

Table 5 Mean and per cent improvement of derived F<sub>1</sub> crosses involving F<sub>4</sub> lines of cross bench mark crosses for seed cotton yield

F <sub>4</sub> lines	DH98-27 (T1)			F <sub>4</sub> lines	ZCH8 (T2)			F <sub>4</sub> lines	178-24 (T3)			F <sub>4</sub> lines	DH 18-31 (T4)		
	Seed cotton yield (kg/ha)	Superiority over SSC	Inferiority over ISC		Seed cotton yield (kg/ha)	Superiority over SSC	Seed cotton yield (kg/ha)		Superiority over SSC	Seed cotton yield (kg/ha)	Superiority over SSC		Seed cotton yield (kg/ha)	Superiority over SSC	Seed cotton yield (kg/ha)
[DH 98-27 x (DB 5332884.26 x DB 534 F4 IPS 49)]	78.36**	104.82**		[ZCH 8 x (DB 533 x2250.72 DB 534 F4 IPS 49)]	31.62	45.84	[178-24 x (DB 533 x2207.48 DB 534 F4 IPS 49)]	23.49	47.17		[DH 18-31 x (DB 533 x2515.91 DB 534 F4 IPS 49)]	56.01**	59.38**		
[DH 98-27 x (DB 5342800.90 x DB 533 F4 IPS 22)]	73.20*	98.90**		[ZCH 8 x (DB 534 x2112.13 DB 533 F4 IPS 22)]	23.51	36.86	[178-24 x (DB 534 x2099.11 DB 533 F4 IPS 22)]	17.42	39.95		[DH 18-31 x (DB 534 x2502.36 DB 533 F4 IPS 22)]	55.17**	58.52**		
[DH 98-27 x (DB 5332636.78 x DB 534 F4 IPS 52)]	63.06*	87.24*		[ZCH 8 x (DB 533 x2040.76 DB 534 F4 IPS 52)]	19.34	32.24	[178-24 x (DB 533 x2027.73 DB 534 F4 IPS 52)]	13.43	35.19		[DH 18-31 x (DB 533 x2490.38 DB 534 F4 IPS 52)]	54.42**	57.77**		
[DH 98-27 x (DB 5332606.56 x DB 534 F4 IPS 105)]	61.19*	85.10*		[ZCH 8 x (DB 533 x2015.23 DB 534 F4 IPS 105)]	17.85	30.58	[178-24 x (DB 533 x2026.17 DB 534 F4 IPS 105)]	13.34	35.09		[DH 18-31 x (DB 533 x2455.99 DB 534 F4 IPS 17)]	52.29**	55.59**		
[DH 98-27 x (DB 5332433.59 x DB 534 F4 IPS 17)]	50.49	72.81*		[ZCH 8 x (DB 533 x2001.68 DB 534 F4 IPS 17)]	17.05	29.71	[178-24 x (DB 533 x2025.13 DB 534 F4 IPS 17)]	13.28	35.02		[DH 18-31 x (DB 533 x2424.73 DB 534 F4 IPS 16)]	50.35**	53.61**		
[DH 98-27 x (DB 5332384.62 x DB 534 F4 IPS 16)]	47.46	69.34*		[ZCH 8 x (DB 533 x1985.01 DB 534 F4 IPS 16)]	16.08	28.63	[178-24 x (DB 533 x1983.45 DB 534 F4 IPS 16)]	10.95	32.24		[DH 18-31 x (DB 533 x2384.10 DB 534 F4 IPS 48)]	47.83**	51.03**		
[DH 98-27 x (DB 5332380.97 x DB 534 F4 IPS 48)]	47.24	69.08*		[ZCH 8 x (DB 533 x1908.42 DB 534 F4 IPS 48)]	11.60	23.66	[178-24 x (DB 533 x1980.84 DB 534 F4 IPS 48)]	10.81	32.06		[DH 18-31 x (DB 533 x2342.42 DB 534 F4 IPS 25)]	45.25*	48.39**		
[DH 98-27 x (DB 5332152.77 x DB 534 F4 IPS 25)]	33.12	52.87		[ZCH 8 x (DB 533 x1822.46 DB 534 F4 IPS 25)]	6.57	18.09	[178-24 x (DB 533 x1930.83 DB 534 F4 IPS 25)]	8.01	28.73		[DH 18-31 x (DB 533 x2340.33 DB 534 F4 IPS 34)]	45.12*	48.26**		
[DH 98-27 x (DB 5332074.62 x DB 534 F4 IPS 34)]	28.29	47.32		[ZCH 8 x (DB 533 x1815.69 DB 534 F4 IPS 34)]	6.18	17.65	[178-24 x (DB 533 x1902.69 DB 534 F4 IPS 34)]	6.44	26.85		[DH 18-31 x (DB 533 x2326.79 DB 534 F4 IPS 55)]	44.28*	47.40**		
[DH 98-27 x (DB 5332074.10 x DB 534 F4 IPS 55)]	28.26	47.29		[ZCH 8 x (DB 533 x1806.31 DB 534 F4 IPS 55)]	5.63	17.05	[178-24 x (DB 533 x1899.05 DB 534 F4 IPS 55)]	6.23	26.61		[DH 18-31 x (DB 533 x2322.62 DB 534 F4 IPS 44)]	44.02*	47.14*		
[DH 98-27 x (DB 5332029.82 x DB 534 F4 IPS 44)]	25.52	44.14		[ZCH 8 x (DB 533 x1772.44 DB 534 F4 IPS 44)]	3.65	14.85	[178-24 x (DB 533 x1878.73 DB 534 F4 IPS 44)]	5.10	25.26		[DH 18-31 x (DB 533 x2321.06 DB 534 F4 IPS 13)]	43.92*	47.04*		
[DH 98-27 x (DB 5332009.50 x DB 534 F4 IPS 13)]	24.26	42.70		[ZCH 8 x (DB 533 x1758.90 DB 534 F4 IPS 13)]	2.86	13.97	[178-24 x (DB 533 x1859.97 DB 534 F4 IPS 13)]	4.05	24.01		[DH 18-31 x (DB 533 x2314.80 DB 534 F4 IPS 8)]	43.54*	46.64*		
[DH 98-27 x (DB 5331999.08 x DB 534 F4 IPS 8)]	23.62	41.96		[ZCH 8 x (DB 533 x1750.04 DB 534 F4 IPS 8)]	2.34	13.40	[178-24 x (DB 533 x1840.69 DB 534 F4 IPS 8)]	2.97	22.72		[DH 18-31 x (DB 533 x2297.61 DB 534 F4 IPS 1)]	42.47*	45.55*		
[DH 98-27 x (DB 5331980.32 x DB 534 F4 IPS 1)]	22.46	40.63		[ZCH 8 x (DB 533 x1734.41 DB 534 F4 IPS 1)]	1.43	12.39	[178-24 x (DB 533 x1828.71 DB 534 F4 IPS 1)]	2.30	21.92		[DH 18-31 x (DB 533 x2275.73 DB 534 F4 IPS 14)]	41.11*	44.17*		
[DH 98-27 x (DB 5331955.83 x DB 534 F4 IPS 14)]	20.95	38.89		[ZCH 8 x (DB 533 x1713.05 DB 534 F4 IPS 14)]	0.18	11.00	[178-24 x (DB 533 x1815.16 DB 534 F4 IPS 14)]	1.54	21.02		[DH 18-31 x (DB 533 x2273.64 DB 534 F4 IPS 6)]	40.98*	44.03*		
[DH 98-27 x (DB 5331923.53 x DB 534 F4 IPS 6)]	18.95	36.59		[ZCH 8 x (DB 533 x1706.28 DB 534 F4 IPS 6)]	-0.22	10.56	[178-24 x (DB 533 x1814.64 DB 534 F4 IPS 6)]	1.51	20.98		[DH 18-31 x (DB 533 x2271.56 DB 534 F4 IPS 15)]	40.85*	43.90*		
[DH 98-27 x (DB 5331902.69 x DB 534 F4 IPS 15)]	17.66	35.11		[ZCH 8 x (DB 533 x1693.25 DB 534 F4 IPS 15)]	-0.98	9.72	[178-24 x (DB 533 x1768.27 DB 534 F4 IPS 15)]	-1.08	17.89		[DH 18-31 x (DB 533 x2259.58 DB 534 F4 IPS 71)]	40.11*	43.14*		

Continued Table 5

F <sub>4</sub> lines	DH98-27 (T1)			F <sub>4</sub> lines	ZCH8 (T2)			F <sub>4</sub> lines	178-24 (T3)			F <sub>4</sub> lines	DH 18-31 (T4)		
	Seed yield (kg/ha)	cotton yield over SSC	Superiority over ISC		Seed yield (kg/ha)	cotton yield (kg/ha)	Superiority over SSC		Seed cotton yield (kg/ha)	Seed cotton yield (kg/ha)	Superiority over SSC		Seed yield (kg/ha)	cotton yield (kg/ha)	Superiority over SSC
[DH 98-27 x (DB 533 x DB 534 F4 IPS 71)]	1894.36	17.14	34.52	[ZCH 8 x (DB 533 x DB 534 F4 IPS 71)]	1674.49	-2.08	8.50	[178-24 x (DB 533 x DB 534 F4 IPS 71)]	1701.59	-4.81	13.45	[DH 18-31 x (DB 533 x DB 534 F4 IPS 26)]	2255.93	39.89*	42.91*
[DH 98-27 x (DB 533 x DB 534 F4 IPS 26)]	1878.73	16.18	33.41	[ZCH 8 x (DB 533 x DB 534 F4 IPS 26)]	1645.32	-3.78	6.61	[178-24 x (DB 533 x DB 534 F4 IPS 26)]	1651.57	-7.61	10.11	[DH 18-31 x (DB 533 x DB 534 F4 IPS 12)]	2120.47	31.49	34.33
[DH 98-27 x (DB 533 x DB 534 F4 IPS 12)]	1861.53	15.11	32.19	[ZCH 8 x (DB 533 x DB 534 F4 IPS 12)]	1630.73	-4.64	5.67	[178-24 x (DB 533 x DB 534 F4 IPS 12)]	1580.71	-11.58	5.39	[DH 18-31 x (DB 533 x DB 534 F4 IPS 38)]	2118.39	31.36	34.20
[DH 98-27 x (DB 533 x DB 534 F4 IPS 38)]	1859.97	15.02	32.08	[ZCH 8 x (DB 533 x DB 534 F4 IPS 38)]	1625.52	-4.94	5.33	[178-24 x (DB 533 x DB 534 F4 IPS 38)]	1568.73	-12.25	4.59	[DH 18-31 x (DB 533 x DB 534 F4 IPS 23)]	2111.61	30.94	33.77
[DH 98-27 x (DB 533 x DB 534 F4 IPS 23)]	1855.28	14.73	31.75	[ZCH 8 x (DB 533 x DB 534 F4 IPS 23)]	1622.92	-5.09	5.16	[178-24 x (DB 533 x DB 534 F4 IPS 62)]	1565.08	-12.45	4.35	[DH 18-31 x (DB 533 x DB 534 F4 IPS 62)]	2024.61	25.54	28.26
[DH 98-27 x (DB 533 x DB 534 F4 IPS 62)]	1819.33	12.51	29.19	[ZCH 8 x (DB 533 x DB 534 F4 IPS 62)]	1575.50	-7.87	2.09	[178-24 x (DB 533 x DB 534 F4 IPS 23)]	1565.08	-12.45	4.35	[DH 18-31 x (DB 533 x DB 534 F4 IPS 105)]	2024.61	25.54	28.26
[DH 98-27 x (DB 533 x DB 534 F4 IPS 36)]	1812.04	12.05	28.68	[ZCH 8 x (DB 533 x DB 534 F4 IPS 36)]	1520.28	-11.10	-1.49	[178-24 x (DB 533 x DB 534 F4 IPS 36)]	1512.98	-15.36	0.87	[DH 18-31 x (DB 533 x DB 534 F4 IPS 36)]	2007.93	24.51	27.20
[DH 98-27 x (DB 533 x DB 534 F4 IPS 30)]	1785.99	10.44	26.83	[ZCH 8 x (DB 533 x DB 534 F4 IPS 30)]	1514.03	-11.46	-1.89	[178-24 x (DB 533 x DB 534 F4 IPS 30)]	1486.41	-16.85	-0.90	[DH 18-31 x (DB 533 x DB 534 F4 IPS 30)]	2003.25	24.22	26.90
[DH 98-27 x (DB 533 x DB 534 F4 IPS 32)]	1761.50	8.93	25.09	[ZCH 8 x (DB 533 x DB 534 F4 IPS 32)]	1481.72	-13.35	-3.99	[178-24 x (DB 533 x DB 534 F4 IPS 32)]	1391.07	-22.18	-7.26	[DH 18-31 x (DB 533 x DB 534 F4 IPS 32)]	1975.11	22.47	25.12
[DH 98-27 x (DB 533 x DB 534 F4 IPS 24)]	1703.15	5.32	20.94	[ZCH 8 x (DB 533 x DB 534 F4 IPS 24)]	1474.43	-13.78	-4.46	[178-24 x (DB 533 x DB 534 F4 IPS 24)]	1298.85	-27.34	-13.40	[DH 18-31 x (DB 533 x DB 534 F4 IPS 24)]	1928.22	19.56	22.15
[DH 98-27 x (DB 533 x DB 534 F4 IPS 33)]	1642.19	1.55	16.61	[ZCH 8 x (DB 533 x DB 534 F4 IPS 33)]	1388.47	-18.81	-10.03	[178-24 x (DB 533 x DB 534 F4 IPS 33)]	1146.20	-35.88	-23.58	[DH 18-31 x (DB 533 x DB 534 F4 IPS 33)]	1899.57	17.79	20.34
Segregants	28				20				20				28		
Positive	28				15				16				28		
Negative	0				5				4				0		
S <sub>Em</sub> +	63.48				39.53				48.24				34.41		
CD at 5%	934.90				802.60				808.29				551.2116		
CD at 1%	1263.249				1084.49				1092.18				744.8079		
Straight crosses (Bench Mark Crosses)															
SBMC	1617.11 (DB 533 x DH 98-27/T <sub>1</sub> )				1710.04 (DB 533 x ZCH8/T <sub>2</sub> )				1787.64 (DB 533X 178-24/T <sub>3</sub> )				1612.70 (DB 533X DH 18-31/T <sub>4</sub> )		
IBMC	1408.22 (DB 534 x DH 98-27/T <sub>1</sub> )				1543.25 (DB 534 x ZCH8/T <sub>2</sub> )				1499.90 (DB 534 x 178-24/T <sub>3</sub> )				1578.465 (DB 534 x DH 18-31/T <sub>4</sub> )		

Note: SBMC: Superior Bench Mark Crosses IBMC: Inferior Bench Mark Crosses

