Univ. California and USDA-ARS Fusarium-Race 4 Screenings (THREE SITES: Kern County and Tulare County sites plus greenhouse site at Kearney REC - 2013)

27-Feb-14

2013_Fusarium Race 4 Field Ratings

SUMMARY TABLE - means and std deviations only

COMMERCIALLY-AVAILABLE VARIETIES AND SEED CO. EXPERIMENTALS submitted to us for testing are included in this summary

Hutmacher, Wright and Ulloa
Univ. CA and USDA-ARS

if questions: contact Bob Hutmacher, Univ. CA
contact cell: (559) 260-8957
contact e-mail: rbhutmacher@ucdavis.edu

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Primary Evaluation Dates for ratings: TULARE COUNTY SITE (July) and KERN COUNTY SITE (August); GREENHOUSE TRIAL (rated in October)

Suggestions in interpreting this data summary:

1) averages and standard deviations are shown for each cultivar and test plot location in 2012 trials (average and standard deviation were calculated based on 3 replicate plots)
2) individual plot sizes were single row by about 15 to 18 feet in length (depending on site), with about 65-70 seed planted per plot row
3) we suggest that the most useful ratings to first focus on in this summary are: (vascular stain is correlated with severity of infection, survival % is related to yield loss impacts)
(a) ROOT VASCULAR STAIN RATING; and (b) PLANT SURVIVAL % AT 7-8 WEEKS
4) the rating "WHOLE PLOT FOLIAR RATINGS" tend to be highly variable and affected by overall plant stunting, survival % - a low WHOLE PLOT FOLIAR or PLANT FOLIAR RATING does not necessarily indicate that plants are not infected
5) the PLANT HEIGHT and MAIN STEM NODE COUNT ratings were done as a relative indicator of impacts of disease pressure on plant vigor and growth (compare with resistant varieties such as Phy-800, Phy-802RF to evaluate relative effects)

FOR FOLIAR AND ROOT VASCULAR RATINGS (meaning of index rating values shown):

rating = 0 means no visible symptoms (no foliar damage, no root staining) are evident
rating = 5 means visible symptoms are very severe (severe foliar damage, stunting, plants nearly dead)
intermediate rating #'s = relative indicators of severity of foliar or vascular staining (higher numbers indicate worse disease injury)

FOR COMPARISON PURPOSES: (you can look at data averages for the entries of particular interest to you, and compare the values with resistant or susceptible check varieties)

Examples of FOV-4 resistant/tolerant checks = Phy 802RF (#615); Phy 811RF (#617) or DP-358RF (#612)

Examples of FOV-4 moderately susceptible Acala varieties = Phy 725RF (#601); Daytona RF (#603)

Example of FOV-4 highly susceptible Pima varieties = DP 744 (#698); Phy 830 (#725)

NOTE: For greenhouse evaluations, typically 5-7 FOV-4 inoculated plants were evaluated, and only foliar and vascular stain rating data is being shown.
For field evaluations, plots were approximately 15 feet long by one row wide, with 3 replications. Survival % data was on full plot lengths, other ratings on 5 plants/replic.

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ENTRY #	ENTRY NAME	Company or Breeder	TYPE OF COTTON (if identified when entered in trial)	LOCATION OF TRIAL	WHOLE PLOT FOLIAR RATING		FOLIAR INDIVIDUAL PLANT AVERAGE RATING		ROOT VASCULAR STAIN RATING *		PLANT HEIGHT (inches) AT RATING		# MAIN STEM NODES AT RATING		PERCENT SURVIVAL (% survive out of emerged)	
					Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
601	Phy-725 RF	Phytogen	Acala / Upl	Kern	1.33	0.58	0.13	0.35	2.13	0.64	22.8	4.35	17.87	1.64	57.37	5.1
				Tulare	1.33	1.15	0.6	0.91	2	1	25.33	4.85	16	1.69	55.24	11.55
				Kearney GH			2	1.67	2.83	1.17						
602	Phy-499 WRF	Phytogen	Upland	Kern	2	0	0.67	0.98	2.33	0.62	25.53	5.21	17.2	1.61	83.59	14.2
				Tulare	1.33	1.53	0.27	0.7	2	0.65	27.8	4.43	15.53	0.99	79.05	4.36
				Kearney GH			2.83	1.17	3.5	0.84						
603	Daytona RF	Bayer	Acala / Upl	Kern	1.67	1.15	0.53	0.74	2.07	0.8	16.87	4.55	15.2	1.61	64.99	15.8
				Tulare	1	1	0.4	0.83	1.6	0.99	26.53	5.88	15.2	2.08	48.57	7.6
				Kearney GH			3.83	0.41	4	0.63						
604	FM 1944 GLB2	Bayer	Upland	Kern	2	0	0.47	0.83	1.93	0.8	26.8	4.23	15.6	2.9	89.44	4.6
				Tulare	0	0	0	0.26	1.4	0.9	28.93	4.58	16	0.86	68.57	2.9
				Kearney GH			2.17	1.72	2.83	1.17						
605	ST 4946 GLB2	Bayer	Upland	Kern	0.67	0.65	0.47	0.83	2	0.65	24.07	4.95	16.6	1.96	86.15	11.8
				Tulare	0	0	0.13	0.35	1.27	1.03	29.53	5.11	15.4	1.59	72.38	18.4
				Kearney GH			1.83	1.33	2.67	0.52						
606	ST 6448 GLB2	Bayer	Upland	Kern	1	1	0.77	0.64	2.33	0.49	23.53	5.17	17.07	1.79	81.72	13.8
				Tulare	1.33	1.15	0.27	0.7	2.07	0.8	29.07	4.65	16.13	1.25	85.71	11.4
				Kearney GH			1	1.26	2	0.63						
607	Phy-7064-05WRF	Phytogen	Upland	Kern	1	1	0.07	0.26	1.93	0.46	25.4	4.21	18.13	1.3	66.32	21.7
				Tulare	1.33	1.41	0.4	0.84	1.6	1.227	29.4	4.79	15.8	1.32	79.05	20.1
				Kearney GH			3.17	1.72	3.17	0.75						
608	Alltex Nitro-44	Alltex	Upland	Kern	1.33	0.58	0.33	0.62	1.93	0.7	21.67	5.02	16	2.42	86.91	7.2
				Tulare	1.33	1.15	0.33	0.72	1.8	0.94	27.07	4.64	15.87	1.55	70.48	10.8
				Kearney GH			1.67	0.82	2.67	0.52						
609	Alltex 13464	Alltex	Upland	Kern	1	1	0.33	0.62	1.87	0.52	18.67	3.37	16.07	1.78	77.44	10.3
				Tulare	0.67	1.15	0.33	0.62	1.67	0.98	26.87	5.03	15.67	1.29	79.05	11.6
				Kearney GH			1.83	1.33	2.5	1.05						

** data in this column is an index of severity of vascular staining (done on upper tap root in field evaluations at Kern and Tulare locations, done on lower stem section in greenhouse)*

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ENTRY #	ENTRY NAME	Company or Breeder	TYPE OF COTTON	LOCATION OF TRIAL	WHOLE PLOT FOLIAR RATING		FOLIAR INDIVIDUAL PLANT AVERAGE RATING		ROOT VASCULAR STAIN RATING *		PLANT HEIGHT (inches) AT RATING		# MAIN STEM NODES AT RATING		PERCENT SURVIVAL (% survive out of emerged)	
					Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
610	FM 2484 B2F	Bayer	Upland	Kern	0.33	0.58	0	0	1.73	0.59	27.67	3.96	17.53	2.67	88.67	7.4
				Tulare	0.67	0.65	0.07	0.26	1.27	0.88	27.07	4.67	16.33	1.11	68.57	8.6
				Kearney GH			2.67	1.63	2.33	1.63						
611	DP-340	Monsanto	Pima	Kern	3.33	0.58	1.45	0.94	2.47	0.52	9.87	3.31	13.33	2.23	26.27	11.2
				Tulare	2	1	0.73	0.88	1.73	0.88	21.67	3.56	15.8	1.74	62.86	15.1
				Kearney GH			2.33	1.63	2.67	0.82						
612	DP-358 RF	Monsanto	Pima	Kern	0.67	1.13	0.27	0.7	1.07	0.59	30.6	3.76	17.33	1.18	84.12	8.6
				Tulare	0	0	0	0	0.8	0.68	26.27	3.31	15.6	1.4	70.48	9.2
				Kearney GH			0	0	1.33	1.03						
613	DP 12R254 R2P	Monsanto	Pima	Kern	3.33	0.58	1	0.5	1.89	0.93	11.44	4.61	14.56	1.74	7.99	3.9
				Tulare	2.33	0.58	1.2	1.08	1.8	1.01	21.67	3.29	15	2.27	60	12.5
				Kearney GH			3.5	1.05	3.08	0.8						
614	DP 13R348 R2P	Monsanto	Pima	Kern	0	0	0	0	1.27	0.59	29.73	2.12	18	1.51	87.08	4.8
				Tulare	0.67	1.15	0.13	0.52	0.67	0.49	25.2	3.73	15.13	1.25	87.62	8.3
				Kearney GH			0.07	0.41	1.33	0.82						
615	Phy 802 RF	Phytogen	Pima	Kern	0.67	0.55	0.4	0.83	1.13	0.52	27.07	3.06	17	1.51	91.26	10.5
				Tulare	0.67	0.65	0.2	0.56	0.67	0.72	26.8	3.49	15.07	1.71	78.1	14.4
				Kearney GH			0.17	0.41	0.83	0.75						
616	Phy 805 RF	Phytogen	Pima	Kern	1.33	1.53	0	0	1.33	0.62	25.07	2.89	15.8	2.51	37.85	14.9
				Tulare	2	0	0.6	0.91	1.67	1.05	23.47	4.5	15.73	1.1	79.05	7.2
				Kearney GH			0.83	1.6	1.33	1.37						
617	Phy 811 RF	Phytogen	Pima	Kern	0	0	0.07	0.26	1.47	0.52	25.6	4.31	16.47	1.85	84.94	1.9
				Tulare	0.67	1.15	0.13	0.52	0.67	0.72	27.67	4.24	16.13	1.85	84.76	4.4
				Kearney GH			0	0	0.5	0.55						
618	Alltex P-203	Phytogen	Pima	Kern	0	0	0.13	0.35	1.33	0.62	25.2	3.51	16	1.07	82.35	5.2
				Tulare	1	1	0.2	0.56	0.67	0.52	25	3.87	15.4	1.35	67.62	7.2
				Kearney GH			0.17	0.41	1.5	0.55						

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					Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
619	FM 2989 GLB2	Bayer	Upland	Kern	0.67	1.15	0.13	0.52	1.73	0.46	28.4	2.85	18.4	2.2	87.27	27.5
				Tulare	1	1	0.4	0.74	1.13	0.99	26.73	5.64	15.87	1.85	63.81	21.4
				Kearney GH			1.83	1.17	2.33	0.82						
620	FM 9250 GL	Bayer	Upland	Kern	1.33	1.15	0.27	0.59	1.73	0.59	21.2	4.72	17.93	1.94	71.96	21.3
				Tulare	1	1	0.13	0.52	1.4	1.06	24.67	5.77	15.47	1.6	60.95	6
				Kearney GH			2.33	1.51	3	0.63						
621	BX 1320 GL	Bayer	Upland	Kern	1.33	0.58	0.33	0.62	1.6	0.63	20.8	6.16	16.2	2.73	71.06	6.7
				Tulare	1.33	1.15	0.47	0.83	1.07	0.96	23.4	5.22	15.4	2.44	38.1	8.7
				Kearney GH			2.33	1.63	2.67	1.51						
622	FM 2011 GT	Bayer	Upland	Kern	1.67	0.58	0.73	0.8	1.87	0.52	21.33	4.67	16.67	1.91	74.49	18.7
				Tulare	0.67	1.15	0.27	0.7	1.73	0.88	26.2	5.88	15.13	1.81	77.14	7.6
				Kearney GH			1.5	1.22	2.33	0.82						
623	12 R249 B2R2	Monsanto		Kern	1	1	0.13	0.52	1.93	0.46	25.93	5.85	17.73	1.33	87.78	8.4
				Tulare	1.33	1.15	0.53	0.92	1.47	0.99	26.73	6.96	15.73	1.71	79.05	1.7
				Kearney GH			1.17	1.47	2.17	1.33						
624	12 R242 B2R2	Monsanto		Kern	1.67	0.58	0.53	0.83	2.33	0.49	23.4	5.38	16.27	1.49	91.53	7.3
				Tulare	1.33	1.53	0.69	0.95	1.69	1.11	24.08	8.8	14.08	2.4	46.67	33.1
				Kearney GH			1.33	1.75	2.33	1.03						
625	12 R244 B2R2	Monsanto		Kern	0.67	0.58	0.07	0.26	1.73	0.46	28.07	3.01	17.13	2.39	80.29	20.8
				Tulare	0.67	1.15	0.2	0.56	1.4	0.74	28.07	7.69	16.8	3.23	68.57	10.3
				Kearney GH			1.83	1.33	2.5	0.84						
626	13 R352 B2R2	Monsanto		Kern	2	0	0.7	0.95	2.1	0.32	23.3	3.77	16.4	1.51	76.24	15.4
				Tulare	1	1.41	0.2	0.63	1.7	0.95	24.6	7.43	14.3	1.16	46.67	40.4
				Kearney GH			2.17	0.98	2.33	0.82						
627	DP 1321 B2RF	Monsanto		Kern	1.33	1.15	0.33	0.72	1.73	0.59	26.67	4.1	17	2.98	85.43	7.4
				Tulare	0.67	0.65	0.43	0.85	1.71	0.91	28.07	5.66	16.07	1.98	75.24	6.6
				Kearney GH			2.33	1.21	2.67	1.21						

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					Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
628	13 R347 B2R2	Monsanto		Kern	1.67	0.58	0.47	0.83	2.13	0.52	23.6	3.38	16.4	2.06	77.82	21.4
				Tulare	1.33	1.53	0.27	0.7	1.6	0.91	24.07	5.64	14.8	1.57	53.33	29.2
				Kearney GH			1.6	0.89	2.2	0.84						
629	13 R341 B2R2	Monsanto		Kern	2	0	0.6	1.06	1.87	0.64	25.2	5.25	17.2	1.82	96	12.4
				Tulare	1.67	1.53	0.67	0.98	1.8	0.94	27.67	4.95	14.47	4.17	64.76	18.6
				Kearney GH			2.83	2.32	2	1.26						
630	DP 1044 B2RF	Monsanto		Kern	0.5	0.71	0	0	1.5	0.71	29.4	6.22	19.2	1.23	90.16	0.2
				Tulare	0	0	0.07	0.26	1.4	0.91	27.67	5.12	15.47	2.23	80	5.7
				Kearney GH			1.8	0.84	2.6	1.34						
631	Phy 339 WRF	Phytogen		Kern	1.67	0.58	0.47	0.83	1.8	0.56	25.33	4.08	17.73	2.87	68.97	14.9
				Tulare	0.67	1.15	0.27	0.7	1.67	0.72	28.2	4.74	16.27	0.88	77.14	13.1
				Kearney GH			3	1.1	3.33	0.82						
632	Phy 575 WRF	Phytogen		Kern	1.67	0.58	0.53	0.83	2.53	0.52	24.27	5.52	15.87	1.77	90.52	5.8
				Tulare	2	0	0.67	0.98	1.47	1.06	31.27	4.3	15.67	1.18	80.95	4.4
				Kearney GH			2.67	0.82	2.67	0.52						
633	Phy 3080WRF-01	Phytogen		Kern	1.33	1.15	0.53	0.92	1.8	0.41	23.73	4.88	15.07	1.94	87.89	5.6
				Tulare	1.67	1.53	0.47	0.99	1.13	1.13	26.47	4.31	14	1.41	69.52	11.6
				Kearney GH			1.83	1.33	2	1.26						
634	Phy 3122-40WRF	Phytogen		Kern	1.67	0.58	0.53	0.83	2	0.65	25.87	3.16	16.4	1.4	73.27	24.7
				Tulare	2	0	0.73	0.96	1.4	0.99	28.73	5.91	14.53	1.64	75.24	9.2
				Kearney GH			2.17	0.98	2.33	0.82						
635	0504-4		Upland	Kern	1	1	0.13	0.52	2	0.38	29.8	4.46	18.73	1.83	79.03	10.9
			from RBTN	Tulare	1	1	0.53	0.99	1.33	1.11	29.07	4.91	15.87	1.96	50.48	7.2
			program	Kearney GH			2.67	1.21	2.33	1.03						
636	0502-37		Upland	Kern	2	0	0.87	1.06	2.47	0.52	22.07	6.04	17.87	2.56	90.35	6
			from RBTN	Tulare	1.67	0.58	0.27	0.7	1.33	0.82	27.6	5.19	17.2	2.18	66.67	8.7
			program	Kearney GH			1.83	1.17	2.17	1.47						

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					Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
637	0517-54		Upland	Kern	1	0	0.13	0.35	1.67	0.49	24.87	3.2	15.93	1.62	76.14	21.8
			from RBTN	Tulare	1.67	0.58	0.67	0.98	1.8	1.01	28	4.93	15.07	1.62	76.19	10
			program	Kearney GH			1.17	1.17	1.67	1.03						
638	0506-47		Upland	Kern	1.67	0.55	0.6	0.91	2	0.53	24.93	4.65	17.47	2.17	89.23	3.1
			from RBTN	Tulare	0.67	1.15	0.13	0.52	1.93	1.03	30.2	5.17	15.93	1.79	79.05	15.7
			program	Kearney GH			2.33	1.37	2.5	0.55						
639	PD 05064		Upland	Kern	1.67	0.58	0.47	0.83	2.13	0.52	25	4.57	16.4	3.22	88.92	9.7
			from RBTN	Tulare	1.333	1.53	0.6	0.91	1.73	0.8	24.33	4.34	14.53	1.55	67.62	15.7
			program	Kearney GH			1.83	0.98	2.5	1.22						
640	PD 06078		Upland	Kern	1.33	0.52	0.2	0.56	2.13	0.64	22.87	3.14	18.2	1.52	80.36	19.8
			from RBTN	Tulare	2	1	0.47	0.74	1.93	1.1	21.87	6.05	14.87	2.7	61.9	6
			program	Kearney GH			2	1.55	2.33	0.82						
641	PD 05069		Upland	Kern	1	1	0.13	0.52	1.6	0.63	27.87	3.76	19.4	2.03	84.97	7.1
			from RBTN	Tulare	1.33	1.15	0.73	0.96	1.4	0.91	25	3.78	15.47	1.92	70.5	6.6
			program	Kearney GH			2.67	0.82	3.17	0.75						
642	PD 07092		Upland	Kern	1.33	1.15	0.27	0.7	2.47	0.52	25.13	3.8	18.4	1.8	94	10.2
			from RBTN	Tulare	1.33	1.15	0.6	0.91	1.8	1.21	25.6	4.42	16.2	2.46	60	12.5
			program	Kearney GH			1.83	1.33	2.5	1.05						
643	GA 2009100		Upland	Kern	1	1	0.13	0.52	2.13	0.52	29.53	4.84	17.87	2.2	83.13	25.7
			from RBTN	Tulare	1.67	0.58	0.53	0.92	1.73	1.03	25	3.05	15.47	1.51	50.48	3.3
			program	Kearney GH			0.83	0.75	2.5	0.55						
644	GA 2010098		Upland	Kern	1	0	0.07	0.26	1.73	0.8	25.2	3.55	16.8	2.04	82.69	9.7
			from RBTN	Tulare	1	1	0.53	0.99	1.53	1.3	21.53	6.39	14.8	2.11	37.14	22.7
			program	Kearney GH			1.33	1.51	2.33	1.03						
645	GA 2009037		Upland	Kern	0.67	0.58	0.2	0.41	1.67	0.49	25.27	4.91	17.07	2.84	89.37	12.9
			from RBTN	Tulare	1.67	0.58	0.4	0.83	1.33	1.11	24.27	5.3	14.87	2.1	52.38	4.4
			program	Kearney GH			0.33	0.52	2	1.26						

University of CA and USDA-ARS Fusarium Screen Summary - 2013 trials
Hutmacher, Wright, Ulloa et al - February 2014

ENTRY #	ENTRY NAME	Company or Breeder	TYPE OF COTTON	LOCATION OF TRIAL	WHOLE PLOT FOLIAR RATING		FOLIAR INDIVIDUAL PLANT AVERAGE RATING		ROOT VASCULAR STAIN RATING *		PLANT HEIGHT (inches) AT RATING		# MAIN STEM NODES AT RATING		PERCENT SURVIVAL (% survive out of emerged)	
					Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
646	GA 2008016		Upland	Kern	1.67	0.58	0..47	0.74	1.93	0.7	21.8	4.83	16.73	2.46	90.63	22
			from RBTN	Tulare	1.67	0.58	0.8	0.94	1.4	1.12	20.33	5.97	14.87	2.59	46.67	9.2
			program	Kearney GH			2.33	1.37	2.83	0.98						
647	MD 10-6		Upland	Kern	0.67	0.58	0	0	1.73	0.46	29.13	4.09	18.73	1.83	87.44	3.2
			from RBTN	Tulare	2	0	0.53	0.92	1.47	0.92	27.33	5.9	15.73	1.49	58.1	9.2
			program	Kearney GH			1.83	0.75	2.67	0.52						
648	MD 10-5		Upland	Kern	1.33	0.58	0.2	0.56	1.87	0.64	31.2	4.02	18.13	1.68	96	11.7
			from RBTN	Tulare	1	1	0.53	0.99	1.4	1.18	22.93	7.5	14.27	1.98	38.1	20.7
			program	Kearney GH			2.33	0.82	2.5	0.55						
649	MD 25-26ne		Upland	Kern	0.67	0.58	0	0	1.27	0.7	33	5.03	16.73	2.28	88.38	24.4
			from RBTN	Tulare	1	1	0.13	0.52	0.93	0.96	28.93	5.52	15.47	1.06	85.71	2.9
			program	Kearney GH			1.33	1.21	2	0.63						
650	MD-DC		Upland	Kern	2	0	0.8	0.94	2	0.53	27.27	4.18	18.33	2.41	75.48	11.7
			from RBTN	Tulare	1.67	0.58	0.73	0.88	1.6	1.18	22.93	7.73	14.8	1.74	60	27.6
			program	Kearney GH			1.75	1.71	2.5	1.29						
651	LA 09309116		Upland	Kern	1.67	0.58	0.27	0.7	1.87	0.64	27.27	4.48	16.87	1.68	98.67	4.9
			from RBTN	Tulare	1.67	0.58	0.33	0.72	1.13	0.92	23.13	7.03	14.53	2.03	52.38	1.7
			program	Kearney GH			1.5	0.55	2.67	1.03						
652	LA 10307140		Upland	Kern	1	0	0.13	0.35	1.8	0.56	26.53	3.76	18.07	1.44	79.56	27.3
			from RBTN	Tulare	1	1	0.33	0.72	1.33	1.05	24.67	2.69	14.53	0.83	51.43	2.9
			program	Kearney GH			3	1.26	3.67	0.52						
653	LA 10307108		Upland	Kern	1	1	0.13	0.52	2.07	0.46	25.93	3.61	18.53	1.68	84.01	11.1
			from RBTN	Tulare	1.33	1.15	0.53	0.92	1.2	1.21	23.73	4.1	15.6	1.24	68.57	2.9
			program	Kearney GH			3.33	0.82	3.17	0.75						
654	LA 10307021		Upland	Kern	1	1	0.13	0.52	2.13	0.64	27.8	2.34	19.87	1.76	89.19	16.8
			from RBTN	Tulare	1.33	1.15	0.4	0.83	1.47	1.13	23.13	3.52	15.27	1.62	56.19	12.9
			program	Kearney GH			3.5	1.38	3.33	1.21						

University of CA and USDA-ARS Fusarium Screen Summary - 2013 trials
Hutmacher, Wright, Ulloa et al - February 2014

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					Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
655	OA-33	Olvey	Upland	Kern	0.67	0.58	0.07	0.26	1.8	0.77	31.53	5.17	18.13	2.77	77.4	23.7
			from RBTN	Tulare	1.33	0.65	0.33	0.9	1.2	1.01	27.27	4.59	15.67	1.54	82.86	12.5
			program	Kearney GH			2.33	1.51	3.33	0.82						
656	PX 06520-42-2-1		Upland	Kern	2	0	1.4	0.83	2.33	0.49	16.27	5.08	15.07	2.94	69.45	18.3
			from RBTN	Tulare	0.67	1.15	0.4	0.91	1.67	1.11	26.33	4.01	15.87	1.73	60	12.5
			program	Kearney GH			2.33	1.03	2.83	0.75						
657	PX 06520-42-2-3		Upland	Kern	0.33	0.58	0.07	0.26	1.8	0.56	23.27	4.93	16.87	1.77	76.69	9.1
			from RBTN	Tulare	1	1	0.33	0.72	1.13	0.83	26.87	4.16	15.67	1.88	69.52	8.3
			program	Kearney GH			4.5	1.05	3.83	0.41						
658	AU 10090		Upland	Kern	1.33	0.52	0.33	0.62	2.13	0.64	25	4.28	17.87	1.73	61.72	14.8
			from RBTN	Tulare	1	1	0.27	0.7	1.4	1.18	23.13	3.42	14.87	1.25	32.38	1.7
			program	Kearney GH			2.67	2.66	2.83	1.33						
659	AU 51038		Upland	Kern	1	1	0.2	0.56	1.93	0.7	29.73	4.38	18.2	1.32	93.89	4.7
			from RBTN	Tulare	1	1	0.27	0.59	1.13	1.19	26.13	8.67	15.33	2.69	53.33	14.4
			program	Kearney GH			1.5	1.22	2.67	1.03						
660	AU 68036		Upland	Kern	1.67	0.58	0.47	0.83	2.07	0.46	25.87	3.18	18.47	1.3	87.52	5.6
			from RBTN	Tulare	0.67	1.15	0.6	0.91	1.33	1.18	24.13	5.18	15.33	1.8	51.43	14.9
			program	Kearney GH			3.5	0.84	3.5	0.55						
661	AU 55052		Upland	Kern	1.33	0.53	0.33	0.72	1.87	0.74	25.6	3.68	16.93	2.37	84.21	15.6
			from RBTN	Tulare	1.67	0.58	0.13	0.52	1.53	0.99	28	6.01	16.33	1.45	74.29	7.6
			program	Kearney GH			3	1.79	3.33	1.51						
662	NM 1301	Zhang	Upland	Kern	1	1	0.27	0.59	1.87	0.64	27.27	5.28	18	1.46	91.79	4
			from RBTN	Tulare	0.67	1.15	0.13	0.35	1.07	0.96	25.8	5.88	15.33	1.5	73.33	14.7
			program	Kearney GH			0.83	0.75	1.83	0.75						
663	NM 1302	Zhang	Upland	Kern	0.33	0.58	0	0	1.87	0.74	29.27	3.47	18.27	2.66	87.05	3.5
			from RBTN	Tulare	1.33	1.15	0.53	0.83	1.53	1.19	27.27	9.41	16.47	2.88	85.71	15.1
			program	Kearney GH			1.17	0.98	2.33	0.52						

University of CA and USDA-ARS Fusarium Screen Summary - 2013 trials
Hutmacher, Wright, Ulloa et al - February 2014

ENTRY #	ENTRY NAME	Company or Breeder	TYPE OF COTTON	LOCATION OF TRIAL	WHOLE PLOT FOLIAR RATING		FOLIAR INDIVIDUAL PLANT AVERAGE RATING		ROOT VASCULAR STAIN RATING *		PLANT HEIGHT (inches) AT RATING		# MAIN STEM NODES AT RATING		PERCENT SURVIVAL (% survive out of emerged)	
					Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
664	Acala 1517-08	Zhang	Upland	Kern	2	0	1.2	0.94	2.4	0.91	23.67	4.47	16.67	1.95	59.98	7.3
			from RBTN	Tulare	1.67	1.15	0.67	0.98	2.27	0.59	27.13	5.55	15.53	1.55	54.29	10.3
			program	Kearney GH			2.33	1.37	3.67	0.52						
665	NM 1303	Zhang	Upland	Kern	1.33	1.15	0.27	0.7	2	0.65	27.13	3.5	19.53	1.85	98.25	3
				Tulare	0.67	1.15	0.13	0.52	0.67	0.9	28.07	7.69	16.4	2.1	68.57	22.3
				Kearney GH			2.17	1.47	3	1.79						
666	DP 393	Monsanto	Upland	Kern	0.67	0.58	0	0	2	0.38	27.53	4.44	16.53	2.07	95.84	6.9
				Tulare	1	1	0.33	0.72	1.67	0.98	21.6	3.94	13.47	1.51	52.38	18.2
				Kearney GH			2.5	1.64	2.83	0.98						
667	FM 958	Bayer	Upland	Kern	1	0	0	0	1.93	0.59	21.73	3.43	17.4	2.16	72.22	15.1
				Tulare	1.33	1.15	0.6	0.91	1.53	0.74	20.4	4.14	15.53	1.6	70.48	7.2
				Kearney GH			1.67	1.03	2.33	0.82						
668	SG-105	Monsanto	Upland	Kern	1.33	0.58	0.53	0.74	2.4	0.63	23.87	2.92	16.4	2.23	74.25	12.4
				Tulare	0	0	0.07	0.26	0.6	0.99	20.6	5.11	14.73	2.05	60.95	13.5
				Kearney GH			2.75	1.5	2.75	1.5						
669	DP 13R348 R2P	Monsanto		Kern	0	0	0	0	1.27	0.46	27.13	4.32	16.07	2.12	97.92	3.6
				Tulare	0.67	1.15	0.13	0.52	0.4	0.63	24.47	4.96	15.73	1.67	82.86	2.9
				Kearney GH			0.33	0.52	0.83	0.75						
670	DP 13R349 R2P	Monsanto		Kern	0.33	0.58	0	0	0.87	0.83	29.73	3.71	17.2	1.7	88.54	20
				Tulare	0.33	0.58	0	0	0.27	0.59	24.4	3.54	15.33	1.91	55.24	1.7
				Kearney GH			0.33	0.52	1	1.26						
671	DP 358 RF	Monsanto	Pima	Kern	1	1	0.13	0.52	1.4	0.51	28.53	3.46	17.4	1.45	92.99	6.7
				Tulare	0.67	1.15	0.33	0.72	0.8	0.77	24.87	3.81	15.4	1.18	72.38	3.3
				Kearney GH			0.83	0.96	2	0.89						
672	12 R254 R2	Monsanto		Kern	2.67	0.58	0.47	0.69	2.1	0.7	16.82	8.75	14.48	2.93	15.2	9.8
				Tulare	2	0	0.67	0.98	1.73	0.7	20.4	3.27	14.8	1.66	69.52	11.9
				Kearney GH			3	2	3	1.26						

University of CA and USDA-ARS Fusarium Screen Summary - 2013 trials
Hutmacher, Wright, Ulloa et al - February 2014

ENTRY #	ENTRY NAME	Company or Breeder	TYPE OF COTTON	LOCATION OF TRIAL	WHOLE PLOT FOLIAR RATING		FOLIAR INDIVIDUAL PLANT AVERAGE RATING		ROOT VASCULAR STAIN RATING *		PLANT HEIGHT (inches) AT RATING		# MAIN STEM NODES AT RATING		PERCENT SURVIVAL (% survive out of emerged)	
					Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
673	OA-EXP-3-17	Olvey		Kern	2.67	1.53	0.83	0.5	2.17	0.5	10.5	4.04	12.25	2.06	4.81	2.52
				Tulare	1.33	1.15	0.2	0.56	1.2	0.68	21.13	3.64	14.8	1.82	59.05	14.7
				Kearney GH			3.67	1.37	3.75	1.41						
674	OA-EXP—4-12	Olvey		Kern	1.67	0.58	0.33	0.9	1.8	0.56	23.2	4.35	17.27	2.28	28.48	4.1
				Tulare	1.33	1.15	0.33	0.72	1.47	0.99	21.6	6.37	15	1.93	69.52	8.7
				Kearney GH			1.17	1.83	1.67	1.51						
675	OA-EXP-5-18	Olvey		Kern	2.67	1.53	1.5	0.58	2.75	0.58	7.75	5	12.75	3.51	3.13	2.8
				Tulare	2.33	0.58	1.2	0.94	1.73	0.7	18.8	5.58	15.33	1.4	53.33	21.8
				Kearney GH			2.25	2.63	2.75	1.71						
676	OA-EXP-6-13	Olvey		Kern	1.67	0.48	0.44	0.73	1.64	0.54	21.47	6.358	16.7	4.26	55.13	8.1
				Tulare	1	1	0.27	0.7	0.6	0.74	20.33	5.02	14.93	1.71	76.19	15.7
				Kearney GH			0.67	0.82	1.33	1.03						
677	OA-EXP-7-13	Olvey		Kern	0.67	1.15	0.13	0.52	1.47	0.52	26.87	4.5	18	1.69	92.24	5.5
				Tulare	1.33	1.15	0.47	0.83	1.13	0.74	24.73	5.34	16.2	2.01	85.71	15.1
				Kearney GH			0.67	0.82	0.83	0.98						
678	OA-EXP-8-1	Olvey		Kern	2	0	0.8	0.86	2.13	0.92	12.53	4.17	14.27	2.02	28.03	10.7
				Tulare	1.67	0.58	0.2	0.56	1.6	0.74	18.93	4.61	15.4	1.8	58.1	13.2
				Kearney GH			2	1.9	2.67	1.63						
679	OA-EXP-9-5	Olvey		Kern	1.67	0.58	0.73	0.96	1.73	0.59	21.73	3.24	15.4	1.92	51.01	19.1
				Tulare	1.33	1.15	0	0	0.73	0.7	24.07	3.22	15.13	1.6	74.29	17.4
				Kearney GH			2.17	1.72	2.33	1.51						
680	OA-EXP-9-12	Olvey		Kern	2	0	1.2	0.94	2	0.53	20.33	4.97	15.67	3.06	54.12	8.3
				Tulare	0.67	1.15	0	0	2	0.76	21.27	3.49	15.87	1.19	71.43	7.6
				Kearney GH			1.17	1.6	1.5	1.38						
681	OA-EXP-13-8	Olvey		Kern	0.67	0.58	0	0	1.4	0.63	28.87	6.74	15.87	1.55	86.01	3.3
				Tulare	0.33	0.58	0	0	0.67	0.62	27.67	4.56	16.53	1.41	75.24	11.6
				Kearney GH			0.5	0.55	0.5	0.55						

University of CA and USDA-ARS Fusarium Screen Summary - 2013 trials
Hutmacher, Wright, Ulloa et al - February 2014

ENTRY #	ENTRY NAME	Company or Breeder	TYPE OF COTTON	LOCATION OF TRIAL	WHOLE PLOT FOLIAR RATING		FOLIAR INDIVIDUAL PLANT AVERAGE RATING		ROOT VASCULAR STAIN RATING *		PLANT HEIGHT (inches) AT RATING		# MAIN STEM NODES AT RATING		PERCENT SURVIVAL (% survive out of emerged)	
					Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
682	OA-EXP-14-12	Olvey		Kern	1.67	0.585	0.33	0.9	1.8	0.68	23.93	5.82	15.47	2.8	72.58	14.8
				Tulare	1.33	1.15	0.27	0.7	1.13	0.83	24.27	2.87	16.33	1.35	64.76	14.7
				Kearney GH			1.5	0.58	2.25	0.96						
683	OA-MI-18T	Olvey		Kern	3.33	2.08	2	1.73	3	1	9	5.2	13.33	2.31	3.03	2.1
				Tulare	2	0	0.67	0.98	1.73	0.7	22.2	2.21	15.47	1.19	67.62	4.4
				Kearney GH			2.83	0.98	2.67	1.03						
684	OA-EXP-58-30	Olvey		Kern	0.33	0.58	0	0	1.4	0.51	27.07	3.49	17.4	1.72	78.35	6.4
				Tulare	0.67	1.15	0	0	0.8	0.86	23.33	5.02	15.27	1.83	59.05	10.8
				Kearney GH			0.17	0.41	0.5	0.55						
685	Phy-800	Phytogen	Pima	Kern	0.67	0.65	0.33	0.72	1.13	0.52	26.33	2.64	16.13	1.41	89.88	11.5
				Tulare	1	0	0.07	0.26	0.67	0.82	24.87	3.04	15.8	1.97	66.67	1.7
				Kearney GH			0.33	0.52	1	0.63						
686	DP 1048	Monsanto		Kern	1.67	0.58	0.67	0.9	2	0.38	22.67	4.55	14.8	1.42	89.83	1.4
				Tulare	1.33	1.15	0.4	0.83	0.93	0.96	24.73	5.36	12.73	1.28	62.86	9.9
				Kearney GH			1.5	0.84	2.17	0.75						
687	DP 360	Monsanto	Pima	Kern	0.67	0.52	0.07	0.26	1.47	0.52	23.73	3.24	15.6	2.41	65.63	40.4
				Tulare	1	1	0.27	0.7	0.53	0.64	24.6	2.56	15.73	1.44	78.1	18.6
				Kearney GH			0.5	0.84	1.17	0.75						
688	T 1000	Bayer	Pima ?	Kern	1.67	0.58	0.6	0.91	1.27	0.59	24.6	6.66	14.47	2.61	74.65	26.9
				Tulare												
				Kearney GH			0.17	0.41	0.33	0.52						
689	T 9000	Bayer	Pima ?	Kern	0.67	0.58	0.27	0.7	0.8	0.56	28.53	4.37	16.67	3.2	95.51	5.3
				Tulare												
				Kearney GH			0	0	0.67	0.82						
690	ST 5458 B2F	Bayer	Upland	Kern	1.67	0.58	0.53	0.92	2.07	0.88	24	3.98	16.73	2.74	86.05	9.6
				Tulare	0.67	1.15	0.13	0.52	1.4	1.06	23.67	2.53	15.13	1.3	76.19	11.9
				Kearney GH			0.67	1.21	1.5	1.05						

University of CA and USDA-ARS Fusarium Screen Summary - 2013 trials
Hutmacher, Wright, Ulloa et al - February 2014

ENTRY #	ENTRY NAME	Company or Breeder	TYPE OF COTTON	LOCATION OF TRIAL	WHOLE PLOT FOLIAR RATING		FOLIAR INDIVIDUAL PLANT AVERAGE RATING		ROOT VASCULAR STAIN RATING *		PLANT HEIGHT (inches) AT RATING		# MAIN STEM NODES AT RATING		PERCENT SURVIVAL (% survive out of emerged)	
					Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
691	Phy 755 WRF	Phytogen	Upland	Kern	1.33	0.58	0.53	0.92	2.13	0.74	24.33	5.19	16.67	2.19	72.37	25.7
				Tulare	2	0	0.73	1.1	2	1	25.33	3.35	15.33	1.35	80	17.4
				Kearney GH			3.33	0.82	3.67	0.52						
692	FM 9058 F	Bayer	Upland	Kern	2	0	1	0.85	2.13	0.64	18.67	4.08	15.47	2.56	79.35	21.3
				Tulare	1.33	0.58	0.2	0.56	2	0.53	19.33	2.13	15.27	1.39	67.62	1.7
				Kearney GH			3.5	1.22	3.83	0.41						
693	Phy 375 WRF	Phytogen	Upland	Kern	1	1	0.33	0.62	1.87	0.64	23.53	5.26	15.27	1.39	78.21	5.7
				Tulare	1.33	1.15	0.6	1.06	1.33	0.98	25.27	4.62	14.8	1.82	79.05	3.3
				Kearney GH			2	0.89	3.33	0.82						
694	DP 161 B2RF	Monsanto	Upland	Kern	1.33	0.58	0.2	0.56	1.67	0.62	26.67	4.73	15.93	2.74	81.88	12.6
				Tulare	1	1	0.13	0.52	1.6	0.83	23.6	2.8	15.13	1.51	53.33	14.7
				Kearney GH			1	0.82	2	0.82						
695	FM 9170 B2RF	Bayer	Upland	Kern	0.67	0.52	0.13	0.35	1.8	0.56	27	3.63	18.33	1.72	94.21	4.6
				Tulare	1	1	0.13	0.52	1.13	1.13	22.6	2.61	15	1.41	81.9	3.3
				Kearney GH			1.33	1.37	2.67	1.39						
696	DP 0912 B2RF	Monsanto		Kern	0.33	0.58	0.4	0.83	1.67	0.62	28.13	2.72	17.13	2.1	94.38	3.5
				Tulare	0.33	0.58	0	0	1.13	1.06	24.27	3.9	14.27	1.53	72.38	8.7
				Kearney GH			2.83	1.17	3.67	0.52						
697	Phy 72	Phytogen	Acala / Upl	Kern	1.33	0.58	0.33	0.62	2.4	0.63	24.53	3.44	16.6	2.26	50.9	9.9
				Tulare	1.33	0.58	0.87	1.19	1.67	1.35	22.87	5.05	15.2	1.42	63.81	14.4
				Kearney GH			4	0.63	3.83	0.41						
698	DP 744	Monsanto	Pima	Kern	4.33	0.58	2	1.73	3	1	13.33	8.39	11.67	1.15	3.37	3.2
				Tulare	3	1	1	1	2.13	0.92	12.07	7.2	12.53	2.61	27.62	14.1
				Kearney GH			4.33	0.52	4.17	0.75						
699	BX 1347 GLB2	Bayer	Upland	Kern	0.67	0.58	0.2	0.41	2.2	0.41	24.07	4.08	16.67	2.19	88.66	2.2
				Tulare	1.33	1.15	0.67	0.98	1.8	0.94	22.8	2.6	15.53	0.99	60.95	22.9
				Kearney GH			3	1.26	3	1.1						

University of CA and USDA-ARS Fusarium Screen Summary - 2013 trials
Hutmacher, Wright, Ulloa et al - February 2014

ENTRY #	ENTRY NAME	Company or Breeder	TYPE OF COTTON	LOCATION OF TRIAL	WHOLE PLOT FOLIAR RATING		FOLIAR INDIVIDUAL PLANT AVERAGE RATING		ROOT VASCULAR STAIN RATING *		PLANT HEIGHT (inches) AT RATING		# MAIN STEM NODES AT RATING		PERCENT SURVIVAL (% survive out of emerged)	
					Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
700	BX 1422 GL	Bayer	Upland	Kern	1.33	0.58	0.4	0.63	1.73	0.59	23.53	5.15	14.53	2.53	60.23	28.1
				Tulare	1.67	1.15	0.18	0.6	1.82	0.4	21	6.83	14.36	2.38	33.33	31.5
				Kearney GH			2.17	1.47	2.83	0.75						
701	BX 1445 GLB2	Bayer		Kern	1	1	0.33	0.72	1.8	0.41	25.53	5.24	19.4	4.19	90.2	7
				Tulare	1	1	0.27	0.7	1.47	1.13	22.67	3.96	14.67	1.8	75.24	8.7
				Kearney GH			2.33	0.52	3.17	0.98						
702	T-1000	Bayer	Pima ?	Kern	1.67	0.58	0.53	0.92	0.93	0.46	28.87	3.89	17.33	1.88	96.38	3.6
				Tulare	1.67	0.58	0.67	0.98	0.2	0.56	21.2	2.57	14.47	1.68	75.24	13.5
				Kearney GH			0	0	0.67	0.82						
703	T-9000	Bayer	Pima ?	Kern	0.67	1.15	0.4	0.83	0.8	0.56	28.2	2.62	15.53	2.03	85.5	8.7
				Tulare	1	1	0.07	0.26	0.6	0.63	22.73	3.43	14.47	1.51	74.29	10.3
				Kearney GH			0.67	0.82	0.83	0.41						
704	Phy-1	Phytogen		Kern	1.33	1.15	0.67	0.9	1.4	0.63	24.33	4.1	15.8	2.21	91.18	4.3
				Tulare	0	0	0	0	0.8	0.77	24.53	3.07	15.53	1.13	86.67	4.4
				Kearney GH			0.17	0.41	1.17	0.41						
705	Phy-2	Phytogen		Kern	1.33	1.05	0.27	0.7	1.2	0.56	25.07	4.4	14.47	1.81	93.3	0.6
				Tulare	0.67	1.15	0.13	0.52	0.93	1.03	25.07	2.52	15	0.76	86.67	11.6
				Kearney GH			0.33	0.52	1	0.89						
706	Phy-3	Phytogen		Kern	1	1	0.33	0.62	1.53	0.64	26.6	5.49	16.4	2.87	86.03	10.2
				Tulare	0.33	0.58	0	0	0.8	0.68	21.6	4	15.27	1.49	70.48	4.4
				Kearney GH			0.5	0.84	1	1.1						
707	Phy-4	Phytogen		Kern	0.33	0.58	0.07	0.26	1.33	0.49	23.87	3.94	16.2	1.66	96.8	3
				Tulare	0.33	0.58	0	0	0.87	0.74	24.07	3.13	15.07	1.22	85.71	2.9
				Kearney GH			0	0	0.41							
708	Phy-5	Phytogen		Kern	0	0	0	0	1.27	0.59	24.47	4.39	15.53	2.8	92.88	0.8
				Tulare	0	0	0	0	0.87	0.92	24.87	2.42	16.13	1.19	80.95	10.8
				Kearney GH			0.5	0.55	0.67	0.52						

University of CA and USDA-ARS Fusarium Screen Summary - 2013 trials
Hutmacher, Wright, Ulloa et al - February 2014

ENTRY #	ENTRY NAME	Company or Breeder	TYPE OF COTTON	LOCATION OF TRIAL	WHOLE PLOT FOLIAR RATING		FOLIAR INDIVIDUAL PLANT AVERAGE RATING		ROOT VASCULAR STAIN RATING *		PLANT HEIGHT (inches) AT RATING		# MAIN STEM NODES AT RATING		PERCENT SURVIVAL (% survive out of emerged)	
					Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
709	Phy-6	Phytogen		Kern	0.33	0.58	0	0	1.33	0.62	27.13	3.72	15.13	2.39	81.85	26.5
				Tulare	0	0	0.07	0.26	1.13	0.92	25	2.17	15	0.93	84.76	4.4
				Kearney GH			0.5	0.55	1	0.63						
710	Phy-7	Phytogen		Kern	0.67	0.55	0.47	0.83	1.67	0.9	26.2	4.52	16.13	2.03	87.95	1.5
				Tulare	1.33	1.15	0.47	0.83	1.27	0.8	23	4.28	15.07	1.58	74.29	5.7
				Kearney GH			1.17	0.98	1.83	1.17						
711	Phy-8	Phytogen		Kern	1.33	1.15	0.67	0.9	1.67	0.82	20.07	3.37	14.6	2.64	81.77	5.7
				Tulare	1.33	1.15	0.47	0.83	1.33	0.62	24.07	3.17	15.27	1.03	87.62	6
				Kearney GH			0.17	0.41	1.17	0.41						
712	Phy-9	Phytogen		Kern	1	1	0.27	0.7	1	0.38	25.93	5.23	15.07	2.4	83.29	15.4
				Tulare	0	0	0	0	0.4	0.63	24.67	2.41	15.67	1.23	83.81	8.7
				Kearney GH			0.83	0.75	1	0						
713	Phy-10	Phytogen		Kern	2	0	0.53	0.92	1.73	0.46	25.6	2.95	16.13	2.07	98.96	7.9
				Tulare	0.67	0.65	0.2	0.56	0.87	0.92	25.4	3.16	14.67	1.54	93.33	10
				Kearney GH			1.33	1.03	1.67	0.52						
714	Phy-11	Phytogen		Kern	0.67	0.52	0.13	0.52	1.4	0.51	23.47	3.34	15.4	2.06	97.03	0.1
				Tulare	0	0	0	0	0.6	0.51	25.53	2.36	14.87	1.19	89.52	1.7
				Kearney GH			1.33	0.52	1.17	0.41						
715	Phy-12	Phytogen		Kern	1.33	1.15	0.33	0.72	1.33	0.49	24.53	3.7	15.4	1.96	82.44	16
				Tulare	0.67	1.15	0.13	0.52	0.67	0.82	25.8	3.12	15.27	1.1	78.1	6
				Kearney GH			0.17	0.41	1.33	0.52						
716	Phy-13	Phytogen		Kern	1.33	1.15	0.53	0.83	1.6	0.63	23.93	3.1	16.4	1.68	81.8	12.1
				Tulare	0	0	0	0	0.8	0.68	24.4	3.11	15.27	1.03	73.33	14.4
				Kearney GH			0.17	0.41	0.83	0.75						
717	Phy-14	Phytogen		Kern	0.33	0.58	0.2	0.41	1.27	0.59	25.89	6.12	14.8	3.4	85.6	4.5
				Tulare	0	0	0.07	0.26	0.87	0.92	26	2.93	15.8	2.11	84.76	6
				Kearney GH			0.17	0.41	0.67	0.52						

University of CA and USDA-ARS Fusarium Screen Summary - 2013 trials
Hutmacher, Wright, Ulloa et al - February 2014

ENTRY #	ENTRY NAME	Company or Breeder	TYPE OF COTTON	LOCATION OF TRIAL	WHOLE PLOT FOLIAR RATING		FOLIAR INDIVIDUAL PLANT AVERAGE RATING		ROOT VASCULAR STAIN RATING *		PLANT HEIGHT (inches) AT RATING		# MAIN STEM NODES AT RATING		PERCENT SURVIVAL (% survive out of emerged)	
					Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
718	Phy-15	Phytogen		Kern	0.33	0.58	0.13	0.35	1.6	0.74	25.4	4.48	16.53	2.1	92.99	6.3
				Tulare	1	1	0.14	0.53	0.71	0.61	24.33	3.09	15.2	1.42	71.43	11.4
				Kearney GH			0.67	0.52	1.67	0.82						
719	Phy-16	Phytogen		Kern	1.33	1.15	0.6	0.91	1.67	0.62	24.87	4.19	16.53	2.29	94.05	2.4
				Tulare	0	0	0.13	0.35	0.73	0.8	22.87	3.76	15.27	1.1	68.57	14.3
				Kearney GH			0.5	0.84	1.5	0.55						
720	ST 4288 B2RF	Bayer	Upland	Kern	1	1	0.27	0.7	1.2	0.77	26.07	4.35	16.6	2.32	96.81	3.2
				Tulare												
				Kearney GH			3	1.67	2.67	1.37						
721	HA-195	Hazera	Hybrid	Kern	0.33	0.58	0.07	0.26	1.67	0.9	31.2	4.87	16.4	2.06	60	15.3
				Tulare												
				Kearney GH			2.33	1.97	3.17	1.17						
722	HA-222	Hazera	Hybrid	Kern	0.67	0.52	0.27	0.59	1.93	0.7	31.13	5.5	16.93	2.71	94.38	7
				Tulare												
				Kearney GH			3.17	1.94	2.67	1.21						
723	DP 357	Monsanto	Pima	Kern	3.33	0.58	1.33	1.07	2.42	0.51	14.42	5.23	14	2.56	21.53	14.3
				Tulare												
				Kearney GH			3.5	1.05	3.17	1.33						
724	Cobalt	Bayer	Pima	Kern	3.67	0.58	2.08	0.35	2.67	0.82	10.14	6.31	9.43	2.44	15.56	15.4
				Tulare												
				Kearney GH			3.23	0.84	3.68	1.21						
725	Phy-830	Phytogen	Pima	Kern	3.67	1.15	2	1.05	2.8	0.63	9.8	3.12	12.4	3.47	9.09	7.6
				Tulare												
				Kearney GH			4.33	0.58	4	1						
726	Phy 367	Phytogen		Kern	2	0	0.4	0.83	2.07	0.8	27.67	4.12	16.8	2.65	87.64	2.7
				Tulare												
				Kearney GH			3	1.55	3	0.63						

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					Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
727	S-7	Public	Pima	Kern	3.67	0.58	1.31	0.72	2.54	0.97	9.46	2.93	10.85	2.85	23.81	16.5
				Tulare												
				Kearney GH			3.8	1.3	4	1						
728	BCS-1	Bayer		Kern	2.67	1.53	1.07	0.83	2.07	0.73	15.21	3.53	15.5	2.21	25.57	10.2
				Tulare												
				Kearney GH			4.2	0.84	4.2	0.84						
729	BCS-2	Bayer		Kern	3.67	0.58	1.31	1.38	2.31	0.85	12.23	2.52	12.62	3.1	13.89	3.9
				Tulare												
				Kearney GH			3.6	1.52	3.6	1.52						
730	BCS-3	Bayer		Kern	0.67	1.15	0.27	0.59	1.33	0.62	29.13	2.61	17	2.62	89.78	11.9
				Tulare												
				Kearney GH			0.33	0.58	1.33	0.58						
731	BCS-4	Bayer		Kern	1.33	1.15	0.4	0.74	1.33	0.62	21.13	1.85	15.73	1.58	91.96	2
				Tulare												
				Kearney GH			1	1.2	1	1.55						
732	BCS-5	Bayer		Kern	0.33	0.58	0.13	0.52	1.13	0.52	24.27	4.4	15.8	1.9	97.15	3.1
				Tulare												
				Kearney GH			0	0	1	0.63						
733	BCS-6	Bayer		Kern	1.33	1.15	0.4	0.83	0.47	0.64	27.73	3.08	16.87	2.75	84.26	21.7
				Tulare												
				Kearney GH			0	0	0.5	0.55						
734	BCS-7	Bayer		Kern	2	1	0.8	1.08	1.67	0.72	19.67	5.58	14.93	2.25	65.21	13.5
				Tulare												
				Kearney GH			1.17	1.47	1.67	1.63						
735	BCS-8	Bayer		Kern	1.33	1.15	0.13	0.52	0.6	0.51	29.53	2.45	15.67	1.72	93.49	8.9
				Tulare												
				Kearney GH			0.33	0.52	0.5	0.55						

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					Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
736	BCSX-1010	Bayer		Kern	1.67	0.58	0.73	0.88	1.8	0.77	25.6	4.15	16.4	3	82.14	13.5
				Tulare												
				Kearney GH			2.5	1.05	3.17	1.33						
737	BCSX-1030	Bayer		Kern	1.67	0.58	0.47	0.83	2.07	0.7	29.13	3.78	16.73	1.58	93.61	8.6
				Tulare												
				Kearney GH			0.67	0.82	1	0.63						
749	GW-06-3233	Stavros	Upland	Kern	2	0	1.17	0.86	2.44	0.51	21.27	3.31	18.07	0.8	51.8	24.01
				Tulare												
				Kearney GH			3.17	0.75	3.33	1.03						
748	GW-07-269	Stavros	Upland	Kern	2	0	0.5	0.76	2	0.68	26.3	5.08	18.9	1.2	83	3.12
				Tulare												
				Kearney GH			3.17	0.41	3.17	0.63						
747	GW-07-373	Stavros	Upland	Kern	2	0	0.86	0.96	2.24	0.7	23.43	3.2	18.4	1.35	66.2	14.03
				Tulare												
				Kearney GH			3.67	0.82	3.67	0.41						
744	SPRL-1000	Stavros	Pima	Kern	1.5	0.58	0.96	0.87	1.19	0.75	27	5.85	20	2.29	70.04	10.93
				Tulare												
				Kearney GH			0.83	1.33	1.67	1.03						
745	SPRL-9009-6	Stavros	Pima	Kern	0.33	0.58	0.29	0.46	1.14	0.73	33.07	4.22	22.07	1.28	89.4	4.2
				Tulare												
				Kearney GH			0.5	0.55	1	0.63						
746	SPRL-856/1	Stavros	Pima	Kern	0	0	0	0	0.39	0.5	31.85	3.25	21.75	1.16	89.2	5.15
				Tulare												
				Kearney GH			0.17	0.41	0.83	0.75						
	Phy-72	planted in	Acala	Kern	2.67	0.58	1.53	1.02	2.37	0.68	20.4	8.8	16.4	4.1	39.14	24.74
	S-7 public var. - susceptible check	same plot area	Pima	Kern	4	0	2.73	0.79	3.09	0.7	11.2	1.75	12.2	0.63	22.43	19.54
	Phy-800 - resistant check	as #744-749	Pima	Kern	0	0	0.14	0.36	0.38	0.5	29.87	4.21	18.73	0.46	91.48	4.48
	S-6	Public	Pima	Kern												
		comparison		Tulare												

		entry		Kearney GH			0.17	0.41	1	0.89						

University of CA and USDA-ARS Fusarium Screen Summary - 2013 trials
Hutmacher, Wright, Ulloa et al - February 2014

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					Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
	Shorty 09MU2034	USDA expt		Kern												
				Tulare												
				Kearney GH			2.67	1.03	3.17	0.41						
	FM 1845 LLB2	Bayer		Kern												
				Tulare												
				Kearney GH			2.5	1.22	2.83	0.75						
	JM-1 09MU2018-19	USDA expt		Kern												
				Tulare												
				Kearney GH			3.4	0.55	3.8	0.45						
	PS-7	Public		Kern												
		comparison		Tulare												
		entry		Kearney GH			4.17	0.75	4.17	0.75						
	Tamcot 73	Texas		Kern												
		A&M		Tulare												
				Kearney GH			3.17	1.17	3.17	0.98						
	P3-7a	Public		Kern												
		comparison		Tulare												
		entry		Kearney GH			4.17	0.41	3.5	0.55						
	FM 1773 LLB2	Bayer		Kern												
				Tulare												
				Kearney GH			2.17	0.75	3.33	0.52						
	FM 1740	Bayer		Kern												
				Tulare												
				Kearney GH			2.83	1.33	3.33	0.82						