

Flea Beetle and Stewart's Wilt Management in Sweet Corn Using Seed Treatments - 2004

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Sweet corn plots were established at the University of Delaware's Research Farm in Newark, DE. Two sweet corn varieties with high levels of Stewart's Wilt Susceptibility (Jubilee and Lumina) were planted on April 30. Plots consisted of two-17.5 ft-long rows on 30-inch centers. Each treatment was replicated four times and arranged in a RCB design. Seed treatments were applied commercially by Gustafson Inc. Stand counts and plants with flea beetle damage per 35 ft were recorded for four weeks after plant emergence. A vigor rating was done on the same date as the final stand count. Stewart's wilt was rated as percent infected plants and a final rating at harvest maturity. Data were analyzed using ANOVA and means were separated by Ryan's q-test ($P=0.05$).

Flea beetle and Stewart's Wilt pressure was moderate. All treatments provided better flea beetle control compared to the untreated check for each variety. On May 13, all treatments in both varieties had higher stand counts compared to the untreated check. On June 10 and June 17, all treatments showed a significantly lower percentage of Stewart's wilt infected plants compared to the untreated check within each variety. No phytotoxicity was observed.

Table 1 – Flea Beetle Data

Variety	Treatment	Rate	% Flea Beetle Damaged Plants	
			May 14	May 21
Jubilee	Captan 400, Thiram Allegiance	195.2 ml, 162.7 ml 48.8 ml/100 kg seed	0.00b	0.00b
Jubilee	Captan 400, Thiram Allegiance Poncho	195.2 ml, 162.7 ml 48.8 ml/100 kg seed 0.25 mg ai/seed	0.53b	0.00b
Jubilee	Captan 400, Thiram, Allegiance, L1243, Poncho	195.2 ml; 162.7 ml, 48.8 ml, 273.3 ml/100 kg 0.25 mg ai/seed	0.53b	0.00b
Jubilee	Captan 400, Thiram Allegiance, L1226-A1, Poncho	195.2 ml, 162.7 ml, 48.8 ml, 62.5 ml/100 kg 0.25 mg ai/seed	1.14b	0.00b
Jubilee	Captan 400, Thiram Allegiance, LO288 Poncho	195.2 ml, 162.7 ml, 48.8 ml, 6.24 g/100 kg 0.25 mg ai/seed	0.00b	0.00b
Jubilee	Captan 400, Thiram Allegiance Dividend Extreme Poncho	195.2 ml, 162.7 ml/100 32.5 ml/100 kg seed 130.1 ml/100 kg seed 0.25 mg ai/seed	0.00b	0.00b
Jubilee	L1403, Allegiance, Poncho	212 ml, 35.8 ml/100 kg 0.25 mg ai/seed	0.57b	0.00b
Jubilee	L1403, Allegiance L128-A1, Poncho	212 ml, 35.8 ml 3.3 ml/100 kg seed 0.25 mg ai/seed	0.00b	0.00b
Jubilee	Maxim, Apron XL Dividend Extreme Cruiser 5FS	5.2 ml, 12.36 ml, 130.1 ml/ 100 kg seed 0.125 mg ai/seed	0.51b	0.00b
Jubilee	Untreated	-----	14.31a	26.93a
Lumina	Captan 400, Thiram Allegiance	195.2 ml, 162.7 ml 48.8 ml/100 kg seed	0.00b	0.00b
Lumina	Captan 400, Thiram Allegiance Poncho	195.2 ml, 162.7 ml 48.8 ml/100 kg seed 0.25 mg ai/seed	0.53b	0.00b
Lumina	Captan 400, Thiram, Allegiance, L1243, Poncho	195.2 ml; 162.7 ml, 48.8 ml, 273.3 ml/100 kg 0.25 mg ai/seed	0.48b	0.56b
Lumina	Captan 400, Thiram Allegiance L1226-A1, Poncho	195.2 ml, 162.7 ml, 48.8 ml, 62.5 ml/100 kg 0.25 mg ai/seed	0.00b	0.74b
Lumina	Captan 400, Thiram Allegiance, LO288 Poncho	195.2 ml, 162.7 ml, 48.8 ml, 6.24 g/100 kg 0.25 mg ai/seed	0.00b	0.00b
Lumina	Captan 400, Thiram Allegiance Dividend Extreme Poncho	195.2 ml, 162.7 ml/100 32.5 ml/100 kg seed 130.1 ml/100 kg seed 0.25 mg ai/seed	0.00b	0.00b
Lumina	L1403 Allegiance, Poncho	212 ml, 35.8 ml/100 kg 0.25 mg ai/seed	0.00b	0.00b
Lumina	L1403, Allegiance L128-A1, Poncho	212 ml, 35.8 ml 3.3 ml/100 kg seed 0.25 mg ai/seed	0.00b	0.00b
Lumina	Maxim, Apron XL Dividend Extreme Cruiser 5FS	5.2 ml, 12.36 ml, 130.1 ml/ 100 kg seed 0.125 mg ai/seed	0.00b	0.00b
Lumina	Untreated	-----	17.63a	26.39a

Table 2 – Stand Counts

Variety	Treatment	Rate	Stand Counts per 35 ft of row			Vigor Rating May 25*
			May 13	May 17	May 25	
Jubilee	Captan 400, Thiram Allegiance	195.2 ml, 162.7 ml 48.8 ml/100 kg seed	31.50b	32.50cd	28.5cd	3.75de
Jubilee	Captan 400, Thiram Allegiance Poncho	195.2 ml, 162.7 ml 48.8 ml/100 kg seed 0.25 mg ai/seed	51.25a	51.25a	44.00abc	5.50abcde
Jubilee	Captan 400, Thiram, Allegiance, L1243, Poncho	195.2 ml; 162.7 ml, 48.8 ml, 273.3 ml/100 kg 0.25 mg ai/seed	48.50a	48.75a	42.50abc	6.5abcde
Jubilee	Captan 400, Thiram Allegiance, L1226-A1, Poncho	195.2 ml, 162.7 ml, 48.8 ml, 62.5 ml/100 kg 0.25 mg ai/seed	46.00a	45.25abc	38.00abcd	4.25cde
Jubilee	Captan 400, Thiram Allegiance, LO288 Poncho	195.2 ml, 162.7 ml, 48.8 ml, 6.24 g/100 kg 0.25 mg ai/seed	51.50a	51.75a	44.75abc	5.25bcde
Jubilee	Captan 400, Thiram Allegiance Dividend Extreme Poncho	195.2 ml, 162.7 ml/100 32.5 ml/100 kg seed 130.1 ml/100 kg seed 0.25 mg ai/seed	47.00a	48.25a	43.25abc	6.25abcde
Jubilee	L1403, Allegiance, Poncho	212 ml, 35.8 ml/100 kg 0.25 mg ai/seed	47.25a	49.00a	42.75abc	5.50abcde
Jubilee	L1403, Allegiance L128-A1, Poncho	212 ml, 35.8 ml 3.3 ml/100 kg seed 0.25 mg ai/seed	49.50a	48.50a	41.50abc	6.75abcde
Jubilee	Maxim, Apron XL Dividend Extreme Cruiser 5FS	5.2 ml, 12.36 ml, 130.1 ml/ 100 kg seed 0.125 mg ai/seed	49.50a	50.00a	44.25abc	6.50abcde
Jubilee	Untreated	-----	30.00b	34.25bcd	28.25cd	3.25e
Lumina	Captan 400, Thiram Allegiance	195.2 ml, 162.7 ml 48.8 ml/100 kg seed	33.00b	35.00bcd	30.50bcd	3.75de
Lumina	Captan 400, Thiram Allegiance Poncho	195.2 ml, 162.7 ml 48.8 ml/100 kg seed 0.25 mg ai/seed	47.75a	48.75a	47.00ab	8.25ab
Lumina	Captan 400, Thiram, Allegiance, L1243, Poncho	195.2 ml; 162.7 ml, 48.8 ml, 273.3 ml/100 kg 0.25 mg ai/seed	48.25a	50.00a	45.25abc	8.50ab
Lumina	Captan 400, Thiram Allegiance L1226-A1, Poncho	195.2 ml, 162.7 ml, 48.8 ml, 62.5 ml/100 kg 0.25 mg ai/seed	49.50a	50.00a	44.25abc	7.25abcd
Lumina	Captan 400, Thiram Allegiance, LO288 Poncho	195.2 ml, 162.7 ml, 48.8 ml, 6.24 g/100 kg 0.25 mg ai/seed	47.00a	46.75ab	42.75abc	7.50abc
Lumina	Captan 400, Thiram Allegiance Dividend Extreme Poncho	195.2 ml, 162.7 ml/100 32.5 ml/100 kg seed 130.1 ml/100 kg seed 0.25 mg ai/seed	52.50a	52.25a	48.00ab	8.25ab
Lumina	L1403 Allegiance, Poncho	212 ml, 35.8 ml/100 kg 0.25 mg ai/seed	48.25a	47.25ab	45.00abc	8.25ab
Lumina	L1403, Allegiance L128-A1, Poncho	212 ml, 35.8 ml 3.3 ml/100 kg seed 0.25 mg ai/seed	50.75a	51.50a	49.25a	9.00a
Lumina	Maxim, Apron XL Dividend Extreme Cruiser 5FS	5.2 ml, 12.36 ml, 130.1 ml/ 100 kg seed 0.125 mg ai/seed	43.75a	43.50abc	38.25abcd	5.75abcde
Lumina	Untreated	-----	27.75b	26.50d	22.50d	3.75de

Table 3 – Stewart’s Wilt Ratings

Variety	Treatment	MLB Rating Aug 2 **	% Stewart’s Wilt Infected Plants		
			June 3	June 10	June 17
Jubilee	Captan 400, Thiram Allegiance	6.25abc	0.00b	1.85c	3.64b
Jubilee	Captan 400, Thiram Allegiance Poncho	6.25abc	1.22b	1.22c	1.06b
Jubilee	Captan 400, Thiram, Allegiance, L1243, Poncho	7.00a	0.63b	1.30c	1.30b
Jubilee	Captan 400, Thiram Allegiance, L1226-A1, Poncho	6.75a	1.89b	1.89c	3.43b
Jubilee	Captan 400, Thiram Allegiance, LO288 Poncho	6.50ab	0.00b	0.52c	1.25b
Jubilee	Captan 400, Thiram Allegiance Dividend Extreme Poncho	6.75a	1.25b	1.25c	2.98b
Jubilee	L1403, Allegiance, Poncho	6.50ab	1.30b	1.94c	3.33b
Jubilee	L1403, Allegiance L128-A1, Poncho	6.25abc	0.00b	0.89c	0.89b
Jubilee	Maxim, Apron XL Dividend Extreme Cruiser 5FS	7.00a	0.48b	0.97c	2.01b
Jubilee	Untreated	5.25bcd	5.46ab	15.36ab	17.201a
Lumina	Captan 400, Thiram Allegiance	4.75d	1.46b	6.78bc	9.56ab
Lumina	Captan 400, Thiram Allegiance Poncho	5.00cd	0.52b	0.52c	0.54b
Lumina	Captan 400, Thiram, Allegiance, L1243, Poncho	5.25bcd	0.00b	0.54c	1.05b
Lumina	Captan 400, Thiram Allegiance L1226-A1, Poncho	4.75d	0.57b	1.05c	1.62b
Lumina	Captan 400, Thiram Allegiance, LO288 Poncho	5.00cd	0.89b	0.89c	1.34b
Lumina	Captan 400, Thiram Allegiance Dividend Extreme Poncho	5.25bcd	1.50b	3.489c	4.07b
Lumina	L1403 Allegiance, Poncho	5.25bcd	2.72ab	3.80c	2.35b
Lumina	L1403, Allegiance L128-A1, Poncho	5.00cd	0.00b	1.578c	1.58b
Lumina	Maxim, Apron XL Dividend Extreme Cruiser 5FS	5.75abcd	1.96b	2.76c	2.98b
Lumina	Untreated	5.25bcd	7.72a	17.60a	21.51a

Means within a column followed by the same letter are not significantly different (Ryan's q-test; P=0.05)

* Vigor Rating – Scale 1-9 1= unacceptable, poor uniformity 9= exceptionally vigorous and uniform

** MLB= Mature leaf blight rating (1-9 scale)

1= no infection	5 = 21-30% leaf area infected	9 = 76-100% leaf area infected
2=trace amount of infection	6= 31-40% leaf area infected	
3= 0-10% leaf area infected	7= 41-50% leaf area infected	
4= 11-20% leaf area infected	8= 51-75% leaf area infected	

