

PHYTOGEN GA161 AND HS12: NEW HIGH-YIELDING, EXCELLENT QUALITY, MID-FULL SEASON COTTON VARIETIES

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Abstract

Phytogen Seed Company, LLC is introducing two new conventional varieties adapted to the full season picker cotton areas of the southeast United States. PhytoGen GA161 and HS12 are mid-full season smooth leaf varieties with superior lint quality. These high-yielding varieties are our first offering and they have different genetic backgrounds. These varieties give alternatives to Southeastern growers.

PhytoGen HS12

J & S Research Company, Inc. in Arizona developed HS12. It was derived from the cross HS10 and Deltapine Acala 90 and was also tested as JSX-12. HS12 is a smooth leaf, conventional cotton variety. The height of HS12 is similar to DP Acala 90 and DP 675. We consider HS12 a mid-full season variety. It has generally performed better in full season locations in the Southeast. J & S Research has shown that it can mature earlier in AZ and is heat tolerant.

PhytoGen HS12 has performed well in University tests. Agrobases Head-to-Head procedure from Agronomix Software, Inc, Winnipeg, Canada was used to compare HS12 using the data from southeastern University tests (Auburn University, University of Georgia, North Carolina State University, and Clemson University) for 1998 and 1999 (The 1999 data should be considered preliminary). The percentage of yield compared to HS12 was used to standardize the yields in the comparisons. The yield report compared commercial entrants to HS12 when at least 9 of the 20 possible yield tests were in common. The lint yield of HS12 was not significantly different than the best conventional variety. It ranked fourth with two *Bt* cotton varieties significantly better, ranking 1 and 2 (Table 1).

PhytoGen HS12 has excellent lint quality. Agrobases Head-to-Head procedure was used to compare HS12 using the same data set described above (Any 1999 data is considered preliminary and not complete). The percentage of the lint quality values compared to HS12 was used to standardize the values in the comparisons. This report compares the commercial conventional entrants from the list of varieties in Table 1 to HS12 when at least 5 of the 11 possible yield tests

were in common. Micronaire average was 4.59 (Table 2). HS12 would be less likely than half of the reported varieties to have micronaire discounts in a given field during any given year. Staple length was calculated from UHM. The average staple length of HS12 was 35.52 (Table 3). The varieties with shortest length would have a significantly greater likelihood of being in the discount range. Lint strength for HS12 was 30.26 (Table 4). All of the varieties in the comparisons have good strength above any discount.

PhytoGen HS12 is an excellent yielding, heat tolerant variety, particularly adapted to southern GA and AL. It is smooth leaf crop with mid-full season maturity. It produces very good quality lint. It is part of Phytogen Seed Company's initial varietal offering.

PhytoGen GA161

PhytoGen GA161 was developed by Shelby Baker at the Coastal Plain Experiment Station in Tifton, GA from a polycross of (81-29 x Coker 315) x (GA 79-13 x DP90) x Aub 244 x M-725 x PD 6208. It was tested also as GA 92-161. GA161 is a smooth leaf, conventional cotton variety. The height is similar to DP Acala 90 and DP 675. Managing the crop to set bolls low can allow the crop to mature earlier as a mid season variety. If the crop sets the early bolls higher due to management situations, GA161 will mature as a full season variety.

PhytoGen GA161 has performed solidly in University tests. Agrobases Head-to-Head procedure was used to compare GA161 using the same previous data set (The 1999 data should be considered preliminary). The percentage of yield compared to HS12 was used to standardize the yields in the comparisons. The yield report compared commercial entrants to GA161 when at least 9 of the 20 possible yield tests were in common. The lint yield of GA161 was not significantly different than HS12 (Table 1).

PhytoGen GA161 has very excellent lint quality. Agrobases Head-to-Head procedure was used to compare GA161 using the same previous data set (Any 1999 data is considered preliminary and not complete). The percentage of the lint quality values compared to HS12 was used to standardize the values in the comparisons. This lint quality report compares the commercial conventional entrants from the list of varieties in Table 1 when at least 5 of the 11 possible yield tests were in common. Micronaire average for GA161 was 4.32 (Table 2). GA161 would be very unlikely to have a high micronaire discount in a given field during any given year. Staple length was calculated from UHM. The average staple length of GA161 was 36.55 (Table 3). Lint strength for GA161 was 31.65 (Table 4). Only one variety in these comparisons matches or surpasses the overall quality using these three critical lint quality measures but GA161 yields better.

PhytoGen GA161 is a very good yielding variety, adapted to the SE. It is a smooth leaf variety with mid-full season maturity. With its lower micronaire, high staple, & high strength, PhytoGen GA161 has excellent lint quality. It is part of PhytoGen Seed Company's initial varietal offering.

Table 1. Lint yield performance of 22 varieties using data from southeastern University tests (Auburn University, University of Georgia, North Carolina State University, and Clemson University) for 1998 and 1999 (The 1999 data should be considered preliminary) with Agrobases 99 Head-to-Head procedure from Agronomix Software, Inc, Winnipeg, Canada using PhytoGen HS12 for the control. Procedure uses paired t test analysis.

Variety	# of trials in common	% of control	Standardized lint yield mean	Signif.
DP 448 B	12	109.4	938	***
DP 35 B	15	105.1	902	0
DP 675	17	101.6	872	ns
PSC HS12	20	100.0	858	control
SG 248	12	100.0	858	ns
SG 821	15	99.7	855	ns
DP 655 B/R	15	99.5	854	ns
DP 33 B	20	99.2	851	ns
DP 5690	9	99.2	851	ns
FM 989	18	98.9	848	ns
AP 6101	9	98.3	843	ns
PSC GA161	17	97.8	839	ns
PM 1560 B	17	97.2	834	ns
DP 458 B/R	18	97.1	833	ns
DP 5415	9	96.3	826	ns
AP HS44	12	96.2	825	ns
DP 5415 R	18	96.0	823	-
PM 1560 B/R	12	95.4	818	ns
AP HS46	17	94.6	811	--
DP 90	9	94.6	811	ns
DP 5690 R	15	93.8	805	--
FM 832	15	93.5	803	-

Signif. reported as (ns) = no significant difference, (*) = significantly better, (-) = significantly worse, (***) or (---) = prob. <=1%, (** or --) = prob. >1% and <=5%, (* or -) = prob. > 5% and <= 10%

Table 2. Micronaire of 11 conventional varieties using data from southeastern University tests (Auburn University, University of Georgia, North Carolina State University, and Clemson University) for 1998 and 1999 (The 1999 data should be considered preliminary) with Agrobases 99 Head-to-Head procedure from Agronomix Software, Inc, Winnipeg, Canada using PhytoGen HS12 for the control. Procedure uses paired t test analysis.

Variety	# of trials in common	% of control	Standardized mic means	Signif.
AP HS44	5	106.1	4.87	ns
DP 90	5	105.7	4.85	ns
SG 248	8	105.2	4.83	ns
DP 5690	6	102.5	4.70	ns
DP 675	10	100.7	4.62	ns
PSC HS12	11	100.0	4.59	control
SG 821	8	98.4	4.52	ns
AP HS46	11	96.8	4.44	ns
FM 989	11	95.8	4.40	ns
PSC GA161	7	94.2	4.32	ns
FM 832	11	91.9	4.22	--

Signif. reported as (ns) = no significant difference, (*) = significantly better, (-) = significantly worse, (***) or (---) = prob. <=1%, (** or --) = prob. >1% and <=5%, (* or -) = prob. > 5% and <= 10%

Table 3. Staple length of 11 conventional varieties using data from southeastern University tests (Auburn University, University of Georgia, North Carolina State University, and Clemson University) for 1998 and 1999 (The 1999 data should be considered preliminary) with Agrobases 99 Head-to-Head procedure from Agronomix Software, Inc, Winnipeg, Canada using PhytoGen HS12 for the control. Procedure uses paired t test analysis.

Variety	# of trials in common	% of control	Standardized length means	Signif.
DP 5690	6	97.7	34.7	-
AP HS46	11	98.4	35.0	--
DP 90	5	98.7	35.1	ns
DP 675	10	98.9	35.1	ns
AP HS44	5	99.4	35.3	ns
SG 821	8	99.4	35.3	ns
PSC HS12	11	100.0	35.5	control
FM 989	11	100.2	35.6	ns
SG 248	8	102.5	36.4	***
PSC GA161	7	102.9	36.6	***
FM 832	11	105.3	37.4	***

Signif. reported as (ns) = no significant difference, (*) = significantly better, (-) = significantly worse, (***) or (---) = prob. <=1%, (** or --) = prob. >1% and <=5%, (* or -) = prob. > 5% and <= 10%

Table 4. Lint strength of 11 conventional varieties using data from southeastern University tests (Auburn University, University of Georgia, North Carolina State University, and Clemson University) for 1998 and 1999 (The 1999 data should be considered preliminary) with Agrobases 99 Head-to-Head procedure from Agronomix Software, Inc, Winnipeg, Canada using PhytoGen HS12 for the control. Procedure uses paired t test analysis.

Variety	# of trials in common	% of control	Standardized strength means	Signif.
SG 821	8	96.2	29.1	ns
AP HS44	5	99.3	30.1	ns
PSC HS12	11	100.0	30.3	control
SG 248	8	100.6	30.4	ns
AP HS46	11	101.8	30.8	ns
DP 5690	6	103.3	31.3	ns
PSC GA161	7	104.6	31.7	ns
FM 989	11	104.7	31.7	**
DP 90	5	107.5	32.5	ns
FM 832	11	107.5	32.5	***
DP 675	10	109.5	33.1	***

Signif. reported as (ns) = no significant difference, (*) = significantly better, (-) = significantly worse, (***) or (---) = prob. <=1%, (** or --) = prob. >1% and <=5%, (* or -) = prob. > 5% and <= 10%