

**Flea Beetle and Stewart's Wilt Management in Sweet Corn Using Seed Treatments - 2002**

**Investigators:** Joanne Whalen, Marty Spellman (Entomology); Jim Hawk and Tecele Weldekidan, (Plant and Soil Science)

Sweet corn plots were established at the University of Delaware's Research Farm in Newark, DE and at the Research and Education center near Georgetown, DE. Three sweet corn varieties ranging in level of Stewart's wilt susceptibility (Lumina=highly susceptible, Jubilee=highly susceptible and Dynamo=moderately susceptible) were planted on May 6 in Newark, DE and May 9 in Georgetown, DE. 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. and Syngenta Seeds. Stand counts and plants with flea beetle damage per 35 ft were recorded for six weeks after plant emergence. Stewart's wilt was rated as percent infected plants at both locations and a mature leaf blight (MLB) rating at harvest maturity in Newark. All varieties were harvested at 75% moisture. Flea beetle and Stewart's Wilt data were analyzed using ANOVA and means were separated by LSD (P=0.05). Yield data were analyzed using ANOVA and means separated by Ryan's q-test (p=0.05)

Flea beetle pressure was light to moderate in both locations. **Newark Location Results:** On May 24, all treatments generally provided better flea beetle control compared to the untreated check for each variety. On June 12 and 21, all treatments in the Lumina and Jubilee varieties provided a significantly lower percentage of Stewart's wilt infected plants compared to the untreated check. **Georgetown Location:** On June 13, all treatments generally provided better flea beetle control compared to the untreated check for each variety. No differences were observed in the levels of Stewart's wilt. No phytotoxicity was observed

**Location I: University of Delaware Research Farm, Newark, DE**

**(A) Flea Beetle Damage Ratings**

Variety	Treatment	Rate	% Flea Beetle Incidence <sup>1</sup>			
			May 17	May 24	May 30	June 8
Dynamo	Gaucho 480	4 fl oz/cwt of seed	0.00a	0.00b	0.90b	0.44b
Dynamo	Gaucho 480	8 fl oz/cwt of seed	0.00a	0.00b	0.95b	1.79ab
Dynamo	Clothianidin	1.6 fl oz/cwt of seed	0.43a	0.00b	0.93b	0.88b
Dynamo	Clothianidin	3.2 fl oz/cwt of seed	0.00a	0.41b	0.87b	1.53ab
Dynamo	Cruiser	200 g ai/100 kg seed	0.00a	0.00 b	0.51b	0.00b
Dynamo	Untreated	Untreated	0.47a	2.73a	10.81a	1.85ab
Lumina	Gaucho 480	4 fl oz/cwt of seed	0.00a	0.00b	1.17b	0.00b
Lumina	Gaucho 480	8 fl oz/cwt of seed	0.00a	0.51b	0.88b	0.00b
Lumina	Clothianidin	1.6 fl oz/cwt of seed	0.00a	0.00b	1.66b	4.17a
Lumina	Clothianidin	3.2 fl oz/cwt of seed	0.00a	0.00b	0.50b	0.00b
Lumina	Cruiser	200 g ai/100 kg seed	0.00a	0.00b	0.91b	0.43b
Lumina	Untreated	Untreated	0.00a	3.02a	1.60b	0.00b
Jubilee	Gaucho 480	4 fl oz/cwt of seed	0.00a	0.00b	0.49b	0.42b
Jubilee	Gaucho 480	8 fl oz/cwt of seed	0.00a	0.42b	0.87b	0.00b
Jubilee	Clothianidin	1.6 fl oz/cwt of seed	0.00a	0.00b	0.86b	0.81b
Jubilee	Clothianidin	3.2 fl oz/cwt of seed	0.00a	0.43b	0.43b	0.88b
Jubilee	Cruiser	200 g ai/100 kg seed	0.00a	0.00b	1.30b	2.19ab
Jubilee	Untreated	Untreated	0.47a	2.60a	7.04ab	0.00b
LSD value			0.53	1.35	7.33	2.73

Means within a column followed by the same letter are not significantly different (LSD; P=0.05)

<sup>1</sup> Incidence evaluations based on newly emerged leaves

## (B) Stewart's Wilt Infection Levels

Variety	Treatment	Rate	% Stewart's Wilt Infected Plants	
			June 12	June 21
Dynamo	Gaucho 480	4 fl oz/cwt of seed	.42b	0.42c
Dynamo	Gaucho 480	8 fl oz/cwt of seed	.89b	0.89c
Dynamo	Clothianidin	1.6 fl oz/cwt of seed	.43b	0.43c
Dynamo	Clothianidin	3.2 fl oz/cwt of seed	0.00b	0.00c
Dynamo	Cruiser	200 g ai/100 kg seed	1.01b	1.51bc
Dynamo	Untreated	Untreated	1.85b	5.82b
Lumina	Gaucho 480	4 fl oz/cwt of seed	1.59b	3.74bc
Lumina	Gaucho 480	8 fl oz/cwt of seed	1.60b	3.69bc
Lumina	Clothianidin	1.6 fl oz/cwt of seed	1.50b	3.02bc
Lumina	Clothianidin	3.2 fl oz/cwt of seed	0.50b	1.49bc
Lumina	Cruiser	200 g ai/100 kg seed	0.00b	0.44c
Lumina	Untreated	Untreated	7.95a	12.15a
Jubilee	Gaucho 480	4 fl oz/cwt of seed	1.73b	3.41bc
Jubilee	Gaucho 480	8 fl oz/cwt of seed	1.29b	2.14bc
Jubilee	Clothianidin	1.6 fl oz/cwt of seed	0.42b	2.15bc
Jubilee	Clothianidin	3.2 fl oz/cwt of seed	0.90b	1.79bc
Jubilee	Cruiser	200 g ai/100 kg seed	1.28b	3.87bc
Jubilee	Untreated	Untreated	6.77a	14.84a
LSD Value			2.77	4.65

Means within a column followed by the same letter are not significantly different (LSD; P=0.05)

## (C) Stewart's Wilt MLB Rating and Yield

Variety	Treatment	Rate	MLB Rating <sup>1</sup>	Yield – Tons/A <sup>3</sup>
Dynamo	Gaucho 480	4 fl oz/cwt of seed	2.00d <sup>2</sup>	7.17ab
Dynamo	Gaucho 480	8 fl oz/cwt of seed	2.50bcd	5.88abcd
Dynamo	Clothianidin	1.6 fl oz/cwt of seed	2.00d	6.11abcd
Dynamo	Clothianidin	3.2 fl oz/cwt of seed	2.75bcd	7.25abcd
Dynamo	Cruiser	200 g ai/100 kg seed	2.25cd	6.41abcd
Dynamo	Untreated	Untreated	2.00d	6.16abcd
Lumina	Gaucho 480	4 fl oz/cwt of seed	2.25cd	6.16abcd
Lumina	Gaucho 480	8 fl oz/cwt of seed	2.75bcd	6.26abcd
Lumina	Clothianidin	1.6 fl oz/cwt of seed	3.25b	6.69abc
Lumina	Clothianidin	3.2 fl oz/cwt of seed	3.00bc	6.81abc
Lumina	Cruiser	200 g ai/100 kg seed	2.50bcd	6.02abcd
Lumina	Untreated	Untreated	2.75bcd	5.32abcd
Jubilee	Gaucho 480	4 fl oz/cwt of seed	5.25a	4.47abcd
Jubilee	Gaucho 480	8 fl oz/cwt of seed	4.50a	4.41bcd
Jubilee	Clothianidin	1.6 fl oz/cwt of seed	4.75a	5.32abcd
Jubilee	Clothianidin	3.2 fl oz/cwt of seed	5.00a	5.14abcd
Jubilee	Cruiser	200 g ai/100 kg seed	4.75a	4.38cd
Jubilee	Untreated	Untreated	5.00a	3.73d
LSD Value			0.92	XXXX

<sup>1</sup> MLB Rating - 1 = none

9 = over 95% leaf area infected

<sup>2</sup> Means within a column followed by the same letter are not significantly different (LSD; P=0.05)

<sup>3</sup> Means within a column followed by the same letter are not significantly different (Ryan's q test; P=0.05)

**Location II: Research and Education Center, Georgetown, DE**

Variety	Treatment	Rate	% Flea Beetle Incidence June 13 <sup>1</sup>	% Stewart's Wilt Incidence <sup>1</sup>		Yield - Tons/A <sup>2</sup>
				June 17	June 24	
Dynamo	Gaucho 480	4 fl oz/cwt of seed	1.32cde	0.00c	0.00b	6.31 a
Dynamo	Gaucho 480	8 fl oz/cwt of seed	0.75de	0.00c	1.36ab	9.52a
Dynamo	Clothianidin	1.6 fl oz/cwt of seed	0.82cde	0.00c	0.91ab	9.23a
Dynamo	Clothianidin	3.2 fl oz/cwt of seed	0.00e	0.00c	1.36ab	10.16a
Dynamo	Cruiser	200 g ai/100 kg seed	2.60bcde	0.32c	4.55a	9.52a
Dynamo	Untreated	Untreated	9.25a	0.77bc	2.27ab	9.28a
Lumina	Gaucho 480	4 fl oz/cwt of seed	1.53cde	0.00c	2.73ab	11.29a
Lumina	Gaucho 480	8 fl oz/cwt of seed	0.37de	1.63a	2.27ab	9.56a
Lumina	Clothianidin	1.6 fl oz/cwt of seed	0.59de	0.33c	2.73ab	11.22a
Lumina	Clothianidin	3.2 fl oz/cwt of seed	0.00e	0.84abc	1.82ab	10.81a
Lumina	Cruiser	200 g ai/100 kg seed	2.14bcd	0.00c	1.36ab	9.84a
Lumina	Untreated	Untreated	4.28bc	0.73abc	4.55a	11.64a
Jubilee	Gaucho 480	4 fl oz/cwt of seed	0.00e	0.00c	4.55a	8.91a
Jubilee	Gaucho 480	8 fl oz/cwt of seed	3.68bcd	0.00c	1.82ab	7.95a
Jubilee	Clothianidin	1.6 fl oz/cwt of seed	0.00e	0.00c	2.73ab	9.44a
Jubilee	Clothianidin	3.2 fl oz/cwt of seed	0.43de	0.00c	2.27ab	8.53a
Jubilee	Cruiser	200 g ai/100 kg seed	0.82cde	0.00c	3.64ab	8.71a
Jubilee	Untreated	Untreated	5.38b	1.41ab	4.55a	10.98a
LSD Value			3.5	0.94	3.99	XXXX

<sup>1</sup> Means within a column followed by the same letter are not significantly different (LSD; P=0.05)

<sup>2</sup> Means within a column followed by the same letter are not significantly different (Ryan's q test; P=0.05)