

# Research Update

## Cotton Research Update – UC Cooperative Extension

### SEED FUNGICIDE TREATMENT TRIALS—UPDATE AND DATA SUMMARY

Bob Hutmacher, Mark Keeley (*UC Davis Plant Sci. Dept. and Shafter REC*), Brian Marsh (*UCCE-Kern Co. and Shafter REC*), Craig Rothrock (*Pathologist, Univ. of Ark.*)

Summaries of some data from cotton seed fungicide trials conducted 2001-2004 from the following trials are in Tables 2-6:

- Company Entry trials (seed treatments submitted to Bob Hutmacher from specific seed treatment companies)
- National Standards seed treatment trials (conducted by UC, but coordinated Beltwide by Dr. Craig Rothrock, Univ. Ark.)

Included are a range of fungicide seed treatments from both of these sets of trials. Planting dates and emergence count dates are shown in table captions, and heat units during several periods after planting are summarized in Table 1. Data from treated seed can be compared with untreated controls to determine impacts of

Table 1. Heat Units during specific periods after planting in UC seed fungicide treatment trials (refers to trial data shown in tables 2 — 6).

Table Number (tables in this article)	Year Or Location	Heat Units (base 60F)		
		First 5 days After plant	First 2 weeks After plant	Entire period from planting to final count
2	2001	2.5	34.6	223.4
	2002	43.9	100.3	178.1
3	2003	33.2	60.3	151.0
	2004	49.8	82.6	320.3
4	Shafter	33.2	60.3	110.8
	FresnoCo.	23.9	39.9	76.9
5 and 6	Shafter	49.8	82.6	320.3
	FresnoCo.	12.4	74.0	304.0

fungicide treatments on ability of seeds to emerge and produce surviving seedlings. Most data shown (Tables 2 through 6) represents stand counts made about 4 weeks after planting. Trials at Shafter were planted in a sandy loam soil with 2-3 years of cotton grown after cowpeas and corn or wheat. The Fresno County sites were clay loam soil, typically two years of cotton rotated out to tomatoes or small grain. Attempts were made to “aim” for planting during 5-day heat-unit forecasts classified “marginal” to put some pressure on the test, but test conditions after planting were highly variable. *Rhizoctonia* has been a dominant seedling disease at both Shafter and Fresno Co. sites, and *Thielaviopsis* is also present at the Shafter site. In these trials, we typically see significantly better emergence and seedling survival with the better performing seed treatments. We recognize that data from limited locations cannot fully represent the range of planting conditions growers encounter. Consider the intensity and “mix” of seedling diseases you have dealt with in the past and consider if effective chemicals are available to help.

Table 2. National Standard Seed treatment data from **Shafter REC tests in 2001, 2002**. Varieties were Upland (Suregrow 747 (2001) and DP451 BG/RR (2002)). Emergence data taken about 4 weeks after planting. Planting dates were 4/6/01 and 3/28/02 while evaluation dates were 5/09/01 and 4/23/02.

Seed Treatment Chemicals	Chemical Rate Used (oz per 100 wt seed)	Seedling Emergence (surviving seedlings as % emerged & remaining alive out of # of planted seed)	
		2001 Trial	2002 Trial
Baytan 30	0.5	68.9	69.6
Ascend 30	1.5		
Allegiance LS	1.2		
Protégé 70 WP	0.07	46.9	73.0
Ascend 30	1.5		
Allegiance LS	1.2		
Protégé 70 WP	0.07	61.0	71.6
Ascend 30	1.5		
Allegiance LS	1.2		
Baytan 30	0.25		
RTU Baytan Thiram	3.0	64.3	66.4
Allegiance FL	0.75		
RTU Baytan Thiram	3.0	63.3	65.0
Allegiance FL	0.75		
L1080, L1072	0.5, 9.1		
Apron XL-LS	0.32	52.1	Not tested
Maxim 4FS	0.08		
CGA301940	3.1		
Apron XL-LS	0.32	61.4	Not tested
Maxim 4 FS	0.08		
NuFlow M-WP	0.84		
NuFlow ND	7.5	64.6	Not tested
Apron XL-TL	1.0		
NuFlow M-WP	0.84		
Apron XL-TL	1.0	65.8	Not tested
WECO 01B50	0.5		
Nuflow M-WP	0.84		
Apron XL-TL	1.0	Not tested	69.9
NuCoat	7.5		
NuFlow M-WP	1.0		
Apron XL-TL	1.0	Not tested	70.4
NuCoat	7.5		
WECO 0257	0.5		
Vitavax-PCNB	6.0	50.2	69.1
Allegiance FL	0.75		
<b>Untreated Control</b>		<b>26.8</b>	<b>57.1</b>

*Other treatments in addition to those shown were in trials, but aren't shown here if entered as numbered experimentals or only entered limited years.*

Table 3. National Standard Seed treatment trial data from **Shafter REC tests**. The variety grown was an Upland (DP451 BG/RR (2003 & 2004)). Emergence data taken about 4 weeks after planting. Planting dates were 4/7/03 and 4/09/04 while evaluation dates were 5/13/03 and 5/12/04.

Seed Treatment Chemicals	Chemical Rate Used (oz or as shown per 100 wt seed)	Seedling Emergence (surviving seedlings as % emerged and remaining alive out of # of planted seed)	
		2003 Trial	2004 Trial
Baytan 30 Argent 30 Allegiance LS	0.5 1.5 1.2	66.8	80.4
RTU Baytan-Thiram Allegiance FL	3.0 0.75	69.3	82.4
Allegiance LS L1194, L0030	1.2 6.1, 1.5	66.4	Not tested
Apron XL-TL NuFlow M HF Nusan 30EC	1.0 2.5 2.0	64.3	81.3
Apron XL-TL NuFlow M HF Nusan 30 EC WECO 0257	1.0 2.5 2.0 0.63	65.0	82.1
Apron XL-TL NuFlow M HF NuFlow ND	1.0 2.5 14.5	65.2	83.6
Apron XL-TL WECO 0257 NuFlow ND	1.0 0.63 7.5	68.8	80.1
Dynasty	3.1	63.3	78.7
Dynasty	3.9	66.1	81.8
Dynasty Systhane 40 WP	3.1 0.84	66.2	81.6
Vitavax PCNB Allegiance FL	6.0 0.75	59.7	75.5
RTU-PCNB	14.5	44.3	72.8
Allegiance FL	1.5	59.3	75.7
Helena HM0233 HM0301	1.5 12.0	Not tested	81.6
<b>Untreated</b>		<b>37.8</b>	<b>68.8</b>
<i>Other treatment combinations in addition to those shown were in trials, but are not shown here if were entered as numbered experimentals or were only entered limited years.</i>			

Table 4. Company Entry Seed treatment trials in 2003 at **Shafter and Fresno County trial sites**. Variety planted at both sites was **Acala CPCSD "Maxxa"**. Planting date was 4/7/03 at Shafter site and 4/09/03 at Fresno County site. Evaluation dates were 5/06/03 at Shafter REC site and 5/07/03 in Fresno County.

Seed Treatment Chemicals	Chemical Rate Used (oz or as shown per 100 wt seed)	Seedling Emergence (surviving seedlings as % emerged and remaining alive out of # of planted seed)	
		Shafter site	Fresno Co
RTU Baytan-Thiram Allegiance	3.0 0.75	67.8	54.0
RTU Baytan-Thiram Allegiance Protégé XT Kodiak FL	3.0 0.75 0.6 0.5	68.1	65.5
RTU Baytan-Thiram Allegiance CotGard	3.0 0.75 9.1	70.7	60.9
RTU Baytan-Thiram Allegiance RTU Vlt THI Kodiak FL	3.0 0.75 12 0.5	70.7	62.1
RTU Baytan-Thiram Allegiance Protégé FL Baytan 30 FL Kodiak FL	3.0 0.75 0.4 0.25 0.5	69.9	58.3
Apron XL-TL WECO 0257 *	1.0 150 ppm	66.8	64.6
Apron XL-TL WECO 0257 * NuFlow M HHF	1.0 150 ppm 2.5	65.9	56.7
Apron XL-TL WECO 0500 * WECO 0310 *	1.0 100 ppm 50 ppm	65.3	61.4
Apron XL-TL WECO 0500 * WECO 0310 * NuFlow M HF	1.0 100 ppm 50 ppm 2.5	66.9	60.4
Apron XL-TL Nuflow ND NuFlow M HF	1.0 14.5 2.5	66.8	62.9
<b>Untreated Control</b>		<b>53.3</b>	<b>40.4</b>
* experimental numbered materials from Wilbur Ellis Co.			

Table 5. Company Entry Seed treatment trials in 2004 at **Shafter and Fresno County trial sites**. Variety planted at both sites was **Acala CPCSD “Maxxa”**. Planting date was 4/9/04 at Shafter site and 4/13/04 at Fresno County site. Evaluation dates were 5/10/04 at Shafter REC site and 5/19/04 at Fresno County.

Seed Treatment Chemicals	Chemical Rate Used (oz or as shown per 100 wt seed)	Seedling Emergence (surviving seedlings as % emerged and remaining alive out of # of planted seed)	
		Shafter Site	Fresno Co.
Apron XL-TL NuFlow ND NuFlow M WECO 0257 *	1.0 14.5 1.75 0.65	73.8	84.7
Apron XL-TL NuFlow ND NuFlow M WECO 0257 * BioStim C	1.0 14.5 1.75 0.65 0.25	74.0	81.3
NuFlow ND NuFlow M WECO 0257 * WECO 4004 *	14.5 1.75 0.65 0.60	76.7	81.6
RTU Baytan-Thiram 1.76FL Allegiance 2.65FL	195.5 ml 48.9 ml	69.9	76.2
Baytan 30-2.65FL Argent Allegiance LS	32.6 ml 97.79 ml 78.24 ml	74.3	84.1
L1226 + L0030 + L1008 **	41.73, 97.7, 78.24 ml	75.2	84.2
L1028 + L1226 + L0020 + L0037**	2.5 g ai, 41.7, 65.2, 20.86 ml	73.7	77.5
L0037-A1 + ** L0020-1+ L1226 +L0030 + L1080	32.6, 65.2, 41.73, 65.2, 32.6 ml	73.0	83.2
Vitavax 34 + L1226 + L0030+ L0020 + L1080 **	195.5, 41.73, 65.2, 65.2,32.6 ml	76.8	83.7
<b>Untreated Control</b>		<b>63.5</b>	<b>62.7</b>
* experimental numbered materials from Wilbur Ellis Co. ** experimental numbered materials from Gustafson Corp.			

**NOTE:** A review of other factors with potential to impact seedling survival (seed quality, chilling injury, soil conditions) is available on the UCCE cotton website (<http://cottoninfo.ucdavis.edu>) as an article in the November, 2003 (Vol. 69) CA Cotton Review newsletter.

Table 6. Company Entry Seed treatment trials in 2004 at Shafter and Fresno County trial sites. Variety planted at both sites was **Pima “Phytogen-76”**. Planting date was 4/9/04 at Shafter site and 4/13/04 at Fresno County site. Evaluation dates were 5/10/04 at Shafter REC site and 5/19/04 at the Fresno County site.

Seed Treatment Chemicals	Chemical Rate Used (oz or as shown per 100 wt seed)	Seedling Emergence (surviving seedlings as % emerged and remaining alive out of # of planted seed)	
		Shafter Site	Fresno Co.
Apron XL-TL NuFlow ND NuFlow M WECO 0257 *	1.0 14.5 1.75 0.65	75.1	82.7
Apron XL-TL NuFlow ND NuFlow M WECO 0257 * BioStim C	1.0 14.5 1.75 0.65 0.25	74.0	83.6
NuFlow ND NuFlow M WECO 0257 * WECO 4004 *	14.5 1.75 0.65 0.60	76.6	87.9
RTU Baytan-Thiram 1.76FL Allegiance 2.65FL	195.5 ml 48.9 ml	70.1	79.8
Baytan 30-2.65FL Argent Allegiance LS	32.6 ml 97.79 ml 78.24 ml	75.4	81.5
L1226 + L0030 + L1008 **	41.73,97.7, 78.24 ml	74.2	85.7
L1028 + L1226 + L0020 + L0037**	2.5 g ai, 41.7, 65.2, 20.86 ml	76.3	84.1
L0037-A1 + ** L0020-A1+L1226 +L0030 + L1080	32.6, 65.2,41.73, 65.2, 32.6 ml	74.1	86.1
Vitavax 34 + L1226 + L0030+ L0020 + L1080 **	195.5, 41.73,65.2, 65.2,32.6 ml	75.0	85.0
<b>Untreated Control</b>		<b>65.1</b>	<b>70.1</b>
* experimental numbered materials from Wilbur Ellis Co. ** experimental numbered materials from Gustafson Corp.			

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