

From: [Bill Rooney](#)
To: ["Steve Hague"](#)
Cc: ["David Baltensperger"](#)
Subject: FW: FW: SIU 98 and 162
Date: Saturday, August 29, 2009 11:09:00 AM
Attachments: [PRC Reviews TAMU SIUP Cotton - Combined.pdf](#)
[Registration of TAM SIUP 98 and TAM SIUP 162 .doc](#)
[TAM SIUP 98 and TAM SIUP 162.Release Proposal Coversheet.doc](#)

Steve:

I was asked to review your P and T mid-term package, and in the package I noted that you had a JPR manuscript accepted on the registration of SIU 98 and 162.

I'm glad to see that you are efforting to get these registered quickly, but we do have one small problem. The lines have not been officially released by TAMU or Texas Agrilife. If you recall, the release proposal was tentatively recommended, pending a few modifications in the release document.

I'm forwarding the message that was originally sent a year ago, and then I resent it in January. If you've sent me something regarding the revision, please accept my apologies and resend it, because I have not received. Once I get that, I can confirm the changes and forward the recommendation to release to Dr. McCutchen.

Thanks,

bill

Dr. William L. Rooney
Professor, Sorghum Breeding and Genetics
Chair, Plant Release Committee
Texas A&M University
College Station, Texas 77843-2474
979 845 2151

-----Original Message-----

From: Bill Rooney [mailto:wlr@tamu.edu]
Sent: Monday, January 19, 2009 10:07 AM
To: 'Hague Steve'
Subject: FW:

[Hey, Steve:](#)

[I'm following up on PRC information and I don't recall ever getting any revisions back on this particular release. If you sent them before, please send them again. If you haven't, please let me know if you plan to revise and push through to release. I'd like to get this off of my pending list into a finished category.](#)

[regards,](#)

[bill](#)

Dr. William L. Rooney
Professor, Sorghum Breeding and Genetics
Chair, Plant Release Committee

Texas A&M University
College Station, Texas 77843-2474
979 845 2151

-----Original Message-----

From: Bill Rooney [mailto:wlr@tamu.edu]
Sent: Monday, August 25, 2008 11:50 AM
To: 'shague@tamu.edu'
Subject:

Steve:

The PRC met on August 14, 2008 and considered your proposal for the release of SIUP cotton germplasm. The committee recommended release pending some minor editing.

Some recommendations were mentioned in the external reviews (attached). Please address those in your revision. In addition, I would prefer that we not include the appendix in the final proposal. Finally, on the coversheet, it indicates that the material is freely available while in the back of the document it indicates that it is available through MTA. So please clarify the policy so that it is consistent.

regards,

bill

Dr. William L. Rooney
Professor, Sorghum Breeding and Genetics
Chair, Plant Release Committee
Texas A&M University
College Station, Texas 77843-2474
979 845 2151

PLANT RELEASE
TECHNICAL REVIEW FORM

Date: August 8, 2008

Reviewer: A

Proposed Release: TAMU SIUP Lines

Developer(s): Hague et al.

1. Comments concerning the release proposal and supporting documents (completeness, background, breeding history, technical adequacy, and readability).

Need to separate performance results from Methods section. More detail on methods of field evaluation of the lines is needed, e.g. soil type (since only one location), how replicated, irrigated, etc.

Other comments on manuscript.

2. Comments on performance, merits, genetic advancement and adaptation (adequacy of evaluation and testing, subjected to appropriate stresses and pests, and limitations, if any).

Combining G. barb fiber quality genes into G. hir background is a good achievement and certainly worthy of release of the material. For a release primarily based on fiber properties, the testing is adequate. However, additional comments regarding data or observations on the degree of other G. barb traits shown by the lines would be helpful.

3. If appropriate, your comments based on your observations of the material in field trials.

I have not observed this material in field trials.

4. Other comments:

5. Recommendation (yes or no):

a. Technically Adequate for Release? *yes*

b. Additional Information Necessary? *no*

c. Major revision Necessary? *no*

d. Is the class of Release Appropriate? *yes*

PLANT RELEASE
TECHNICAL REVIEW FORM

Date: August 8, 2008

Reviewer: B

Proposed Release: TAMU SIUP Lines

Developer(s): Hague et al.

1. Comments concerning the release proposal and supporting documents (completeness, background, breeding history, technical adequacy, and readability).

This germplasm release will be of significant benefit to both commercial and public cotton breeders world wide. The release statement is well written and supported by solid statistical analyses.

2. Comments on performance, merits, genetic advancement and adaptation (adequacy of evaluation and testing, subjected to appropriate stresses and pests, and limitations, if any).

Evaluation was adequate for a germplasm release with trials for three years at one location.

3. If appropriate, your comments based on your observations of the material in field trials.

N/A

4. Other comments:

Good to contribution to both science and business of cotton production. It would have been interesting to see AFIS Data on these lines.

5. Recommendation (yes or no):
 - a. Technically Adequate for Release? ***Yes***
 - b. Additional Information Necessary? ***No***
 - c. Major revision Necessary? ***No***
 - d. Is the class of Release Appropriate? ***Yes***

Registration of TAM SIUP 98 and TAM SIUP 162 Germplasm Lines of Cotton

S. Hague*, C.W. Smith, G. Berger, P.S. Thaxton, and D. Jones

S. Hague, C.W. Smith, and G. Berger, Dept. of Soil and Crop Sciences, Texas A&M Univ., 370 Olsen Blvd., College Station, TX 77843; P.S. Thaxton, Delta Research and Extension Center, Mississippi State Univ., 82 Stoneville Rd., Stoneville, MS 38776; D. Jones, Cotton Incorporated, 6399 Weston Pkwy., Cary, N.C. 27513. Supported by Texas AgriLife Research and Cotton Incorporated. Published in the Journal of Plant Registrations _____. *Corresponding author (shague@tamu.edu)

Abbreviations: HVI, high volume instrumentation, UHM, upper half mean; UI, uniformity of fiber length, SIUP, sea island/upland.

Abstract

TAM SIUP 98 and TAM SIUP 162 are sea island (*Gossypium barbadense* L.)/ upland (*G. hirsutum* L.) (SIUP) germplasm lines developed by the Cotton Improvement Laboratory, Department of Soil and Crop Sciences and released in 2008 by Texas AgriLife Research. These interspecific inbred lines were the result of hybridization of improved upland germplasm and a sea island breeding line, NMSI 1331. TAM SIUP 98 and TAM SIUP 162 demonstrated fiber traits that exceeded commercial cultivars as measured by high volume instrumentation (HVI). Lint yields were lower than commercial cultivars, but plant morphology and fruiting habit were typical of upland cotton.

Limited genetic diversity has been cited as a major concern for cotton breeders (Bowman et al., 1996). Release of sea island/upland material attempts to address that concern. TAM SIUP 98 and TAM SIUP 162 are interspecific inbred germplasm lines derived from

hybridization of improved upland cotton and a sea island breeding line. These SIUP lines were developed by the Cotton Improvement Laboratory, Department of Soil and Crop Sciences, Texas AgriLife Research (Texas A&M University, College Station). TAM SIUP 98 and TAM SIUP 162 have fiber properties exceeding the values of most commercial upland cultivars and therefore released as germplasm in 2008. Fiber improvement was the result of unique interspecific allelic combinations that are genetically stable in an advanced generation state. TAM SIUP 98 and TAM SIUP 162 offer breeders novel germplasm sources for fiber and plant morphology improvement.

G. hirsutum and *G. barbadense* hybrid F₁ progeny have been documented to have greater lint yield production, fiber quality, abiotic stress tolerance, and disease resistance than mid-parent values (Davis, 1979; Galanopoulou-Sendouca et al., 1999; Palomo and Davis, 1984; Saranga et al., 2001; Weaver et al., 1984). In advanced generations of *G. hirsutum* x *G. barbadense* hybrids, genetic breakdown can occur and becomes a barrier to integrating favorable alleles from both species into a single genetically-stable inbred line (Percival et al., 1999; Stephens, 1949). Despite the difficulty of integrating the two species in advanced generations, introgression has been successful on a limited basis (Percy et al., 2006).

Methods

TAM SIUP 98 was the result of hybridization of 97 M-16, an unreleased upland-type breeding line, and NMSI 1331 (Roberts et al., 1997). TAM SIUP 162 resulted from the hybridization of NMSI 1331 and 94L-2, which is a sister-line of the released germplasm line, TAM 94L-25 (PI 631440) (Smith, 2003). All plant selections, progeny row evaluations, and strain performance trials were conducted at College Station, TX. TAM SIUP 98 and TAM SIUP 162 were derived from single plants selected from F₃ populations. Progeny rows were evaluated in 2003 and lines were advanced into performance trials based on visual appearance and HVI fiber data. Performance trials of the advanced SIUP lines were conducted in 2004, 2005, and 2007 with ‘Deltapine 491’ (PI 618609) (DPL 491) and ‘FiberMax 832’ (PI 603955) (FM 832) as commercial cultivar checks.

During the three years of performance trials in College Station, TX, there was a significant genotype x year interaction ($p \leq 0.05$) (Table 1). Lint yield is presented as means across years despite this interaction because differential response of lint yield mostly occurred in lower yielding genotypes. Furthermore, lint yield was not the primary criteria for advancement and subsequent justification for release of TAM SIUP 98 and TAM SIUP 162. Significant year x genotype interaction ($p \leq 0.05$) also existed for fiber micronaire, length (UHM), and strength.

TAM SIUP 98 had significantly less lint yield and lower lint fraction than DPL 491 or FM 832 (Table 2). Conversely, TAM SIUP 98 had superior fiber quality compared with these two cultivars as indicated by significantly lower micronaire, higher length

uniformity index, and greater elongation. TAM SIUP 98 exhibited significantly longer UHM than DPL 491 in all years and significantly longer UHM than FM 832 in 2005 and 2007 (Table 3). Often fiber strength and elongation are inversely related (Benzina et al. 2007; May and Taylor, 1998). One of the most unique fiber features of TAM SIUP 98 is production of fibers that combine higher ($p=0.05$) elongation, 5.0%, with improved (0.05) fiber tenacity. TAM SIUP 98 exhibited this unique combination of elongation and strength across all years plus lower micronaire, higher length uniformity, and longer UHM than either control cultivar except that UHM of TAM SIUP 98 was not different ($p=0.05$) than FM 832 in 2004.

TAM SIUP 162 also had significantly less lint yield than DPL 491 or FM 832 (Table 2). In comparison with both commercial cultivars, TAM SIUP 162 fiber had significantly lower micronaire, higher length uniformity index, but less elongation in all years. Fiber length and strength were equivalent or superior in all years versus DPL 491 and FM 832 (Table 3).

Characteristics

TAM SIUP 98 and TAM SIUP 162 are morphologically similar to most upland cotton cultivars. They have normal leaf shapes and fruiting habits. TAM SIUP 98 is approximately seven days later maturing, taller, and less shatter resistant than either FM

832 and DPL 491. The plant type is slightly bushy which is similar to FM 832. TAM SIUP 162 resembles FM 832 in terms of maturity and shattering resistance and also has a slightly bushy plant form. TAM SIUP 162 typically is shorter in stature than DPL 491 and FM 832. Because of the unique pedigree, other valuable alleles may exist for breeders to exploit.

Texas AgriLife Research warrants this germplasm was developed using non-transgenic breeding methods. No cross pollinations intentionally were made with transgenic plants for herbicide tolerance, insect resistance, or any other known transgene.

Availability

TAM SIUP 98 and TAM SIUP 162 are experimental in nature, seeds and all plant parts are not for human consumption, and seed is provided for additional research on an as-is basis without additional warranties or representation of any sort, expressed or implied. Inquires regarding availability of seed for research purposes should be directed to Steve Hague, Department of Soil and Crop Sciences, 370 Olsen Blvd., Texas A&M University, College Station, TX 77843-2474 (shague@ag.tamu.edu). Inquiries regarding commercial use should be directed to the Office of Technology Commercialization, 3369 TAMU, College Station, TX 77845 (1-979-847-8628).

Table 1. Mean squares for lint yield, lint fraction, and fiber properties of sea island x upland (SIUP) hybrids compared with ‘FM 832’ and ‘DPL 491’ at College Station, TX, in 2004, 2005, and 2007.

Source	Lint yield	Lint Fraction	Mic [†]	UHM [†]	Str [†]	UI [†]	Elong [†]
Year	21,631 ^{**}	8.92 [*]	2.16 ^{**}	4.60 ^{**}	2,651	36.86 ^{**}	16.38 ^{**}
Error A	889	1.71	0.47	0.47	569	0.35	0.20
Genotype	3,926 [*]	41.39 [*]	0.20 [*]	4.73 ^{**}	1,857 ^{**}	4.47 ^{**}	1.58 ^{**}
Genotype x Year	437 [*]	4.23	0.13 ^{**}	0.55 [*]	234 [*]	1.33	0.11
Error B	247	2.23	0.79	0.28	105	0.78	0.07

*significant at $p < 0.05$.

** significant at $p < 0.01$.

† Mic, micronaire; UHM, upper half mean; Str, fiber bundle strength; UI, uniformity of fiber length; Elong, elongation at break.

Table 2. Lint yield and fraction, fiber micronaire, uniformity index and elongation of cotton germplasm TAM SIUP 98 and TAM SIUP 162 compared to ‘FM 832’ and ‘DPL 491’ at College Station, TX, in 2004, 2005, and 2007.

Genotype	Lint yield kg ha ⁻¹	Lint fraction %	Mic [†] units	UI [†] ratio	Elong [†] %
DPL 491	1335a [‡]	41.8a	4.8a	81.7d	4.3b
FM 832	1106b	37.2b	4.4a	82.9c	4.3b
TAM SIUP 162	955c	36.0bc	4.0b	83.3b	3.6c
TAM SIUP 98	618d	32.8d	4.0b	84.6a	5.0a
% CV	16.3	4.2	4.3	1.1	6.8

† Mic, micronaire; UI, uniformity of fiber length; Elong, elongation at break.

‡ Values within columns followed by different letters are different at approximately $p = 0.05$ (k=100).

Table 3. Mean, by year, of fiber length and strength of cotton germplasm TAM SIUP 98 and TAM SIUP 162 compared to ‘FM 832’ and ‘DPL 491’ at College Station, TX.

Genotype	UHM [†]			Str [†]		
	2004	2005	2007	2004	2005	2007
		-mm-			-kN m kg ⁻¹ -	
DPL 491	29.55c [‡]	27.80c	29.47c	303.1b	278.0c	291.8c
FM 832	30.30bc	28.40c	30.23bc	313.3b	301.1b	310.1b

TAM SIUP 162	32.20a	30.15b	30.61ab	307.0b	307.0b	320.6b
TAM SIUP 98	31.70ab	30.90a	31.24a	379.6a	333.0a	349.3a
% CV	2.3	1.4	1.2	1.4	2.5	3.3

† UHM, upper half mean; Str, fiber bundle strength;

‡ Values within columns followed by different letters are different at approximately $p=0.05$ (k=100).

References

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Plant Materials Release Proposal Coversheet

Date: 20 May 2008

Crop: Cotton, *Gossypium hirsutum*/*Gossypium barbadense*

Type of Release: Variety

Germplasm

Genetic Stock

Parental Lines

2. Proposed Name(s) or Identification(s):

TAM SIUP 98

TAM SIUP 162

3. Designation or Name in developmental Stages:

03 ISH F-98

03 ISH E-162

4. Primary features or advantages:

Improved fiber length, micronaire, elongation, and tenacity from an interspecific allelic source

5. Plant Variety Protection: No

6. Seed available and date: immediately

7. Proposed Seed Distribution: _____ TFSS

___X___ Breeder

_____ Exclusive to:

_____ Other:

8. Acquisition Costs: ___none___ Royalty (no details needed)

___none___ Acquisition Fees (no details)

9. Commercialization Anticipated: NO

10. Other Provisions or Considerations:

Corresponding Breeder: Steve Hague

Unit Head: David Baltensperger

Original signed by Steve Hague

Original signed by D. Baltensperger