

## NOTICE OF RELEASE OF 'TAMCOT SPHINX' COTTON

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Tamcot Sphinx' cotton (*Gossypium hirsutum* L.) was developed in the Texas Multi-Adversity Resistance (MAR) Genetic Improvement Program and released in 1995 by the Texas Agricultural Experiment Station. The MAR program uses techniques and selection procedures for the simultaneous genetic improvement of resistance to pests (insects and plant pathogens) and abiotic stresses, in addition to improving yield, earliness, and fiber and seed quality (2,4).

Tamcot Sphinx was developed from a cross between the strain MAR-CDP37HPIH-1-1-86 and a selection from 'Paymaster 145'. Individual F<sub>3</sub> plants were selected using the MAR procedure and an F<sub>4</sub> progeny row therefrom was given the strain designation MAR-CD3PIHP45H-2-89.

Based on seedling disease evaluations and field stand counts, Tamcot Sphinx shows higher stand ability and seedling vigor than earlier Tamcot variety releases. Tamcot Sphinx has the B<sub>2</sub>B<sub>3</sub>B<sub>7</sub> major genes that confer high levels of resistance to the 19 designated U.S. races of the bacterial blight pathogen [*Xanthomonas campestris* pv. *malvacearum* (Smith) Dye].

Tamcot Sphinx has higher levels of resistance to reniform nematode (*Rotylenchus reniformis* Linford & Oliveira) than 'Tamcot CAB-CS' (3) and 'Tamcot HQ95' (5). It has the same levels of resistance as Tamcot HQ95 to root pathogens causing verticillium wilt (*Verticillium dahliae* Kleb.), fusarium wilt—root-knot nematode complex [*Fusarium oxysporum* Schlecht. f. sp. *vasinfectum* (Atk.) W.C. Snyder & H.N. Hans.—*Meloidogyne incognita* (Kofoid & White) Chitwood], phymatotrichum root rot [*Phymatotrichum omnivorum* (Shear) Dug.], and leaf spots (caused by *Alternaria*, *Cercospora*, and other spp.).

Tamcot Sphinx has higher levels of resistance than 'Tamcot CAMD-E' (1) to thrips (*Thrips* spp. and *Frankliniella* spp.), fleahopper [*Pseudatomoscelis seriatus* (Reuter)], boll weevil (*Anthonomus grandis* Boheman), tobacco budworm [*Heliothis virescens* (F.)] and bollworm [*Helicoverpa zea* (Boddie)], and the same levels of resistance to those insects as Tamcot HQ95.

Tamcot Sphinx is a glanded, normal leaf, normal bract, nectaried cotton, and is as hirsute as Tamcot HQ95. It has

a cylindrical growth habit, flowers with cream pollen color, and storm-resistant bolls. Plants of Tamcot Sphinx average 1.6 inches taller and are less determinate than Tamcot HQ95.

Lint yield, earliness, boll size, gin turnout, and lint percentage results (Table 1), and fiber quality characteristics (Table 2) of Tamcot Sphinx and commercial varieties are based on data collected from testes conducted over three years, 1991-1993, at 10 locations throughout Texas. The test locations were Weslaco, Corpus Christi, College Station, Brazos Valley, Temple, McGregor Hillsboro, Munday Chillicothe, and Halfway. A major improvement in Tamcot Sphinx is that it produces significantly higher fiber quality and increased yield potential compared with previously released Tamcot varieties.

Averaged over locations and years, Tamcot Sphinx produced significantly more lint yield than the other varieties, except Tamcot HQ95 (Table 1). It is as early in fruit set and maturity as Tamcot CAB-CS and significantly earlier than Deltapine 50. Tamcot Sphinx's fiber is 2.3 g/tex stronger and 0.8 micronaire units higher than the fiber of Tamcot HQ95 (Table 2).

The Foundation Seed Service of the Texas Agricultural Experiment Station will produce, maintain, and sell foundation seed of Tamcot Sphinx to the Texas Cotton Breeders Association (TCBA). Certified seed of Tamcot Sphinx will be produced and sold by licensed member seed companies of TCBA. Tamcot Sphinx has U.S. plant variety protection, requiring that it be sold by variety name only as a class of certified seed.

### References

- Bird, L.S. 1979. Registration of Tamcot CAMD-E cotton. *Crop Sci.* 19:411-412.
- Bird, L.S. 1982. The MAR (Multi-adversity resistance) system for genetic improvement of cotton. *Plant Dis.* 66:172-176.
- Bird, L.S., K.M. El-Zik, and P.M. Thaxton. 1986. Registration of 'Tamcot CAB-CS' upland cotton. *Crop Sci.* 26:384-385.
- El-Zik, K.M., and P.M. Thaxton. 1989. Genetic improvement for resistance to pests and stresses in cotton. p. 191-224. In R.E. Frisbie, K.M. El-Zik, and L.T. Wilson (eds). *Integrated pest management systems and cotton production.* John Wiley & Sons, New York.
- El-Zik, K.M., and P.M. Thaxton. 1990. Registration of 'Tamcot HQ95' cotton. *Crop Sci.* 30:1359-1360.

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Table 1. Lint yield, earliness, boll size, lint percentage, and gin turnout of Tamcot Sphinx in comparison with commercial varieties.

Variety	Lint Yield	Earliness	Boll Size <sup>2</sup>	Lint Percent <sup>3</sup>	Gin Turnout <sup>4</sup>
	lb/acre	%		%	%
Tamcot Sphinx	771a <sup>5</sup>	50.1 b	87a	37.2a	28.6a
Tamcot HQ95	711ab	62.3a	86a	37.3a	28.4a
Tamcot CAB-CS	704 b	56.6ab	83a	36.8a	27.9ab
Tamcot CAMD-E	514 d	60.1a	86a	36.4a	27.5 b
Tamcot SP37	516 d	49.6 b	95a	36.9a	27.9ab
Deltapine 50	599 c	30.8 c	89a	34.3 b	25.7 c
Mean	636	51.5	87	36.5	27.7

<sup>1</sup> Percentage of lint yield obtained in first harvest.

<sup>2</sup> Number of bolls required to produce one pound of seedcotton.

<sup>3</sup> The percentage of lint ginned from a sample of seedcotton.

<sup>4</sup> The percentage of lint ginned from a sample of burr cotton.

<sup>5</sup> Means within a column followed by the same letter are not significantly different at the 0.05 probability level.

Table 2. Fiber quality characteristics of Tamcot Sphinx in comparison with commercial varieties.

Variety	Fiber Quality Traits <sup>1</sup>				
	Length U.H.M.	Uniformity	Strength	Elongation	Micronaire
	inches	index	g/tex	%	units
Tamcot Sphinx	1.07 bc <sup>2</sup>	84.7a	28.8a	7.2 ab	4.9a
Tamcot HQ95	1.10ab	83.5ab	26.5 b	6.5 c	4.1 bc
Tamcot CAB-CS	1.10ab	83.4 b	25.3 bc	7.2ab	4.2 bc
Tamcot CAMD-E	1.06 c	83.1 b	24.6 c	6.9 bc	4.0 bc
Tamcot SP37	1.10ab	83.6ab	24.5 c	7.1 b	3.9 c
Deltapine 50	1.13a	83.4 b	26.6 b	7.5a	4.3 b
Mean	1.09	83.6	26.0	7.1	4.2

<sup>1</sup> Fiber analysis performed by the International Textile Center, Texas Tech University, Lubbock, TX, utilizing the High Volume Instrument (HVI) line.

<sup>2</sup> Means within a column followed by the same letter are not significantly different at the 0.05 probability level.