18	29	4.6	82
Georgia	1	1	22	1267	1100	115	1.16	30	4.4	85
S. Carolina	2	2	25	659	552	119	1.12	33	5.4	83
Tennessee	1	1	32	1391	1018	137	1.19	33	4	83
Texas	3	1	23	525	490	107	1.13	32	4.8	83
Virginia	3	25	44	1135	1144	99	1.13	32	4.8	83
Total	14		Mean	1003	877	114	1.15	32	4.7	84

Table 2. FM 966 state OVT results, 1998.

State	Loca- tions	Rank	Yield			Fiber Quality				Unifo- rity ratio
			Performance			Length inches	Strength g/tex	Mic units	%	
			Entries	lbs/ acre	lbs/ acre					
Alabama	2	1	31	1022	875	117	1.15	36	4.8	84
Arkansas	2	6	20	1043	959	109	1.18	30	4.5	83
Georgia	1	1	21	1143	995	115	1.16	32	4.5	82
MS Delta	4	7	24	1131	1038	109	1.16	30	4.6	85
MS Hills	6	1	22	1020	840	121	1.16	32	4.4	84
Georgia S.	1	1	22	1295	1137	114	1.12	29	4.3	83
Carolina	2	9	34	575	551	104	1.12	34	4.3	83
Tennessee	1	2	24	1238	1017	122	1.16	34	3.7	83
Virginia	3	44	44	990	1144	87	1.10	33	4.5	84
Total	22		Mean	1051	951	111	1.15	32	4.4	83

Table 3. FM 958 descriptive characteristics.

FiberMax 958				
Planting Information, @ 3.5 Plants/Foot, 90% Germination				
Seed/Lb	4580			
Row Spacing	30"	36"	38"	40"
Lbs/Acre	15	12	12	11
Plants/Acre	60,984	50,820	48,146	45,738
Acres/Bag	3.4	4.1	4.3	4.6
Descriptive Variety Traits				
Leaf Shape	Normal			
Leaf Hair	Semi-Smooth			
Maturity	Early			
Boll Size	Very Large			
Internode Length	Short			
Height	Short			
Growth Habit	Compact, Indeterminate			
Agronomic Characteristics				
Vegetative Growth Rate	Low			
PIX Response	Less Required			
Water Use Efficiency	Good			
Verticillium	Good Tolerance			
Bacterial Blight	Highly Resistant			
Fusarium	Slight Tolerance			
Gin Turnout	High			
Expected Fiber Quality Range				
Length	1.15-1.19			
Strength	28-32			
Micronaire	4.4-4.8			

Table 4. FM 966 descriptive characteristics.

FiberMax 966				
Planting Information, @ 3.5 Plants/Foot, 90% Germination				
Seed/Lb	4150			
Row Spacing	30"	36"	38"	40"
Lbs/Acre	16	13	13	12
Plants/Acre	60,984	50,820	48,146	45,738
Acres/Bag	3.1	3.7	3.9	4.1
Descriptive Variety Traits				
Leaf Shape	Normal			
Leaf Hair	Smooth			
Maturity	Early-Medium			
Boll Size	Medium			
Internode Length	Medium-Short			
Height	Medium			
Growth Habit	Determinate			
Agronomic Characteristics				
Vegetative Growth Rate	Medium-High			
PIX Response	Good Response			
Water Use Efficiency	Good			
Verticillium	Good Tolerance			
Bacterial Blight	Highly Resistant			
Fusarium	Slight Tolerance			
Gin Turnout	High			
Expected Fiber Quality Range				
Length	1.14-1.18			
Strength	30-34			
Micronaire	4.4-4.8			

Table 5. Agronomic and fiber quality of FM 958 and FM 966, TX, 1999

Entry	Rank	Lint		Fiber Properties			
		Yield (lbs/acre)	Gin Turnout (%)	Micronaire (units)	Length (inches)	Strength (g/tex)	Uniformity (ratio)
Corpus Christi							
FM 958	2	1167	39.1	4.6	1.14	29.6	83
FM 966	3	1156	38.8	4.4	1.16	32.0	84
	Test Mean	1010	37.9	4.5	1.09	27.3	84
College Station							
FM 958	2	1786	36.8	4.4	1.19	30.5	83
FM 966	1	1963	37.4	4.4	1.20	30.3	85
	Test Mean	1484	36.2	4.5	1.12	26.8	83
Thrall							
FM 958	2	1091	38.9	3.8	1.15	30.2	83
FM 966	1	1127	39.7	4.0	1.12	31.5	83
	Test Mean	806	36.2	3.7	1.10	29.0	83
Weslaco							
FM 958	1	1371	37.1				
FM 966	2	1313	38.9				
	Test Mean	1116	37.5				

Table 6. Yield summary of FM 958 and FM 966, MS Delta, 1999

Location	FiberMax FM 958			FiberMax FM 966		
	Yield	Test Mean	% Mean	Yield	Test Mean	% Mean
Stoneville	1364	1202	113	1296	1142	113
Tunica	873	828	105	856	768	111
Clarksdale	1877	1692	111	1792	1330	135
Rolling Fork	1263	1354	93	1242	1290	96
Tribbett	555	515	108	807	695	116
Choctaw	1622	1239	131	1679	1332	126

Table 7. Yield summary of FM 958 and FM 966, Arkansas, 1999

Location	FiberMax FM 958			FiberMax FM 966		
	Yield	Test Mean	% Mean	Yield	Test Mean	% Mean
Keiser (irr)	1314	1207	109	1247	1207	103
Clarkedale (irr)	1338	1098	122	1286	1098	117
Clarkedale (dry)	527	505	104	584	505	116
Marianna (irr)	1315	1222	108	1292	1222	106
Marianna (dry)	710	658	108	734	658	112
Rohwer	1370	1312	104	1350	1312	103

Table 8. Yield summary of FM 958 and FM 966, Louisiana, 1999

Location	FiberMax FM 958			FiberMax FM 966		
	Yield	Test Mean	% Mean	Yield	Test Mean	% Mean
Alexandria	1412	1328	106	1694	1371	124
Bossier City	1013	971	104	958	883	108
St. Joseph Loam	1300	1373	95	1283	1286	100
St. Joseph Clay	1547	1355	114	1132	1092	104
Winnsboro (irr)	1848	1755	105	1837	1780	103
Winnsboro (dry)	383	493	78	414	482	86

Table 9. Yield summary of FM 958 and FM 966, Virginia, 1999

Location	FiberMax FM 958			FiberMax FM 966		
	Yield	Test Mean	% Mean	Yield	Test Mean	% Mean
Eastern Shore	994	914	109	1080	914	118
Southern Piedmont	966	894	108	1082	894	121
Tidewater	1021	905	113	1168	905	129

Table 10. Yield summary of FM 958 and FM 966, North Carolina, 1999

Location	FiberMax FM 958			FiberMax FM 966		
	Yield	Test Mean	% Mean	Yield	Test Mean	% Mean
Bertie	1201	881	136	920	862	107
Edgecombe	872	649	134	832	702	119

Table 11. Fiber quality summary of FM 958 and FM 966, Georgia, 1999

	FiberMax FM 958				FiberMax FM 966			
	Length	Unifor- mity	Strength	Mic	Length	Unifor- mity	Strength	Mic
Athens	1.11	82	31	5.4				
Midville	1.14	84	34	4.8	1.13	84	34	4.4
Plains	1.12	84	31	4.4	1.13	83	33	4.7
Tifton	1.15	85	32	4.5	1.13	84	32	4.6
Mean	1.13	83.8	32.0	4.78	1.13	83.7	33.0	4.57

Table 12. Fiber quality summary of FM 958 and FM 966, NC, 1999

	FiberMax FM 958				FiberMax FM 966			
	Length	Unifor- mity	Strength	Mic	Length	Unifor- mity	Strength	Mic
Bertie	1.19	85	36	4.0	1.16	86	36	4.7
Edgecombe	1.16	85	35	4.4	1.13	86	36	4.7
Mean	1.175	85	35.5	4.2	1.145	86	36	4.7