

Control of Lepidopterous Larvae in Fall Cabbage - 2002: Promising new chemistry and labeled insecticides were evaluated for control of the cabbage insect complex. 'Platinum Dynasty' field-grown cabbage transplants were planted on Aug 2 at Papen Farms, Inc., Dover, DE. Plots consisted of one 20-ft-long row on 3-ft centers. Each treatment was replicated four times and arranged in a RCB design. The evaluated materials are listed in the tables and all materials were applied on Aug 15, 22, and Sept 5, 12, and 23. Applications were made with a CO₂ backpack sprayer with a one-row boom, having 3 hollow-cone nozzles per row (one over the top and one drop nozzle on each side) delivering 38 gpa at 40 psi. Surf Aid NIS was included in all applications at a rate of 0.25% vol./vol. The number of lepidopterous larvae on each of 5 randomly selected plants per plot was recorded on a weekly basis from August 14 through September 27. The number of marketable heads was determined by examining feeding damage on the head and two wrapper leaves. Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

DBM populations were moderate and CL populations were low throughout the season. All treatments provided significantly better DBM control compared to the untreated check except the F0570 and Intrepid treatments on August 19. All treatments provided a significantly higher percentage of marketable heads compared to the untreated check except F0570. No phytotoxicity was observed.

I. Diamondback Data

Treatment	Rate per Acre	Number of Larvae per 5 Plants							
		Pre 8/14	Post Treatment						
			8/19 4DAT	8/26 4DAT	8/30 8DAT	9/9 4DAT	9/16 4DAT	9/18 6DAT	9/27 4DAT
F0570 .8EW	2.7 oz	3.50a	8.75ab	2.25b	1.50ab	3.75bc	2.00b	1.75bc	2.50ab
F0570 .8EW	4 oz	1.75a	7.50ab	3.00ab	1.25ab	3.50bc	2.00b	2.00b	2.50ab
Spintor 2SC	4.5 oz	2.25a	0.50c	0.00d	0.00b	0.25d	0.00d	0.00d	0.50b
Intrepid 2F	6 oz	2.00a	7.00ab	0.50cd	0.25b	4.00bc	0.75bcd	0.50cd	2.00b
Intrepid 2F	8 oz	4.50a	7.00ab	0.50cd	1.50ab	4.50bc	1.75bc	1.75bc	2.50ab
XR-225(GF-317)	3.2 oz	2.00a	4.75bc	2.00bc	0.00b	2.75bcd	0.75bcd	1.25bcd	3.25ab
Avaunt 30WG	3.5 oz	4.00a	4.75bc	0.25d	0.00b	0.00d	0.25cd	0.25d	0.25b
Proclaim 5WDG	2.4 oz	4.00a	2.25c	0.00d	0.00b	2.00cd	0.25cd	0.00d	1.25b
Proclaim 5WDG	3.6oz	2.75a	0.75c	0.00d	0.75b	1.75cd	0.00d	0.25d	0.25b
Proclaim (first) Spintor (second) Avaunt(third)	3.6 oz 6 oz 3.5 oz	2.00a	1.00c	0.00d	0.50b	0.25d	0.75bcd	0.50cd	0.50b
Novaluron 0.83EC	15 oz	3.50a	1.75c	0.00d	0.00b	0.25d	0.00d	0.00d	0.00b
Novaluron 0.83EC	12 oz	3.25a	1.25c	0.00d	0.00b	0.00d	0.25cd	0.00d	0.50b
Novaluron 0.83EC	9 oz	3.00a	1.25c	0.00d	0.00b	0.00d	0.00d	0.00d	0.25b
Untreated	----	2.00a	10.50a	4.25a	2.50a	7.25a	4.25a	3.75a	6.25a

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

II. Cabbage Looper Data

Treatment	Rate per Acre	% Marketable Heads	Number of Larvae per 5 Plants						
			Pre 8/14	Post Treatment					
				8/19 4DAT	8/26 4DAT	8/30 8DAT	9/9 4DAT	9/16 4DAT	9/18 6DAT
F0570 .8EW	2.7 oz	46.13ef	0.25a	0.25b	1.25a	0.25a	0a	0a	0.50a
F0570 .8EW	4 oz	48.43def	0.25a	0.50b	0.25a	0.00a	0a	0a	0.00a
Spintor 2SC	4.5 oz	91.28ab	0.00a	0.25b	1.75a	1.50a	0a	0a	0.00a
Intrepid 2F	6 oz	56.80de	0.00a	0.25b	0.00a	0.00a	0a	0a	1.00a
Intrepid 2F	8 oz	64.cde	1.00a	0.00b	0.00a	0.00a	0a	0a	0.00a
XR-225(GF-317)	3.2 oz	72.53bcd	0.25a	0.50b	0.00a	0.00a	0a	0a	0.00a
Avaunt 30WG	3.5 oz	92.75ab	0.25a	0.00b	0.00a	0.25a	0a	0a	0.00a
Proclaim 5WDG	2.4 oz	88.68abc	0.00a	0.00b	1.25a	0.50a	0a	0a	0.00a
Proclaim 5WDG	3.6oz	87.83abc	0.00a	1.75ab	0.50a	0.75a	0.25a	0a	0.00a
Proclaim (first) Spintor (second) Avaunt(third)	3.6 oz 6 oz 3.5 oz	88.30abc	0.00a	3.25a	0.25a	1.50a	0.00a	0a	0.00a
Novaluron 0.83EC	15 oz	97.28ab	0.00a	0.50b	0.25a	0.75a	0.25a	0a	0.00a
Novaluron 0.83EC	12 oz	100.00a	0.00a	0.50b	0.25a	0.00a	0.00a	0a	0.00a
Novaluron 0.83EC	9 oz	100.00a	0.00a	1.00b	2.00a	0.75a	0.00a	0a	0.25a
Untreated	----	30.78f	0.75a	1.25ab	1.50a	1.25a	0.50a	0a	0.75a

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

Corn Earworm Management in Late Planted Lima Beans - 2002: 'Maffei-15' lima beans were planted on July 19 at the Research and Education Center near Georgetown, DE. Plots consisted of four 20-ft-long rows on 2.5-ft centers. Each treatment was replicated four times and arranged in a RCB design. The evaluated materials are listed in the tables and all materials were applied on Sept 12. Applications were made with a CO₂ pressurized backpack boom sprayer delivering 18 gpa @ 40 psi. The number of corn earworm per 6 foot of row was recorded 5 and 12 DAT. Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

All treatments provided significantly better corn earworm control compared to the untreated check. No phytotoxicity was observed.

Treatment	Rate/Acre	Number Corn Earworm/6 ft of Row	
		Sept 17 5 DAT	Sept 24 12 DAT
Capture 2EC	1.6 oz	0.25b	1.00ab
Capture 2EC	2.1 oz	0.25b	0.50b
Capture 2EC	2.56 oz	0.75b	0.25b
F0570 0.8EW	3.2 oz	0.25b	0.00b
F0570 0.8EW	2.56 oz	0.00b	0.00b
Warrior T - 1EC	3.2 oz	0.25b	0.25b
Spintor 2SC	6 oz	0.00b	0.50b
Avaunt 30 WG	3.5 oz	0.00b	0.00b
Lannate LV	1.5 pt	0.50b	0.25b
Untreated	-----	2.50a	1.75a

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

Insect Management in Potatoes - 2002: ' Superior' potatoes were planted at the University of Delaware Research and Education Center located in Georgetown, DE on March 25. Plots consisted of three 25 ft-long rows on 3-ft centers. Each treatment was replicated four times and arranged in a RCB design. At-planting treatments were applied with a hand held one nozzle backpack sprayer delivering 4.2gpa at 40 psi. The Tops MZ Gaucho seed treatments were applied to cut seed using a cement mixer. Applications of foliar insecticides were broadcast applied when threshold levels of CPB were detected in each treatment on May 20 in all treatments and on May 30 only in the Avaunt treatments. A CO₂ pressurized backpack sprayer using 3 nozzles per row (2 drop nozzles and one over the row) delivered 38 gpa at 40 psi. Data were taken weekly from plant emergence on April 23 through June 24 from the center row of each plot and included the following: the number of CPB adults, egg masses, small and large larvae/5 randomly selected stems in each plot, and the number of potato leafhopper adults and nymphs per 5 sweeps within each plot. The center row of each plot was harvested on July 15 and all A- grade tubers were weighed. Fifty tubers from each of the at-planting treatments were also evaluated for wireworm damage. Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

Colorado potato beetle (CPB) and potato leafhopper (PLH) pressure was light to moderate. European corn pressure was extremely light. All treatments provided significantly better CPB adult and large larvae control compared to the untreated check. All treatments provided significantly better CPB small larvae control except the Avaunt treatments on May 28. No differences were observed between treatments for yield, PLH and wireworm damage. No phytotoxicity was observed.

Table I. Colorado Potato Beetle Adults

Treatment	Rate/Acre	Number CPB Adults/ 5 plants					
		May 20 Pre-trt	May 28	June 3	June 10	June 17	June 24
Admire 2F	16 oz (1.1 oz/1000 ft)	0.25a	0a	0b	0b	0a	0b
Platinum 2SC	6.5 oz (.44 oz/1000 ft)	0a	0a	0b	0b	0a	0b
Platinum + Ridomil Gold	1 qt (2.2 oz/1000 ft)	0.25a	0a	0b	0b	0a	0b
Tops MZ Gaucho	12 oz/cwt of seed	0a	0.25a	0b	0b	0a	0b
Provado 1.6F	3.75 oz	0a	0a	0b	0b	0.25a	1b
Actara 25 WG	1.5 oz	0a	0a	0b	0b	0.5a	0.5b
Spintor 2S	4 oz	0.5a	0.25a	0b	0b	0.5a	0b
Avaunt 30 WG	3.5 oz	0.25a	0.25a	0b	0.5ab	0.25a	1.25b
Avaunt 30WG + PBO	3.5 oz + 8 oz	0.75a	0a	0b	0b	0.25a	0b
Untreated	-----	0.25a	0.5a	0.5a	0.75a	0.75a	4.25a

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

Table II. Colorado Potato Beetle Small Larvae

Treatment	Rate/Acre	Number CPB Small Larvae/ 5 plants					
		May 20 Pre-trt	May 28	June 3	June 10	June 17	June 24
Admire 2F	16 oz (1.1 oz/1000 ft)	0b	0b	1b	0b	0a	0b
Platinum 2SC	6.5 oz (.44 oz/1000 ft)	0b	0b	0b	0b	0a	0b
Platinum + Ridomil Gold	1 qt (2.2 oz/1000 ft)	0b	0b	0b	0b	0a	0b
Tops MZ Gaucho	12 oz/cwt of seed	0b	1.25b	0.75b	0b	0.25a	0b
Provado 1.6F	3.75 oz	11.25ab	0b	0.75b	0b	0a	0b
Actara 25 WG	1.5 oz	19ab	2b	0b	0b	0a	0b
Spintor 2S	4 oz	11.5ab	3.75b	2.25b	0b	0.25a	0b
Avaunt 30 WG	3.5 oz	34.25a	19.75ab	2.75b	1.5a	0a	0b
Avaunt 30WG + PBO	3.5 oz + 8 oz	18.5ab	29.25ab	0.5b	0.5ab	0a	0b
Untreated	-----	20.25ab	63.75a	29a	1.25ab	0.25a	6.75a

Table III. Colorado Potato Beetle Large Larvae

Treatment	Rate/Acre	Number CPB Large Larvae/ 5 plants					
		May 20 Pre-trt	May 28	June 3	June 10	June 17	June 24
Admire 2F	16 oz (1.1 oz/1000 ft)	0a	0b	0.25b	0b	0a	0a
Platinum 2SC	6.5 oz (.44 oz/1000 ft)	0a	0b	0b	0b	0a	0a
Platinum + Ridomil Gold	1 qt (2.2 oz/1000 ft)	0a	0b	0b	0b	0a	0a
Tops MZ Gaucho	12 oz/cwt of seed	0a	0b	0b	0.25b	0.25a	0a
Provado 1.6F	3.75 oz	4.25a	0b	0b	0.5b	0a	0a
Actara 25 WG	1.5 oz	1.25a	0b	0b	0b	0a	0a
Spintor 2S	4 oz	0.75a	0b	1b	0b	0a	0a
Avaunt 30 WG	3.5 oz	0.25a	3b	1.75b	3b	0.5a	0a
Avaunt 30WG + PBO	3.5 oz + 8 oz	0.75a	0b	0.25b	0.25b	0a	0a
Untreated	-----	1.75a	15.25a	24a	18a	0a	0a

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

Table IV. Potato Leafhopper and Yield Data

Treatment	Rate/Acre	% Wireworm Damaged Tubers(July 15)	Number PLH/5 sweeps				Yield CWT/A
			May 28	June 3	June 10	June 17	July 15
Admire 2F	16 oz (1.1 oz/1000 ft)	8.00a	0a	0a	0a	0.25a	197.32
Platinum 2SC	6.5 oz (.44 oz/1000 ft)	13.00a	0a	0a	0.25a	0a	139.59
Platinum + Ridomil Gold	1 qt (2.2 oz/1000 ft)	XXX	0a	0a	0a	0a	196.87
Tops MZ Gaucho	12 oz/cwt of seed	11.00a	0a	0a	0a	0a	146.42
Provado 1.6F	3.75 oz	XXX	0.25a	0.25a	0.75a	0a	168.30
Actara 25 WG	1.5 oz	XXX	0a	0a	0a	0.25a	146.87
Spintor 2S	4 oz	XXX	0.5a	1a	1a	0a	131.75
Avaunt 30 WG	3.5 oz	XXX	0a	0a	0.25a	0a	112.50
Avaunt 30WG + PBO	3.5 oz + 8 oz	XXX	0a	0.5a	1a	0a	112.16
Untreated	-----	13.00a	0a	0.25a	1a	0a	134.82

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

Wireworm Management in Potatoes with Seed Treatments, 2002: ' Superior' potatoes were planted at the University of Delaware Research and Education Center located in Georgetown, DE on March 25. Plots consisted of four 25 ft-long rows on 3-ft centers. Each treatment was replicated four times and arranged in a RCB design. Seed treatments were applied to 40 lbs of cut seed per treatment using a cement mixer. In-season, tubers were collected from 10 linear foot of row in each plot 3 times during the growing season and all tubers were counted and evaluated for wireworm damage. Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

Wireworm pressure was moderate. No significant differences between treatments or phytotoxicity were observed.

Treatment	Rate	% Wireworm Damaged Tubers		
		June 10	July 1	July 11
Tops MZ Gaucho	0.75 lb/100 lbs	6.97a	21.72a	9.77a
L1240-A1	0.75 lb/100 lbs	11.40a	11.09a	7.19a
Tops MZ	0.75 lb/100 lbs	8.12a	11.72a	11.17a

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

Fall Snap Bean Insect Management- 2002: 'Tru-Blue' snap beans were planted on July 22 at the University of Delaware's Research and Education Center located near Georgetown, DE. Plots consisted of four 20 ft-long plots on 30-inch centers. Foliar treatments were applied Aug 26 (bud-bloom stage), Sept 3 (pin-stage) and Sep 10 (one week before harvest). Applications were applied as a broadcast spray with a CO₂ pressurized backpack sprayer delivering 18 gpa at 40 psi.. At harvest maturity (Sep 18), all the beans in 6 ft of row were harvested and evaluated for corn earworm (CEW) and European corn borer (ECB) damage. Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

CEW pressure was moderate and ECB pressure was light. All treatments provided significantly better CEW control compared to the untreated control. No phytotoxicity was observed.

Treatment	Rate/Acre	% CEW Damaged Beans	% ECB Damaged Beans
Capture 2EC	2.1 oz	0.58b	0.00a
Capture 2EC	2.56 oz	0.00b	0.00a
F0570 0.8EW	3.2 oz (.02 AI)	0.73b	0.00a
F0570 0.8EW	2.56 oz (.016 AI)	0.45b	0.00a
Warrior T - 1EC	3.2 oz	0.35b	0.18a
Spintor 2SC	6 oz	1.73b	0.00a
Avaunt 30 WG	3.5 oz	0.63b	0.00a
Lannate LV	1.5 pt	1.98b	0.48a
Untreated	----	8.13a	2.58a

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

Insect Management In Snap Beans with Seed Treatments, 2002: 'Tru-Blue' snap beans were planted on July 20 at the University of Delaware's Research and Education Center located near Georgetown, DE. Plots consisted of four 20 ft-long plots on 30-inch centers. The number of thrips and leafhopper nymphs per 10 leaves as well as the number of leafhopper per 10 sweeps were counted on weekly basis from the first true-leaf stage through August 19. Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

Thrips and leafhopper pressure was extremely light so no differences were observed between the treatments and the untreated control. No phytotoxicity or stand reduction was observed.

Treatment	Rate	Thrips/ 10 leaves		PLH/ 10 leaves		PLH/10 sweeps
		Aug 13	Aug 19	Aug 13	Aug 19	Aug 19
Gaucho 480	2 oz/cwt	10.25a	4.00a	1.75a	1.50a	0.75a
Gaucho 480	3 oz/cwt	4.25a	4.00a	0.50a	0.75a	1.25a
Cruiser 5FS	30 g ai/100 kg seed	5.00a	4.00a	0.50a	0.25a	0.50a
Cruiser 5FS	50 g ai/100 kg seed	2.50a	2.25a	0.75a	0.75a	0.50a
Untreated	-----	5.50a	4.75a	1.00a	1.50a	1.00a

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

Worm Management in Fall Spinach- 2002: ' Vancouver' spinach was planted on Aug 21 at the University of Delaware Research and Education Center located near Georgetown, DE. Twenty ft long plots planted 6 ft wide were replicated 4 times and arranged in a RCB design. All treatments were broadcast applied on Sept 13, 19 and 25. Treatments were applied with a CO₂ pressurized backpack sprayer delivering 18 gpa @ 40 psi. Surf Aid NIS was included in all applications at a rate of 0.25% vol./vol. The number of lepidopterous larvae on each of 10 randomly selected plants per plot was recorded on Sept 18, 24 and Sept 30. Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

Beet armyworm pressure was high and webworm pressure was moderate. All treatments provided significantly better beet armyworm control compared to the untreated check. Only the Proclaim treatments provided significantly better webworm control compared to the untreated check. No phytotoxicity was observed.

Treatment	Rate/Acre	Number of Webworms/10 plants - Sept 24	Number Beet Armyworm/10 Plants		
			Sept 18 5 DAT	Sept 24 5 DAT	Sept 30 5 DAT
Spintor 2SC	4.5 oz	2.00ab	1.75b	1.75b	1.25b
Avaunt 30WG	3.5 oz	2.75ab	2.25b	0.25b	2.25b
Proclaim 5WDG	2.4 oz	0.50b	4.50b	2.00b	4.75b
Proclaim 5WDG	3.6oz	1.50b	3.00b	0.00b	4.25b
Proclaim (first) Spintor (second) Avaunt (third)	3.6 oz 6 oz 3.5 oz	0.50b	1.75b	0.75b	1.50b
Novaluron 0.83EC	15 oz	2.00ab	4.50b	2.00b	6.50b
Novaluron 0.83EC	12 oz	2.75ab	4.00b	1.25b	7.50b
Novaluron 0.83EC	9 oz	2.00ab	5.25b	1.25b	7.25b
Untreated	----	4.25a	13.25a	7.00a	24.25a

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

Late Planted Sweet Corn - Silk Spray Trial - 2002: 'Silverado' sweet corn was planted on July 6 at the University of Delaware Research and Education Center located near Georgetown, DE. Plots consisted of two row, 20 ft-long plots planted on 30-inch centers. Each treatment was replicated 4 times and arranged in a RCB design. All treatments listed in the table were applied on a 2-4 day schedule (Aug 25, 27, 30; Sept 3, 6, 10, and 13). Applications of foliar insecticides were applied with a CO₂ pressurized back sprayer using 4 nozzles per row delivering 41 gpa at 40 psi. At harvest (Sep 17), all ears from each plot were husked and evaluated for damage as fresh market ears (no damage) and processing ears (no damage + damage only within 1.5 inches from the tip). The total number of larvae of each species was also counted. Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

Corn earworm and fall armyworm pressure was high. Corn borer pressure was moderate. All treatments provided a significantly higher percentage of processing and fresh market ears and lower percentage of insect damaged ears compared to the untreated check. Warrior at the high rate provided a significantly higher percentage of fresh market and processing ears compared to the other treatments. No phytotoxicity was observed.

Treatment	Rate per Acre	% Clean Ears (Fresh Market)	% Tip Damaged Ears (Processing)	% Damaged Ears		
				Corn Earworm	Fall Armyworm	European Corn Borer
Warrior Zeon 1CS	2.56 oz	69.98d	82.36abc	10.66cd	17.43b	1.94b
Warrior Zeon 1CS	3.2 oz	77.96bcd	83.35abc	9.37cd	10.24b	2.43b
Warrior Zeon 1CS	3.84	93.59a	95.60a	2.48d	3.93b	0.00b
Capture 2EC	2.88 oz	89.82ab	93.77ab	5.86cd	4.25b	0.47b
Baythroid 2EC	2.8 oz	72.64cd	85.89abc	16.75c	10.68b	0.86b
Baythroid XL 1 EC	2.8 oz	74.22cd	81.60bc	15.53cd	10.39b	1.91b
XR-225	3.84 oz	53.70e	74.43c	35.17b	11.09b	0.47b
Untreated	-----	0.00f	3.84d	58.98a	57.03a	37.59

Means in the same columns followed by the same letter are not significantly different (Ryan's q test; P=0.05).

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

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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 ¹			
			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)

¹ 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 ¹	Yield – Tons/A ³
Dynamo	Gaucho 480	4 fl oz/cwt of seed	2.00d ²	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

¹ MLB Rating - 1 = none

9 = over 95% leaf area infected

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

³ 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 ¹	% Stewart's Wilt Incidence ¹		Yield - Tons/A ²
				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

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

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

Spider Mite Management in Watermelons - 2002: 'Jamboree' watermelon transplants were planted on May 28 at the University of Delaware Research and Education Center located near Georgetown, DE. Plots consisted of two 35 ft-long rows on 8 ft centers. Each treatment was replicated four times and arranged in a RCB design. Treatments were applied as a broadcast spray on June 8 (all treatments); June 19 (#1, 5, 7, 8, and 9) and June 26 (#3 and 4). All foliar treatments were applied with a CO₂ pressurized ATV 4-wheeled sprayer delivering 22 gpa at 60 psi. Mite populations were evaluated on a weekly basis from June 4 through July 30 by looking at 5 plants per plot to determine the percent infested plants and by collecting 20 leaves per plot and using a mite brushing machine to determine the number of mites per 20 leaves. On Aug 6, all fruit was harvested, weighed, and rated for mite damage to the rind. A fruit damage rating scale of 1-5 was used with 1 = no damage and 5 = 50-100% fruit with mite damage (pimpling/sunburning). Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

Spider mite population pressure was high. After the June 8 treatments, all treatments had significantly fewer mites per 20 leaves compared to the untreated check. All treatments had a significantly lower percentage of infested crowns compared to the untreated check except for the MESA and GWN-159 treatments. Overall, 2 applications of Agri-Mek (8 oz), Agri-Mek followed by Capture; and 2 applications of Acramite provided the best mite control. No phytotoxicity was observed.

Table I. Evaluation After First Application on June 8

	Treatment	Number of Applications	Rate/Acre	% Infested Crowns			Number Mites per 20 leaves		
				June 4 Pre-Trt	June 11 3DAT	June 18 10DAT	June 4 Pre-Trt	June 11 3DAT	June 18 10DAT
1	Agri-Mek 0.15EC	2	8 oz	100a	40bcd	70ab	358.75a	10.50bc	31.50c
2	Agri-Mek 0.15 EC	1	16 oz	100a	15d	50abc	601a	9.00bc	24.00c
3	Capture 2EC	2	6.4 oz	100a	0d	15c	652.2a	0.00c	12.00c
4	Capture 2EC	1	6.4 oz	100a	10d	35bc	390.75a	1.50c	6.00c
	Agri-Mek 0.15EC	1	8 oz						
5	Agri-Mek 0.15EC	1	8 oz	95a	20d	60abc	380.75a	3.00c	24.00c
	Capture 2EC	1	6.4 oz						
6	Mesa 0.077 EC	1	24 oz	100a	70abc	85ab	509.25a	22.50bc	40.50c
7	GWN-1549	2	6 oz	100a	85ab	100a	337.75a	31.50b	321.00b
8	GWN-1549	2	12 oz	100a	85ab	95a	705.25a	13.50bc	243.00bc
9	Acramite 50WP	2	0.75 LB	100a	25cd	50abc	223.25a	11.00bc	36.00c
10	Untreated		-----	100a	95a	100a	434.75a	57.00a	537.00a

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

Table II. Evaluation after Second Application on June 19 - % Infested Crowns

	Treatment	Number of Applications	Rate/Acre	% Infested Crowns					
				June 25 6 DAT	July 2 13 DAT	July 9 20 DAT	July 16 27 DAT	July 23 34 DAT	July 30 41 DAT
1	Agri-Mek 0.15EC	2	8 oz	40b	20c	15d	40b	55a	X
2	Agri-Mek 0.15EC	1	16 oz	80ab	45abc	75abc	80ab	95a	X
3	Capture 2EC	2	6.4 oz	45b	35c	50bcd	85ab	85a	X
4	Capture 2EC Agrimek 0.15EC	1 1	6.4 oz 8 oz	60ab	40abc	65abc	65ab	90a	X
5	Agrimek 0.15EC Capture 2 EC	1 1	8 oz 6.4 oz	40b	20c	30cd	65ab	70a	X
6	Mesa 0.077 EC	1	24 oz	75ab	80ab	95ab	90ab	85a	X
7	GWN-1549	2	6 oz	95a	80ab	80ab	85ab	85a	X
8	GWN-1549	2	12 oz	80ab	65abc	75abc	80ab	90a	X
9	Acramite 50WP	2	0.75 LB	30b	20c	30cd	65ab	75a	X
10	Untreated	-----	-----	95a	100a	100a	95a	100a	X

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

Table III. Evaluation after Second Application on June 19 - Spider Mite Count

	Treatment	Number of Applications	Rate/Acre	Mean Number of Spider Mites per 20 Leaves					
				June 25 6 DAT	July 2 13 DAT	July 9 20 DAT	July 16 27 DAT	July 23 34 DAT	July 30 41 DAT
1	Agri-Mek 0.15EC	2	8 oz	19.50b	3.00b	7.50b	34.50b	73.50b	33.00a
2	Agri-Mek 0.15EC	1	16 oz	55.50b	156.00b	123.00b	427.50b	318.00b	97.50a
3	Capture 2 EC	2	6.4 oz	40.50b	16.50b	12.00b	97.50b	195.00b	114.00a
4	Capture 2 EC	1	6.4 oz	21.00b	37.50b	64.75b	38.00b	219.00b	111.00a
	Agri-Mek 0.15EC	1	8 oz						
5	Agri-Mek 0.15EC	1	8 oz	10.50b	6.00b	10.50b	19.50b	56.50b	42.00a
	Capture 2EC	1	6.4 oz						
6	Mesa 0.077 EC	1	24 oz	73.50b	84.00b	165.00b	472.50b	621.00b	84.00a
7	GWN-1549	2	6 oz	136.50b	94.50b	118.50b	174.00b	203.00b	70.50a
8	GWN-1549	2	12 oz	39.00b	36.00b	63.00b	125.00b	181.50b	37.50a
9	Acramite 50WP	2	0.75 LB	12.00b	9.00b	15.00b	42.00b	67.50b	55.50a
10	Untreated		-----	562.50a	1135.50a	820.50a	1801.50a	1476.00a	63.00a

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

IV. Table 4 - Harvest Evaluation -August 6, 2002

	Treatment	Number of Applications	Rate/Acre	Fruit Damage Rating(1-5 scale) *	Mean Number	Yield – Total lbs.
1	Agri-Mek 0.15EC	2	8 oz	2.75bc	16.25a	439.65a
2	Agri-Mek 0.15EC	1	16 oz	2.75bc	18.25a	477.90a
3	Capture 2EC	2	6.4 oz	2.75bc	18.00a	465.13a
4	Capture 2EC Agrimek 0.15EC	1 1	6.4 oz 8 oz	2.75bc	13.50a	342.03a
5	Agrimek 0.15EC Capture 2EC	1 1	8 oz 6.4 oz	1.50c	14.50a	364.85a
6	Mesa 0.077 EC	1	24 oz	3.5b	16.50a	433.50a
7	GWN-1549	2	6 oz	2.75bc	19.50a	477.48a
8	GWN-1549	2	12 oz	3.25b	16.75a	434.80a
	Acramite 50WP	2	0.75 LB	2.50bc	15.75a	398.70a
	Untreated	---	---	5.00a	16.25a	374.35a

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

- * Fruit Damage Rating – 1 = None
 2 = 5-10% with pimples/sunburn
 3 = 11- 20%
 4 = 21 – 49 %
 5 = 50 – 100%

Aphid and Barley Yellow Dwarf Management in Wheat using Seed Treatments and a Foliar Application of Warrior, 2001-2002

Investigators: J. Whalen, B. Uniatowski, M. Spellman

'Southern States 555W' was planted on October 3, 2001 at Baker Farms, Inc. located near Middletown, DE. Seed treatments were applied with a hand held sprayer to a measured amount of seed placed in a cement mixer while treating to insure even coverage. The Warrior treatment was applied on Nov 1 with a CO₂ - pressurized backpack boom sprayer delivering 18 gpa @ 40 psi. The number of aphids per 3 foot of row was counted from October 23 through December 5. Plots were harvested on June 27 and yields were calculated. Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

Aphid populations were moderate. Both greenbugs and bird cherry-oat aphid were found in the plot. All treatments provided significantly better aphid control compared to the untreated check. No phytotoxicity was observed.

Treatment	Rate	Aphids per 3 foot of row				Barley Yellow Dwarf Rating	Yield BU/A
		10/23/01	10/30/01	11/06/01	12/05/01		
Cruiser	1 oz/cwt	0.25a	0.25a	0.25a	0.25a	None - Very Light	67.16a
Gauche 480	1 oz/cwt	1.00a	0.00a	0.25a	0.50a	Very Light-Light	66.56a
Gauche 480	2 oz/cwt	1.50a	0.75a	0.25a	0.25a	None- Very Light	68.60a
Warrior T	2.56 oz/A	8.25b *	18.75b *	0.25a	0.50a	None- Very Light	70.25a
Untreated	-----	11.00b	25.25b	18.5b	12.20b	Light - Moderate	62.71a

* Not treated until Nov 1, 2001

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

White Grub Management in Field Corn Using Seed Treatments and Soil Insecticides, 2002: 'N58-D1' was planted on April 16 at the University of Delaware Research and Education Center located near Georgetown, DE at a rate of 24,000 plants per acre. Four-row 40 foot long plots on 30-inch centers were replicated 4 times in a RCB design. Seed-applied treatments were applied commercially by Gustafson and Syngenta Seeds. The liquid in-furrow treatments were applied in 5.5 gallons of water per acre. Force 3G and Counter CR granular treatments were placed in-furrow. Stand counts and wireworm damaged plants were evaluated on a 7-10 day basis from April 24 through May 29. Yields were taken from the center two rows of each plot on September 11. Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

White grub pressure was moderate (2 per sq. foot before planting). No significant differences were observed between the stand counts and yield when compared to the untreated check. On May 7, all treatments provided significantly better grub control compared to the untreated check except Counter, the high rate of Warrior and Regent. On May 17, all treatments provided significantly better grub control compared to the untreated check except Gaucho, Prescribe, Mustang, Warrior and Regent. No phytotoxicity was observed.

I. Stand Count Data

Treatment	Rate	# Plants/100 ft				
		April 29	May 7	May 14	May 21	May 28
Gaucho 600	.161 mg ai/seed	120.25a	123.25a	124.00a	132.25a	149.00a
Gaucho 600 - Prescribe	1.34 mg ai/seed	117.25a	122.50a	128.00a	133.75a	134.50ab
Poncho (Clothianidin)	0.25 mg ai/seed	117.75a	120.50a	125.00a	126.75a	127.50b
L0263	0.125 mg ai/seed	116.00a	119.25a	120.75a	129.00a	125.75b
L0263	0.08 mg ai/seed	122.25a	127.50a	125.25a	131.00a	133.50ab
Cruiser	100 g ai/100 kg seed	116.00a	121.25a	122.00a	130.75a	130.25ab
Cruiser	500 g ai/100 kg seed	121.25a	126.00a	131.25a	136.00a	141.50ab
Force ST (Proshield)	527 g ai/100 kg seed	122.25a	120.50a	134.25a	131.25a	141.00ab
Force 3 G	5.5 lbs/acre	121.00a	124.25a	125.75a	133.75a	138.50ab
Counter 20CR	6.5 lbs/acre	119.25a	123.75a	128.50a	133.75a	136.00ab
Mustang 1.5 EW	4.2 oz/A	123.50a	126.00a	125.25a	135.25a	136.00ab
Warrior T	1.92 oz/acre (.11oz/1000 ft)	123.25a	122.25a	120.50a	120.00a	122.50ab
Warrior T	3.2 oz/acre (.18oz/1000ft)	114.00a	121.50a	124.50a	132.75a	130.75ab
Regent 4 SC	4.16 oz/A (.24 oz/1000ft)	122.00a	124.50a	121.25a	130.25a	132.25ab
Untreated	-----	116.50a	126.00a	123.75a	129.75a	141.50ab

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

II. White Grub Damaged Plants and Yield

Treatment	Rate	Yield (BU/A)	% White Grub Damaged Plants			
			May 7	May 14	May 21	May 29
Gaucha 600	.161 mg ai/seed	183.06a	0.61bc	0.40abc	0.19a	1.17a
Gaucha 600 - Prescribe	1.34 mg ai/seed	180.22a	1.22bc	0.39abc	0.00a	1.67a
Poncho (Clothianidin)	0.25 mg ai/seed	187.78a	0.83bc	0.20bc	0.00a	1.18a
L0263	0.125 mg ai/seed	189.04a	1.47abc	0.00c	0.19a	1.59a
L0263	0.08 mg ai/seed	191.32a	0.39bc	0.00c	0.00a	0.94a
Cruiser	100 g ai/100 kg seed	160.41a	0.41bc	0.20bc	0.19a	2.30a
Cruiser	500 g ai/100 kg seed	202.12a	0.20c	0.19bc	0.00a	0.18a
Force ST (Proshield)	527 g ai/100 kg seed	204.17a	0.00c	0.00c	0.00a	0.71a
Force 3 G	5.5 lbs/acre	188.53a	0.40bc	0.20bc	0.19a	0.72a
Counter 20CR	6.5 lbs/acre	179.00a	1.41abc	0.00c	0.19a	1.10a
Mustang 1.5 EW	4.2 oz/A	186.13a	0.99bc	0.40abc	0.00a	0.55a
Warrior T	1.92 oz/acre (.11oz/1000 ft)	191.42a	0.61bc	1.45abc	0.00a	0.61a
Warrior T	3.2 oz/acre (.18oz/1000ft)	193.39a	1.65abc	1.61ab	0.19a	1.53a
Regent 4 SC	4.16 oz/A (.24 oz/1000ft)	189.29a	2.21ab	1.65ab	0.77a	1.70a
Untreated	-----	172.70a	2.98a	1.82a	0.19a	2.47a

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

White Grub Management in Field Corn Using Seed Treatments and Sol Insecticides #2, 2002: 'N58-D1' was planted on May 6 at the Wells Farm located near Milford, DE at a rate of 24,000 plants per acre. Four-row 40 foot long plots on 30-inch centers were replicated 4 times in a RCB design. Seed-applied treatments were applied commercially by Gustafson and Syngenta Seeds. The liquid in-furrow treatments were applied in 5.5 gallons of water per acre. Force 3G and Counter CR granular treatments were placed in-furrow. Stand counts and wireworm damaged plants were evaluated on a 7-10 day basis from May 17 through June 11. Yields were taken from the center two rows of each plot on October 2. Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

White grub pressure was low (0.5 per sq. foot before planting). No significant differences were observed between treatments and the untreated control. No phytotoxicity was observed.

Treatment	Rate	Stand Count per 100 ft of row					Yield BU/A
		May 17	May 22	May 29	June 6	June 11	
Gaucha 600	.161 mg ai/seed	147.50a	153.75a	129.50a	131.75a	136.00a	146.54a
Gaucha 600	1.34 mg ai/seed	144.25a	156.00a	133.25a	142.75a	139.75a	153.02a
Poncho (Clothiandin)	0.25 mg ai/seed	147.50a	152.75a	136.00a	133.50a	139.50a	166.52a
L0263	0.125 mg ai/seed	148.25a	152.50a	121.00a	127.25a	129.75a	169.62a
L0263	0.08 mg ai/seed	149.00a	156.75a	138.75a	145.00a	141.00a	176.01a
Cruiser 5FS	100 g ai/100 kg seed	150.50a	156.75a	139.00a	144.25a	143.25a	132.14a
Force 3 G	5.5 lbs/acre	151.25a	153.50a	138.25a	136.75a	139.25a	189.17a
Counter 20CR	6.5 lbs/acre	138.75a	154.50a	136.50a	138.00a	139.25a	167.08a
Mustang 1.5 EW	4.2 oz/A	146.25a	154.75a	131.00a	132.25a	133.50a	155.81a
Warrior T	3.2 oz/acre	151.50a	159.75a	140.50a	141.75a	141.50a	137.72a
Regent 4 SC	4.16 oz/A	142.00a	152.25a	118.50a	126.50a	126.75a	165.29a
Untreated	-----	141.75a	157.25a	132.00a	127.25a	133.25a	138.29a

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

Wireworm Management in Field Corn Using Seed Treatments and Soil Insecticides, 2002: 'NK58-D1' was planted on April 16 at Murray Brothers Farms located near Selbyville, DE at a rate of 24,000 plants per acre. Four-row 40 foot long plots on 30-inch centers were replicated 4 times in a RCB design. Seeds treatments were commercially applied by Gustafson and Syngenta Seeds. The liquid in-furrow treatments were applied in 5.5 gallons of water per acre. Force 3G and Counter CR granular treatments were placed in-furrow. Stand counts and wireworm damaged plants were evaluated on a 7-10 day basis from April 24 through May 29. Yields were taken from the center two rows of each plot on September 13. Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

Wireworm pressure was low-moderate. On May 10, all the seed applied treatments provided significantly better wireworm control compared to the untreated check. In general, the seed treatments provided the better wireworm control. No phytotoxicity was observed.

Table I. Stand Count Data

Treatment	Rate	# Plants/100 ft		Number Plants / 35 ft			
		April 24	April 28	May 3	May 10	May 21	May 29
Gaucht 600	.161 mg ai/seed	110.50a	118.00ab	47.50a	46.75a	47.75a	46.25abc
Gaucht 600	1.34 mg ai/seed	87.00a	118.25ab	47.25a	46.75a	47.75a	47.5ab
Poncho (Clothianidin)	0.25 mg ai/seed	99.75a	109.75ab	47.00a	47.25a	47.25a	47abc
L0263	0.125 mg ai/seed	104.50a	122.25ab	49.00a	48.25a	48.00a	48a
L0263	0.08 mg ai/seed	108.50a	119.00ab	47.50a	46.50a	47.75a	46.25abc
Cruiser	100 g ai/100 kg seed	101.75a	129.75a	47.00a	46.50a	45.50a	47.25abc
Force 3 G	5.5 lbs/acre	107.75a	119.25ab	44.00a	43.25a	42.75a	42.25abc
Counter 20CR	6.5 lbs/acre	91.50a	101.50b	45.75a	46.25a	46.25a	45.75abc
Mustang 1.5 EW	4.2 oz/A	102.75a	109.25ab	44.50a	47.00a	44.00a	43.75abc
Warrior T	3.2 oz/acre	104.00a	117.25ab	46.50a	45.75a	45.25a	43.75abc
Regent 4 SC	4.16 oz/A	105.75a	126.25ab	46.00a	43.50a	43.00a	41.75bc
Untreated	-----	103.00a	109.75ab	44.75a	44.00a	43.75a	41.5c

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

Table II. Wireworm Damaged Plants and Yield

Treatment	Rate	Yield (BU/A)	% Wireworm Damaged Plants			
			May 3	May 10	May 21	May 29
Gaucho 600	.161 mg ai/seed	97.47a	0.50a	2.20bcd	1.69a	0.00a
Gaucho 600	1.34 mg ai/seed	114.14a	0.00a	0.39d	0.62a	0.00a
Poncho (Clothianidin)	0.25 mg ai/seed	105.06a	0.00a	0.46d	1.11a	0.00a
L0263	0.125 mg ai/seed	102.98a	0.52a	1.03cd	1.38a	1.56a
L0263	0.08 mg ai/seed	95.80a	2.12a	1.63bcd	0.63a	2.71a
Cruiser	100 g ai/100 kg seed	124.90a	0.53a	1.20bcd	1.19a	0.00a
Force 3 G	5.5 lbs/acre	114.88a	1.19a	3.09abc	1.91a	0.54a
Counter 20CR	6.5 lbs/acre	94.94a	2.73a	3.21abcd	1.04a	1.13a
Mustang 1.5 EW	4.2 oz/A	90.48a	2.31a	3.29abc	2.08a	0.00a
Warrior T	3.2 oz/acre	103.57a	2.70a	3.47abc	1.97a	0.00a
Regent 4 SC	4.16 oz/A	130.06a	3.75a	3.48ab	1.65a	1.24a
Untreated	-----	62.06a	1.66a	5.24a	1.42a	0.00a

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

Evaluation of Seed Treatments for Soybean Insect Management - 2002:

Investigators: J. Whalen, B. Uniatowski, M. Spellman and J. Clark

Two plantings of Round-Up Ready 'CL-48" soybeans were planted at Baker Farms Inc. near Middletown, DE and one planting at the University of Delaware Research and Education Center near Georgetown, DE. Ten-row 46-ft. long plots on 15-inch center were replicated 4 times in a RCB design. Gaucho seed treatments were applied commercially by Clark Seed Company and Cruiser was applied by Syngenta seeds. Insect populations were evaluated weekly for six weeks after plant emergence by counting the bean leaf beetle damage on 20 plants per plot, examining 20 leaflets per plot for thrips and counting the number of potato leafhoppers in 20 sweeps per plot. Stand counts were evaluated for the first two weeks after emergence by counting the number of plants in 4 throws of a 33.5" diameter hula-hoop. At physiological maturity, all plots were harvested and the yields calculated. Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

Insect population pressure was low in all three plantings. At the Georgetown location, no differences were observed between the treatments and the untreated checks. At the Middletown location, all treatments provided better thrips control compared to the untreated check for both plantings. In the May planting at Middletown, all treatments provided significantly better potato leafhopper control compared to the untreated check. In the July planting at Middletown, the high rate of Gaucho and the Cruiser treatment resulted in a significantly higher stand count compared to the untreated check. No phytotoxicity was observed.

I. University of Delaware, Research and Education Center, Georgetown, DE

Planting Date: May 13

Harvest Date: October 28

Treatment	Rate/100 lbs of seed	Yield - BU/A	Mean Stand Count (33.5" diameter hula hoop)	Mean Thrips per 20 leaves		Mean Percent Bean Leaf Beetle Damaged Plants	
			June 10	June 4	June 10	June 4	June 10
Gaucho 480	2 oz	20.42a	78.50a	45.75a	109.57a	0.50a	1.25a
Gaucho 480	3 oz	23.89a	61.25a	36.25a	74.00a	0.75a	1.25a
Cruiser 5FS	50 g ai/kg seed	19.97a	69.00a	45.75a	110.75a	3.00a	1.50a
Untreated	-----	24.64a	62.25a	59.75a	89.25a	2.25a	2.75a

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

II. Baker Farms Demonstration Site, Middletown, DE

Planting Date # 1: May 22

Harvest Date: November 5

Treatment	Rate/100 lb of seed	Yield - BU/A	Stand Count		Mean # Thrips/ 20 leaves			Mean Number Potato Leafhoppers/20 sweeps		
			May 31	June 7	June 17	June 26	July 9	June 17	June 26	July 9
GaUCHO 480	2 oz	12.35a	76.25a	80.00a	33.5b	32b	15.50b	1.00b	0.5b	1.50b
GaUCHO 480	3 oz	13.11a	74.5a	85.75a	27.5b	25b	10.25bc	0.25b	0.0b	1.00bc
Cruiser 5FS	50 g ai/kg seed	15.19a	74.25a	77.00a	23.3b	27.2b	8.00c	0.75b	0.5b	0.25c
Untreated	-----	12.42a	71.25a	80.50a	52.0a	45.5a	26.25a	2.50a	2.5a	2.50a

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

Planting Date # 2: July 17

Harvest Date: December 3

Treatment	Rate/100 lb of seed	Yield - BU/A	Stand Count July 31	Mean Number Potato Leafhopper per 20 sweeps - 7/31	Mean #Thrips per 20 Leaves	
					7/31	8/22
GaUCHO 480	2 oz	32.02a	66.5ab	0.75a	7.25b	38.75ab
GaUCHO 480	3 oz	31.42a	72.5a	0.00a	3.50bc	34.00ab
Cruiser 5FS	50 g ai/kg seed	32.43a	78.0a	0.50a	0.50c	26.50b
Untreated	-----	29.34a	59.23b	0.50a	15.25a	47.75a

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

Two-Spotted Spider Mite Management in Soybeans - 2002: Southern States 'RT-4495' were planted on June 1 at the University of Delaware, Research and Education Center located near Georgetown, DE. Four-row, 25 ft long plots on 30-inch centers were replicated 4 times in a RCB design. Materials were applied on July 19. All foliar treatments were broadcast applied with a CO₂ pressurized backpack sprayer delivering 18 gpa @ 40 psi. Mite populations were evaluated on a weekly basis from July 18 through Aug 19 by collecting 10 leaflets per plot and using a mite brushing machine to determine the number of mites per leaflet. Data were analyzed using ANOVA and means were separated by Ryan's q-test (P=0.05).

Spider mite pressure was moderately high. All treatments provided significantly better spider mite control compared to the untreated check. No phytotoxicity was observed.

Treatment	Rate/Acre	Mean Number of mites per 10 leaflets			
		July 23 4 DAT	July 30 10 DAT	August 6 17 DAT	August 13 24 DAT
Acramite 50WP	0.75 lb	3.00b	7.50a	1.50a	0.00a
Acramite 50WP	0.50 lb	10.50b	3.00a	1.50a	1.50a
Capture 2EC	5.12 oz	16.50b	79.50a	108.00a	226.50a
Danitol 2.4EC	10.7 oz	84.00b	116.50a	138.00a	54.00a
GWN-1549	6 oz	6.00b	4.50a	15.00a	9.00a
GWN-1549	12 oz	27.00b	73.50a	16.50a	4.50a
Dimethoate 4 EC	16 oz	57.00b	223.50a	66.00a	16.50a
Agri-Mek 0.15EC	8 oz	4.50b	3.00a	10.50a	3.00a
Lorsban 4EC	16 oz	25.50b	63.00a	357.00a	28.50a
Untreated	-----	274.50a	270.00a	256.50a	27.00a

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