RESULTS OF 2012 INSECTICIDE AND ACARICIDE STUDIES IN EASTERN NEW YORK

P. J. Jentsch
Senior Extension Associate Entomologist

Cornell University's Hudson Valley Laboratory
P.O. Box 727 Highland NY 12528

Tel: 845-691-6516
FAX: 845-691-2719
Mobile: 845-417-7465
e-mail: pjj5@cornell.edu

Technical Assistant..... Allen Clayton
Summer Research Assistant ..... Tim Lamposona
Summer Research Assistant ..... Kellyn Will
PT Summer Research Assistant ..... Henry Grimsland
Summer Research Intern (CCE BMSB)..... Susan Weibman
PT Summer Intern ..... Brianna Flonc

Farm Manager ……..…….... Albert Woelfersheim
Administrative Assistant …… Donna Clark
HVL & NEWA Weather Data…….. Anne Rugh, Joe Whalon

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Formulation	Materials Tested	Company
	Apple	
AgriMek 0.15EC		Syngenta
Altacor 35WG		E.I. DuPont De Nemours & Co.
Assail 30SG		United Phosphorus Inc.
Avaunt 30DG		E.I. DuPont De Nemours & Co.
Apta 15 EC (Tolfenpyrad)		Nichino America Inc.
Baythroid XL 1L		Bayer CropScience
Belt SC		Bayer CropScience
BioCover (NIS)		Crop Protection Services
Calypso 4F		Bayer Crop Science
Centaur 0.7WG		Nichino America Inc.
Danitol 2.4 EC		Valent
Delegate WG		Dow AgroSciences
Endigo ZCX		Syngenta
Esteem 35WP		Valent
HGW86 10SE (Cyazypyr)		E.I. DuPont De Nemours & Co.
Imidan 70WP		Gowan Co.
Lambda-CY 1EC		Nichino America Inc.
LI700 (NIS)		Crop Protection Services
Leverage 2.7SE		Bayer CropScience
Movento 240SC		Bayer CropScience
Perm-up 3.2EC		United Phosphorus Inc.
Proclaim 5SG		Syngenta
Pyganic 1.4EC		MGK
Sevin XLR		Bayer CropScience
Surround WP		BASF
Vendex		United Phosphorus Inc.
	Pear	
AgriMek 0.15EC		Syngenta
BioCover (NIS)		Crop Protection Services
Centaur 0.7WG		Nichino America Inc.
Delegate WG		Dow AgroSciences
Esteem 35WP		Dow AgroSciences
HGW86 10SE		E.I. DuPont De Nemours & Co.
LI700 (NIS)		Crop Protection Services
Surround WP		BASF
	Raspberry	
Danitol 2.4 EC		Valent
HGW86 10SE (Cyazypyr)		E.I. DuPont De Nemours & Co.
Delegate WG		Dow AgroSciences
LI700 (NIS)		Crop Protection Services
Bifenture 10DF		United Phosphorus Inc.

Factors Contributing To The 2012 Hudson Valley Insect Pest Management Anomalies.

The start to the 2012 season saw temperatures and tree advancement at the earliest development stages on record with green tip (16 March) occurring 19 days earlier than the mean for the past 25 years (see McIntosh phenology). The 2012 petal fall date of the 21th of April was just slightly over 3 weeks earlier than the mean date at the Hudson Valley Laboratory (13th of May). However, it was 1 week earlier than in 2010, which occurred on 28th of April, the prior earliest date at the HVL (25 years). The degree-day accumulations were about 40DD higher than the average with petal fall accumulations of 506 degree-day $base_{43}$. Generally dry during the pre-bloom period with near drought conditions through much of March and April (1.94 and 1.82" of rainfall respectively), followed by high rainfall during May and June and relatively dry July and August requiring addition irrigation for tree fruit production.

The onset of bloom (16 April) saw temperatures near 90°F followed by 5 days of mean highs of 70°F to petal fall. However, extended cool temperatures prolonging bloom in many mid-late season apple varieties, prompting many growers to delay petal fall applications for managing Plum curculio (PC) and Tarnished Plant Bug (TPB). The cool temperatures pushed PC and TPB later into the season, damaging fruit between 1st and 2nd Cover. PC movement into orchards and oviposition was predicted to end on 27 May using predictive modeling of 308 DD_{50} from petal fall of McIntosh.

European apple sawfly activity occurred in very low numbers due to the early bloom this season with early varieties showing 1.5% injury in untreated Ginger Gold harvest evaluations. PC injury was also moderate with 18.0% and 30.5% injury in untreated Ginger Gold and McIntosh in early 'June Drop' evaluations and 27.8% in untreated Ginger Gold harvest evaluations. TPB injury with 2.2 and 3.0% injury observed in Ginger Gold and McIntosh respectively on 19 June in untreated plots with increasing damage noted in these plots at harvest.

The 1st generation codling moth adult flight occurred on 6 May with larval emergence predicted for 21 May using 220 DD_{50} . The internal lepidopteran complex (OFM and CM) showed low levels of damage to apple, with CM frass appearing during mid June through July. Relatively low levels of damage from the internal lepidopteran complex was observed with 2.8% and 3.4% damage from 1st generation evaluated on 19 June. However at harvest on Ginger Gold harvested on 27 July, we noted internal worm injury exceeding 15%.

San Jose scale (SJS) crawler emergence was predicted to occur on 21 May using the 1 March 500 DD_{50} model. However, first crawler was observed to occur 11 June, more than three weeks after the predicted date. Growers using Movento at the 10d post PF timing were successful at managing SJS. In general SJS scale levels were modest in infested trees with less then 5% injury observed in research plots.

Growers again monitored Obliquebanded leafroller closely this season, managing the insect using primarily Delegate or Altacor in Hudson Valley orchards. Most applications were made using insect phenology predictions for early emergence, using 340 DD_{50} from 27th May to manage the 1st emergence of OBLR predicted to occur on 11 June. In general, high damage levels of external lepidopteran injury, including OBLR were observed this season. Trap captures were low for the 2nd generation of OBLR during August and September. Very high levels of RBLR were observed during the season and may have contributed significantly to the overall leafroller damage this season.

Apple maggot density was low to moderate throughout the region with significantly higher late emergence due to late season rainfall. Moderate populations of adults were noted in the mid-Hudson Valley with seasonal accumulation totals near 63 flies per trap (mean n=4) where rainfall provided ideal emergence conditions.

The brown marmorated stink (BMSB), *Halyomorpha halys,* has been observed throughout the southern Hudson Valley for the past 4 years with the first BMSB confirmation in December 2008. Since that time increasing populations have been documented in urban environments from specimens sent to the HVL using citizen science outreach. Brown Marmorated Stink Bug was present throughout the season in the lower to mid-Hudson Valley region. It was easily found from mid-season through harvest on pome fruit in lower mid-Hudson Valley with few observed north of Kingston, NY. It was also found reproducing in deciduous trees such as Sugar Maple, *Acer saccharum*, White Ash, *Fraxinus americana*, Tree of Heaven, *Ailanthus altissima* in high numbers with lower numbers observed in Staghorn Sumac, *Rhus typhina,* and eastern black walnut *Juglans nigra* and wild grape, *V.*

vinifera. Late season nymphs and adult trap captures of BMSB using Tedders traps employing traditional black light traps, the USDA #10 lure and the *Plaudi stali* aggregation pheromone lure, *methyl (E,E,Z)-2,4,6-decatrienoate,* was observed along the orchard edges in Warwick, NY throughout the season.

Fruit in research blocks this season showed relatively high SB feeding damage to red delicious fruit that may have been caused by a complex of green stink bug and BMSB, as the insects were found in orchards from July through September. All three species including BMSB, brown stink bug, *Euschistus servus* (Say), and green stink bug, *Acrosternum hilare* have been noted on fruit. Late season commercial orchard blocks of Red Delicious, Pink Lady and Golden Delicious experienced as much as 57% injury in field run harvest evaluations in Campbell Hall, NY in Orange County and Milton, NY in Ulster County.

Spotted wing drosophila (SWD), *Drosophila suzukii*, (Matsumura) (Diptera: Drosophilidae) were first observed in NY in late August, 2011. We monitored SWD throughout the lower to mid-Hudson Valley this season using apple cider vinegar baited traps in 10 locations. The first SWD trap captures were found in Warwick, NY on 3 August followed by Tivoli on 6 August and Highland on 31 July. Blackberry harvested on a commercial farm in Marlboro on 31 July had experienced 100% ovipositional injury with confirmed SWD adult emergence. By late August small fruit growers of Blackberry and Raspberry had abandoned berry patches as attempts to control the SWD were ineffective using commercial insecticide materials, rates and timings. Growers who harvested daily, keeping berries on a 5-7 day spray program were able to maintain % infestations levels to 18-20%. During weeks in which applications could not be made, levels of injury increased to over 50%.

APPLE: Malus domestica, cv. 'Ginger Gold', 'McIntosh', 'Red Delicious'

Tarnished plant bug (TPB): *Lygus lineolaris* (P. de B.)
European apple sawfly (EAS): *Hoplocampa testudinea* (Klug)
Green fruitworm (GFW*): Lithophane antennata* (Walker)
Mullein and apple red bug; (MB): *Campylomma verbasci* (Meyer), (ARB) *Lygidea mendax* (Reuter)
Obliquebanded leafroller (OBLR): *Choristoneura rosaceana* (Harris)
Oriental Fruit Moth (OFM): *Grapholita molesta* (Busck)
Plum curculio (PC): *Conotrachelus nenuphar* (Herbst)
Redbanded leafroller (RBLR): *Argyrotaenia velutinana* (Walker)

EVALUATION OF INSECTICIDES FOR CONTROLLING THE INSECT COMPLEX ON APPLE, 2012 – Cornell University's Hudson Valley Lab: Treatments were applied to four-tree plots, replicated four times in a randomized complete block design. All applications were applied concentrate using a tractor mounted John Bean® Airblast sprayer delivering 200 psi. and 148.8 GPA, traveling an average of 2.86 mph. Trees on the M.26 rootstock were 17 yr.-old, maintained at approximately 10 ft. high and planted to a research spacing of 10' x 30'. Alternate rows of unsprayed trees were adjacent to treated plots for reduction of drift, increased insect distribution and insect pressure.

Treatments applied season long over the entire block for crop size management and disease control included: COCS at 1lb/A and Manzate at 3lbs/A on 16 March; Manzate at 3lbs/A, Captan at 3lbs/A and Ralley at 4oz./100 on 23 March, 1 April and 13 April; Urea at 3lbs/A, Solubor at 1lb/100 and EDTA Zinc Chelate at 1lb/A on 23 March; Firewall 17WP at 24.0 oz./A and Regulaid at 16 oz./A on 2 May; Manzate at 3lbs/A and Ralley at 5oz./A on 3 May; Manzate at 3lbs/A and Flint at 2.5oz/A on 6 June; Captan at 64 fl.oz/A and Flint at 2.5 oz/A on 29 June; Pristine at 16 oz/A on 3 August.

Treatments were applied on various schedules as shown in Table 1. Dates corresponding to tree phenology for McIntosh occurred for green tip (GT) on 16 March, 1/2" green on 18 March, tight cluster (TC) on 25 March**,** pink on 8 April**,** bloom on 16 April, petal fall on 21 April. The petal fall applications were made on 30 April, 1st cover on 12 May, 1st CM and 2C on 28 May, 3C on 16 June, 1st CM +14 and 4C days on 30 June, 5C on 16 July, 2nd CM and 6C on 30 July, 2nd CM + 14d and 7C on 17 August.

Early season evaluations of fruit injury made 12d post 1C application to the Ginger Gold cultivar on 24 May showed moderate levels of PC (18% in UTC), TPB (2.2%) and E.Lep injury comprising GFW, OBLT, RBLR and OFM (4.2%) with very low levels of EAS (0.0%) damage. In years of very early bloom such as 2010 and this season, EAS populations are 'out of sync' with bloom, loosing the opportunity to oviposit onto flowers. Only small amounts of damage were observed on late varieties.

Programs with pyrethroid, neonicotinoid or pre-mix combinations of active ingredients such as Voliam Flexi (Thiamethoxam, Chlorantraniliprole), Endego ZC (Lambda-cyhalothrin and Chlorantraniliprole), AgriFlex (abamectin and thiamethoxam) and Voliam Express

Table 1 Treatment Schedule For Seasonal Apple Insecticide Screen.
N.Y.S.A.E.S., Hudson Valley Lab., Highland, N.Y. - 2012.

Treatment / Formulation	Rate	Timing	Application Dates
1. Proclaim 5SG+ NIS L	3.84 oz./A	PF	30 April
AgriFlexi 16.9SC+ NIS L	2.5 fl. oz./A	PF	30 April
Endigo ZCX+ NIS L	5.5 oz./A	PF, 3, 7C	30 April, 16 June, 17 August
Volium Express + NIS L	9.0 fl. oz./A	1-2,4-6C	12, 28 May, 30 June, 16, 30 July
2. Proclaim 5SG+ NIS L	3.84 oz./A	PF, 1-2C	30 April, 12, 28 May
AgriFlexi 16.9SC+ NIS L	2.5 fl. oz./A	PF	30 April
Endigo ZCX+ NIS L	5.5 oz./A	PF, 3, 7C	30 April, 16 June, 17 August
Volium Flexi+ NIS L	6.0 fl. oz./A	4-6C	30 June, 16, 30 July
3. Lambda-Cy	5.12 oz./A	P, 1C	11 April, 12 May
Assail 30SG + NIS L	5.0 oz./A	PF, 4-5C	30 April, 30 June, 16 July
Vendex	1.5 lb./A	1C	12 May
Assail 30SG	8.0 oz./A	2C	28 May
Assail 30SG	6.0 oz./A	7C	17 August
Delegate WG	5.2 oz./A	3C	16 June
Imidan 70WP	3.0 lbs/A	6C	30 July
4. Lambda-Cy	5.12 oz./A	P, 4-5	11 April, 30 June
Endigo ZCX	5.5 oz./A	PF	30 April
AgriMek + NIS B	10.0 oz./A	PF	30 April
Altacor	3.0 oz./A	1-2C	12, 28 May
Esteem + LI700	5.0 oz./A	3C	16 June
Assail 30SG	5.0 oz./A	4-5C	30 June, 16 July
Imidan 70WP	3.0 lbs/A	6-7C	30 July, 17 August
5. Assail 30SG	6.0 oz./A	P	11 April
Assail 30SG + NIS B	8.0 oz./A	PF, 1-2C	30 April, 12, 28 May
Vendex	1.5 lb./A	1C	12 May
Esteem + NIS	5.0 oz./A	2C	28 May
Lambda-Cy + NIS B	5.12 oz./A	3-7C	16, 30 June, 16, 30 July, 17 August
6. Perm-Up	10.0 oz./A	P	11 April
Leverage 2.7SE + NIS B	2.8 oz./A	PF	30 April
Movento 240SC + NIS B	9.0 oz./A	PF	30 April
AgriMek + NIS B	10.0 oz./A	1C	12 May
Calypso SC	6.0 oz./A	1, 5C	12 May, 16 July
Belt	4.0 oz./A	3-4C	16 June
Calypso SC	4.0 oz./A	2C	28 May
Imidan 70WP	3.0 lbs/A	6-7C	30 July, 17 August
7. HGW86 10SE + NIS B	10.1 oz./A	PF	30 April
Altacor 35WG	3.0 oz./A	1C to EOS	12, 28 May, 16, 30 June, 16, 30 July, 17 August
8. HGW86 10SE + NIS B	10.1 oz./A	PF, 1C	30 April, 12 May
Altacor 35WG	3.0 oz./A	2C to EOS	28 May, 16, 30 June, 16, 30 July, 17 August
9. Avaunt 30WG	6.0 oz./A	PF	30 April
HGW86 10SE + NIS B	10.1 oz./A	1C	12 May
Altacor 35WG	3.0 oz./A	2C to EOS	28 May, 16, 30 June, 16, 30 July, 17 August
10. UNTREATED			

NIS B = BioCover at 0.25% V/V; NIS L = LI700 at 0.25% V/V

Table 2a Evaluations Of Insecticide Schedules For Controlling Early Season Insect Complex On Apple [a]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

	Treatment / Formulation	Rate	Timing	Incidence (%) of insect damaged cluster fruit PC	EAS	TPB	MPB	LEP	Clean
1	Proclaim 5SG	3.84 oz/A	PF	2.5 a	0.5 a	1.0 ab	0.5 a	0.5 a	95.5 ab
	Agriflex c 16.9SC	2.5 floz/A	PF						
	Endigo ZCX	5.5 oz/A	PF, 3,7C						
	Volium Express	9.0 floz/A	1-2,4-6C						
	LI700	0.25% v/v	PF-7C						
2	Proclaim 5SG	3.84 oz/A	PF, 1-2C	6.0 a	0.5 a	2.0 bc	1.0 a	1.5 ab	94.4 ab
	AgriFlexi 16.9SC	2.5 floz/A	PF						
	Endigo ZCX	5.5 oz/A	PF, 3,7C						
	Volium Express	6.0 floz/A	4-6C						
	LI700	0.25% v/v	PF-6C						
3	Lambda-Cy	5.12 oz/A	P, 1C	4.5 a	0.0 a	0.5 ab	0.5 a	2.0 ab	92.0 b
	Assail 30SG	5.0 oz/A	PF						
	Vendex	1.5 lb/A	1C						
	Assail 30SG	8.0 oz/A	2C						
	Assail 30SG	6.0 oz/A	3,7C						
	Delegate WG	5.2 oz/A	4-5C						
	Imidan 70WP	3.0 lb/A	6C						
4	Lambda-Cy	5.12 oz/A	P, 4-5C	7.5 ab	1.0 a	1.0 ab	0.0 a	2.0 ab	89.5 b
	Endigo ZCX	5.5 oz/A	PF						
	AgriMek+NIS	10.0 oz/A	PF						
	Alticor	3.0 oz/A	1-2C						
	Esteem +NIS	5.0 oz/A	3C						
	Assail 30SG	5.0 oz/A	4-5C						
	Imidan 70WP	3.0 lb/A	6-7C						
5	Assail 30SG	6.0 oz/A	P	4.5 a	0.5 a	1.0 ab	0.5 a	1.5 ab	91.5 b
	Assail 30SG	8.0 oz/A	PF, 1,3C						
	Vendex	1.5 lb/A	1C						
	Esteem +NIS	5.0 oz/A	3C						
	Lambda-Cy	5.12 oz/A	4-7C						
6	Perm-Up	10.0 oz/A	P	0.5 a	0.0 a	0.0 a	0.0 a	0.5 a	99.0 a
	Leverage	2.8 oz/A	PF						
	Movento + NIS	9.0 oz/A	PF						
	AgriMek+NIS	10.0 oz/A	PF						
	Calypso SC	6.0 oz/A	1,5C						
	Belt	4.0 oz/A	3-4C						
	Calypso SC	4.0 oz/A	2C						
	Imidan 70WP	3.0 lb/A	6-7C						
7	HGW86 10SE + NIS	10.1 oz/A	PF	17.5 b	1.0 a	1.5 abc	1.5 a	4.5 ab	74.0 c
	Alticor	3.0 oz/A	1-7C						
8	HGW86 10SE + NIS	10.1 oz/A	PF, 1C	6.0 ab	1.0 a	1.0 ab	1.0 a	3.0 ab	89.0 b
	Alticor	3.0 oz/A	2-7C						
9	Avaunt 30WG	6.0 oz/A	PF	5.5 a	0.0 a	3.5 c	1.0 a	4.5 b	86.0 bc
	HGW86 10SE + NIS	10.1 oz/A	1C						
	Altacor 35WG	3.0 oz/A	2-7C						
10	Untreated			18.0 b	0.0 a	2.2 bc	2.5 a	4.2 b	73.6 c
P value for transformed data				0.035	0.582	0.110	0.493	0.254	0.001

[a] Evaluation made on May 24 on Ginger Gold cultivar.

Percent data were transformed using arcsine(Sqrt(x)) conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 2b Evaluations Of Insecticide Schedules For Controlling Early Season Insect Complex On Apple [a]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

	Treatment / Formulation	Rate	Timing	Incidence (%) of insect damaged cluster fruit PC	EAS	TPB	MPB	LEP	Clean
1	Proclaim 5SG	3.84 oz/A	PF	4.0 abc	1.5 a	5.4 bc	1.5 a	0.5 a	87.1 bcd
	AgriFlexi 16.9SC	2.5 floz/A	PF						
	Endigo ZCX	5.5 oz/A	PF, 3,7C						
	Volium Express	9.0floz/A	1-2,4-6C						
	LI700	0.25% v/v	PF-7C						
2	Proclaim 5SG	3.84 oz/A	PF, 1-2C	0.0 a	1.5 a	1.5 ab	1.0 a	0.0 a	96.0 ab
	AgriFlexi 16.9SC	2.5 floz/A	PF						
	Endigo ZCX	5.5 oz/A	PF, 3,7C						
	Volium Express	6.0floz/A	4-6C						
	LI700	0.25% v/v	PF-6C						
3	Lambda-Cy	5.12 oz/A	P, 1C	5.5 abc	0.5 a	2.0 ab	0.0 a	1.0 a	91.5 abc
	Assail 30SG	5.0 oz/A	PF						
	Vendex	1.5 lb/A	1C						
	Assail 30SG	8.0 oz/A	2C						
	Assail 30SG	6.0 oz/A	3,7C						
	Delegate WG	5.2 oz/A	4-5C						
	Imidan 70WP	3.0 lb/A	6C						
4	Lambda-Cy	5.12 oz/A	P, 4-5C	11.0 bc	2.0 a	0.0 a	0.0 a	0.5 a	86.5 bcd
	Endigo ZCX	5.5 oz/A	PF						
	AgriMek+NIS	10.0 oz/A	PF						
	Alticor	3.0 oz/A	1-2C						
	Esteem +NIS	5.0 oz/A	3C						
	Assail 30SG	5.0 oz/A	4-5C						
	Imidan 70WP	3.0 lb/A	6-7C						
5	Assail 30SG	6.0 oz/A	P	3.0 abc	0.5 a	1.5 ab	0.5 a	0.5 a	94.0 ab
	Assail 30SG	8.0 oz/A	PF, 1,3C						
	Vendex	1.5 lb/A	1C						
	Esteem +NIS	5.0 oz/A	3C						
	Lambda-Cy	5.12 oz/A	4-7C						
6	Perm-Up	10.0 oz/A	P	0.5 ab	0.5 a	0.0 a	0.0 a	0.0 a	99.0 a
	Leverage	2.8 oz/A	PF						
	Movento + NIS	9.0 oz/A	PF						
	AgriMek+NIS	10.0 oz/A	PF						
	Calypso SC	6.0 oz/A	1,5C						
	Belt	4.0 oz/A	3-4C						
	Calypso SC	4.0 oz/A	2C						
	Imidan 70WP	3.0 lb/A	6-7C						
7	HGW86 10SE + NIS	10.1 oz/A	PF	11.5 c	0.0 a	4.5 bc	1.0 a	0.5 a	83.5 bcd
	Alticor	3.0 oz/A	1,2C						
8	HGW86 10SE + NIS	10.1 oz/A	PF, 1C	4.0 abc	0.0 a	9.2 c	1.0 a	1.0 a	73.3 de
	Alticor	3.0 oz/A	2C						
9	Avaunt 30WG	6.0 oz/A	PF	10.5 c	1.0 a	5.5 bc	0.5 a	0.5 a	79.0 cde
	HGW86 10SE + NIS	10.1 oz/A	1C						
	Altacor 35WG	3.0 oz/A	2C						
10	Untreated			30.5 d	0.0 a	3.0 bc	4.0 a	6.5 b	61.0 e
P value for transformed data				0.003	0.680	0.005	0.532	0.034	0.001

[a] Evaluation made on May 24 on Red Delicious cultivar.

Percent data were transformed using arcsine(Sqrt(x)) conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 3 Evaluations Of Insecticide Schedules For Controlling Codling Moth On Apple [a]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

				Incidence (%) Of Codling Moth Damaged Cluster Fruit	
	Treatment / Formulation	Rate	Timing	Ginger Gold	Red Delicious
1	Proclaim 5SG	3.84 oz/A	PF	0.0 a	0.0 a
	AgriFlexi 16.9SC	2.5 floz/A	PF		
	Endigo ZCX	5.5 oz/A	PF, 3,7C		
	Volium Express	9.0floz/A	1-2,4-6C		
	LI700	0.25% v/v	PF-7C		
2	Proclaim 5SG	3.84 oz/A	PF, 1-2C	0.3 a	0.0 a
	AgriFlexi 16.9SC	2.5 floz/A	PF		
	Endigo ZCX	5.5 oz/A	PF, 3,7C		
	Volium Express	6.0floz/A	4-6C		
	LI700	0.25% v/v	PF-6C		
3	Lambda-Cy	5.12 oz/A	P, 1C	0.0 a	0.0 a
	Assail 30SG	5.0 oz/A	PF		
	Vendex	1.5 lb/A	1C		
	Assail 30SG	8.0 oz/A	2C		
	Assail 30SG	6.0 oz/A	3,7C		
	Delegate WG	5.2 oz/A	4-5C		
	Imidan 70WP	3.0 lb/A	6C		
4	Lambda-Cy	5.12 oz/A	P, 4-5C	0.0 a	0.0 a
	Endigo ZCX	5.5 oz/A	PF		
	AgriMek+NIS	10.0 oz/A	PF		
	Alticor	3.0 oz/A	1-2C		
	Esteem +NIS	5.0 oz/A	3C		
	Assail 30SG	5.0 oz/A	4-5C		
	Imidan 70WP	3.0 lb/A	6-7C		
5	Assail 30SG	6.0 oz/A	P	0.0 a	0.0 a
	Assail 30SG	8.0 oz/A	PF, 1,3C		
	Vendex	1.5 lb/A	1C		
	Esteem +NIS	5.0 oz/A	3C		
	Lambda-Cy	5.12 oz/A	4-7C		
6	Perm-Up	10.0 oz/A	P	0.0 a	0.0 a
	Leverage	2.8 oz/A	PF		
	Movento + NIS	9.0 oz/A	PF		
	AgriMek+NIS	10.0 oz/A	PF		
	Calypso SC	6.0 oz/A	1,5C		
	Belt	4.0 oz/A	3-4C		
	Calypso SC	4.0 oz/A	2C		
	Imidan 70WP	3.0 lb/A	6-7C		
7	HGW86 10SE + NIS	10.1 oz/A	PF	0.0 a	0.0 a
	Alticor	3.0 oz/A	1,2C		
8	HGW86 10SE + NIS	10.1 oz/A	PF, 1C	0.0 a	0.0 a
	Alticor	3.0 oz/A	2C		
9	Avaunt 30WG	6.0 oz/A	PF	0.3 a	0.0 a
	HGW86 10SE + NIS	10.1 oz/A	1C		
	Altacor 35WG	3.0 oz/A	2C		
10	Untreated			2.8 a	3.4 b
P value for transformed data				0.590	< 0.001

[a] Evaluation made on June 19 on Ginger Gold and Red Delicious cultivars.

Percent data were transformed using arcsine(Sqrt(x)) conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 4a Evaluations Of Insecticide Schedules For Controlling Mite Complex On Apple [a]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

				Number of Adult Mite / Leaf			
	Treatment / Formulation	Rate	Timing	ERM	ZM	AMB	ARM
1	Proclaim 5SG	3.84 oz/A	PF	0.00 a	0.00 a	0.04 a	5.26 ab
	AgriFlexi 16.9SC	2.5 floz/A	PF				
	Endigo ZCX	5.5 oz/A	PF, 3,7C				
	Volium Express	9.0floz/A	1-2,4-6C				
	LI700	0.25% v/v	PF-7C				
2	Proclaim 5SG	3.84 oz/A	PF, 1-2C	0.03 a	0.00 a	0.06 a	2.88 ab
	AgriFlexi 16.9SC	2.5 floz/A	PF				
	Endigo ZCX	5.5 oz/A	PF, 3,7C				
	Volium Express	6.0floz/A	4-6C				
	LI700	0.25% v/v	PF-6C				
3	Lambda-Cy	5.12 oz/A	P, 1C	0.01 a	0.00 a	0.13 a	4.16 ab
	Assail 30SG	5.0 oz/A	PF				
	Vendex	1.5 lb/A	1C				
	Assail 30SG	8.0 oz/A	2C				
	Assail 30SG	6.0 oz/A	3,7C				
	Delegate WG	5.2 oz/A	4-5C				
	Imidan 70WP	3.0 lb/A	6C				
4	Lambda-Cy	5.12 oz/A	P, 4-5C	0.00 a	0.01 a	0.11 a	2.88 ab
	Endigo ZCX	5.5 oz/A	PF				
	AgriMek+NIS	10.0 oz/A	PF				
	Alticor	3.0 oz/A	1-2C				
	Esteem +NIS	5.0 oz/A	3C				
	Assail 30SG	5.0 oz/A	4-5C				
	Imidan 70WP	3.0 lb/A	6-7C				
5	Assail 30SG	6.0 oz/A	P	0.02 a	0.01 a	0.06 a	2.88 a
	Assail 30SG	8.0 oz/A	PF, 1,3C				
	Vendex	1.5 lb/A	1C				
	Esteem +NIS	5.0 oz/A	3C				
	Lambda-Cy	5.12 oz/A	4-7C				
6	Perm-Up	10.0 oz/A	P	0.04 a	0.01 a	0.00 a	3.04 a
	Leverage	2.8 oz/A	PF				
	Movento + NIS	9.0 oz/A	PF				
	AgriMek+NIS	10.0 oz/A	PF				
	Calypso SC	6.0 oz/A	1,5C				
	Belt	4.0 oz/A	3-4C				
	Calypso SC	4.0 oz/A	2C				
	Imidan 70WP	3.0 lb/A	6-7C				
7	HGW86 10SE + NIS	10.1 oz/A	PF	0.40 a	0.00 a	0.24 a	8.64 ab
	Alticor	3.0 oz/A	1-7C				
8	HGW86 10SE + NIS	10.1 oz/A	PF, 1C	0.00 a	0.01 a	0.09 a	15.36 ab
	Alticor	3.0 oz/A	2-7C				
9	Avaunt 30WG	6.0 oz/A	PF	0.00 a	0.00 a	0.16 a	22.88 b
	HGW86 10SE + NIS	10.1 oz/A	1C				
	Altacor 35WG	3.0 oz/A	2-7C				
10	Untreated			0.03 a	0.05 a	0.06 a	166.56 c
P value for transformed data				0.533	0.315	0.140	<0.001

[a] Evaluation made on June 18 on Red Delicious cultivar.

Percent data were transformed using $\log_{10}(x+1)$ using Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 4b Evaluations Of Insecticide Schedules For Controlling Mite Complex On Apple [a]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

	Treatment / Formulation	Rate	Timing	Mite Eggs / Leaf ERME	ZME	AMBE
1	Proclaim 5SG	3.84 oz/A	PF	0.01 a	0.00 a	0.00 a
	AgriFlexi 16.9SC	2.5 floz/A	PF			
	Endigo ZCX	5.5 oz/A	PF, 3,7C			
	Volium Express	9.0floz/A	1-2,4-6C			
	LI700	0.25% v/v	PF-7C			
2	Proclaim 5SG	3.84 oz/A	PF, 1-2C	0.00 a	0.00 a	0.00 a
	AgriFlexi 16.9SC	2.5 floz/A	PF			
	Endigo ZCX	5.5 oz/A	PF, 3,7C			
	Volium Express	6.0floz/A	4-6C			
	LI700	0.25% v/v	PF-6C			
3	Lambda-Cy	5.12 oz/A	P, 1C	0.02 a	0.00 a	0.02 b
	Assail 30SG	5.0 oz/A	PF			
	Vendex	1.5 lb/A	1C			
	Assail 30SG	8.0 oz/A	2C			
	Assail 30SG	6.0 oz/A	3,7C			
	Delegate WG	5.2 oz/A	4-5C			
	Imidan 70WP	3.0 lb/A	6C			
4	Lambda-Cy	5.12 oz/A	P, 4-5C	0.01 a	0.00 a	0.00 a
	Endigo ZCX	5.5 oz/A	PF			
	AgriMek+NIS	10.0 oz/A	PF			
	Alticor	3.0 oz/A	1-2C			
	Esteem +NIS	5.0 oz/A	3C			
	Assail 30SG	5.0 oz/A	4-5C			
	Imidan 70WP	3.0 lb/A	6-7C			
5	Assail 30SG	6.0 oz/A	P	0.02 a	0.01 a	0.00 a
	Assail 30SG	8.0 oz/A	PF, 1,3C			
	Vendex	1.5 lb/A	1C			
	Esteem +NIS	5.0 oz/A	3C			
	Lambda-Cy	5.12 oz/A	4-7C			
6	Perm-Up	10.0 oz/A	P	0.02 a	0.01 a	0.00 a
	Leverage	2.8 oz/A	PF			
	Movento + NIS	9.0 oz/A	PF			
	AgriMek+NIS	10.0 oz/A	PF			
	Calypso SC	6.0 oz/A	1,5C			
	Belt	4.0 oz/A	3-4C			
	Calypso SC	4.0 oz/A	2C			
	Imidan 70WP	3.0 lb/A	6-7C			
7	HGW86 10SE + NIS	10.1 oz/A	PF	1.06 a	0.00 a	0.00 a
	Alticor	3.0 oz/A	1-2C			
8	HGW86 10SE + NIS	10.1 oz/A	PF, 1C	0.02 a	0.00 a	0.00 a
	Alticor	3.0 oz/A	2-7C			
9	Avaunt 30WG	6.0 oz/A	PF	0.00 a	0.00 a	0.00 a
	HGW86 10SE + NIS	10.1 oz/A	1C			
	Altacor 35WG	3.0 oz/A	2-7C			
10	Untreated			0.10 a	0.03 a	0.00 a
P value for transformed data				0.537	0.141	0.013

[a] Evaluation made on June 18 on Red Delicious cultivar.

Percent data were transformed using $\log_{10}(x+1)$ conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 4c Evaluations Of Insecticide Schedules For Controlling Mite Complex On Apple [a]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

	Treatment / Formulation	Rate	Timing	Number of Adult Mite / Leaf ERM	TSM	ZM	AMB	ARM
1	Proclaim 5SG	3.84 oz/A	PF	0.06 a	0.04 a	0.01 a	1.25 a	267.36 a
	AgriFlexi 16.9SC	2.5 floz/A	PF					
	Endigo ZCX	5.5 oz/A	PF, 3,7C					
	Volium Express	9.0floz/A	1-2,4-6C					
	LI700	0.25% v/v	PF-7C					
2	Proclaim 5SG	3.84 oz/A	PF, 1-2C	0.40 a	0.34 a	0.01 a	0.29 a	356.96 a
	AgriFlexi 16.9SC	2.5 floz/A	PF					
	Endigo ZCX	5.5 oz/A	PF, 3,7C					
	Volium Express	6.0floz/A	4-6C					
	LI700	0.25% v/v	PF-6C					
3	Lambda-Cy	5.12 oz/A	P, 1C	0.21 a	0.20 a	0.03 a	0.43 a	269.32 a
	Assail 30SG	5.0 oz/A	PF					
	Vendex	1.5 lb/A	1C					
	Assail 30SG	8.0 oz/A	2C					
	Assail 30SG	6.0 oz/A	3,7C					
	Delegate WG	5.2 oz/A	4-5C					
	Imidan 70WP	3.0 lb/A	6C					
4	Lambda-Cy	5.12 oz/A	P, 4-5C	0.06 a	0.05 a	0.00 a	0.65 a	109.12 a
	Endigo ZCX	5.5 oz/A	PF					
	AgriMek+NIS	10.0 oz/A	PF					
	Alticor	3.0 oz/A	1-2C					
	Esteem +NIS	5.0 oz/A	3C					
	Assail 30SG	5.0 oz/A	4-5C					
	Imidan 70WP	3.0 lb/A	6-7C					
5	Assail 30SG	6.0 oz/A	P	0.01 ab	0.06 a	0.03 a	0.28 a	163.40 a
	Assail 30SG	8.0 oz/A	PF, 1,3C					
	Vendex	1.5 lb/A	1C					
	Esteem +NIS	5.0 oz/A	3C					
	Lambda-Cy	5.12 oz/A	4-7C					
6	Perm-Up	10.0 oz/A	P	0.05 ab	0.03 a	0.02 a	0.41 a	55.68 a
	Leverage	2.8 oz/A	PF					
	Movento + NIS	9.0 oz/A	PF					
	AgriMek+NIS	10.0 oz/A	PF					
	Calypso SC	6.0 oz/A	1,5C					
	Belt	4.0 oz/A	3-4C					
	Calypso SC	4.0 oz/A	2C					
	Imidan 70WP	3.0 lb/A	6-7C					
7	HGW86 10SE + NIS	10.1 oz/A	PF	0.76 a	0.20 a	0.04 a	1.00 a	21.6 0 a
	Alticor	3.0 oz/A	1-7C					
8	HGW86 10SE + NIS	10.1 oz/A	PF, 1C	0.14 a	4.81 a	0.03 a	0.78 a	190.56 a
	Alticor	3.0 oz/A	2-7C					
9	Avaunt 30WG	6.0 oz/A	PF	0.02 a	0.16 a	0.08 a	0.57 a	112.68 a
	HGW86 10SE + NIS	10.1 oz/A	1C					
	Altacor 35WG	3.0 oz/A	2-7C					
10	Untreated			0.25 a	2.47 a	0.87 b	0.32 a	242.31 a
P value for transformed data				0.639	0.183	<0.001	0.053	0.185

[a] Evaluation made on July 18 on Red Delicious cultivar.

Percent data were transformed using $\log_{10}(x+1)$ using Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 4c Evaluations Of Insecticide Schedules For Controlling Mite Complex On Apple [a]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

				Number of Mite Eggs / Leaf			
	Treatment / Formulation	Rate	Timing	ERME	TSME	ZME	AMBE
1	Proclaim 5SG	3.84 oz/A	PF	0.16 a	0.11 a	0.01 a	0.01 a
	AgriFlexi 16.9SC	2.5 floz/A	PF				
	Endigo ZCX	5.5 oz/A	PF, 3,7C				
	Volium Express	9.0floz/A	1-2,4-6C				
	LI700	0.25% v/v	PF-7C				
2	Proclaim 5SG	3.84 oz/A	PF, 1-2C	0.92 a	0.13 a	0.02 a	0.01 a
	AgriFlexi 16.9SC	2.5 floz/A	PF				
	Endigo ZCX	5.5 oz/A	PF, 3,7C				
	Volium Express	6.0floz/A	4-6C				
	LI700	0.25% v/v	PF-6C				
3	Lambda-Cy	5.12 oz/A	P, 1C	0.06 a	0.53 a	0.03 a	0.05 a
	Assail 30SG	5.0 oz/A	PF				
	Vendex	1.5 lb/A	1C				
	Assail 30SG	8.0 oz/A	2C				
	Assail 30SG	6.0 oz/A	3,7C				
	Delegate WG	5.2 oz/A	4-5C				
	Imidan 70WP	3.0 lb/A	6C				
4	Lambda-Cy	5.12 oz/A	P, 4-5C	0.12 a	0.01 a	0.00 a	0.01 a
	Endigo ZCX	5.5 oz/A	PF				
	AgriMek+NIS	10.0 oz/A	PF				
	Alticor	3.0 oz/A	1-2C				
	Esteem +NIS	5.0 oz/A	3C				
	Assail 30SG	5.0 oz/A	4-5C				
	Imidan 70WP	3.0 lb/A	6-7C				
5	Assail 30SG	6.0 oz/A	P	0.05 a	0.02 a	0.01 a	0.01 a
	Assail 30SG	8.0 oz/A	PF, 1,3C				
	Vendex	1.5 lb/A	1C				
	Esteem +NIS	5.0 oz/A	3C				
	Lambda-Cy	5.12 oz/A	4-7C				
6	Perm-Up	10.0 oz/A	P	0.05 a	0.03 a	0.00 a	0.00 a
	Leverage	2.8 oz/A	PF				
	Movento + NIS	9.0 oz/A	PF				
	AgriMek+NIS	10.0 oz/A	PF				
	Calypso SC	6.0 oz/A	1,5C				
	Belt	4.0 oz/A	3-4C				
	Calypso SC	4.0 oz/A	2C				
	Imidan 70WP	3.0 lb/A	6-7C				
7	HGW86 10SE + NIS	10.1 oz/A	PF	2.97 a	0.22 a	0.02 a	0.01 a
	Alticor	3.0 oz/A	1-2C				
8	HGW86 10SE + NIS	10.1 oz/A	PF, 1C	0.62 a	10.43 a	0.04 a	0.05 a
	Alticor	3.0 oz/A	2-7C				
9	Avaunt 30WG	6.0 oz/A	PF	0.08 a	0.36 a	0.18 a	0.01 a
	HGW86 10SE + NIS	10.1 oz/A	1C				
	Altacor 35WG	3.0 oz/A	2-7C				
10	Untreated			0.20 a	0.94 a	0.84 b	0.00 a
P value for transformed data				0.363	0.511	<0.001	0.140

[a] Evaluation made on July 18 on Red Delicious cultivar.

Percent data were transformed using $\log_{10}(x+1)$ conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 5a Evaluations Of Insecticide Schedules For Controlling Leafhopper Complex On Apple [a]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

	Treatment / Formulation	Rate	Timing	Leaf hopper injury /5 terminal leaves RLH / WALH (0-4)	PLH (0-3)
1	Proclaim 5SG	3.84 oz/A	PF	0.08 a	0.03 a
	AgriFlexi 16.9SC	2.5 floz/A	PF		
	Endigo ZCX	5.5 oz/A	PF, 3,7C		
	Volium Express	9.0floz/A	1-2,4-6C		
	LI700	0.25% v/v	PF-7C		
2	Proclaim 5SG	3.84 oz/A	PF, 1-2C	0.20 ab	0.03 a
	AgriFlexi 16.9SC	2.5 floz/A	PF		
	Endigo ZCX	5.5 oz/A	PF, 3,7C		
	Volium Express	6.0floz/A	4-6C		
	LI700	0.25% v/v	PF-6C		
3	Lambda-Cy	5.12 oz/A	P, 1C	0.05 a	0.00 a
	Assail 30SG	5.0 oz/A	PF		
	Vendex	1.5 lb/A	1C		
	Assail 30SG	8.0 oz/A	2C		
	Assail 30SG	6.0 oz/A	3,7C		
	Delegate WG	5.2 oz/A	4-5C		
	Imidan 70WP	3.0 lb/A	6C		
4	Lambda-Cy	5.12 oz/A	P, 4-5C	0.10 a	0.08 a
	Endigo ZCX	5.5 oz/A	PF		
	AgriMek+NIS	10.0 oz/A	PF		
	Alticor	3.0 oz/A	1-2C		
	Esteem +NIS	5.0 oz/A	3C		
	Assail 30SG	5.0 oz/A	4-5C		
	Imidan 70WP	3.0 lb/A	6-7C		
5	Assail 30SG	6.0 oz/A	P	0.05 a	0.08 a
	Assail 30SG	8.0 oz/A	PF, 1,3C		
	Vendex	1.5 lb/A	1C		
	Esteem +NIS	5.0 oz/A	3C		
	Lambda-Cy	5.12 oz/A	4-7C		
6	Perm-Up	10.0 oz/A	P	0.15 ab	0.03 a
	Leverage	2.8 oz/A	PF		
	Movento + NIS	9.0 oz/A	PF		
	AgriMek+NIS	10.0 oz/A	PF		
	Calypso SC	6.0 oz/A	1,5C		
	Belt	4.0 oz/A	3-4C		
	Calypso SC	4.0 oz/A	2C		
	Imidan 70WP	3.0 lb/A	6-7C		
7	HGW86 10SE + NIS	10.1 oz/A	PF	0.08 a	0.05 a
	Alticor	3.0 oz/A	1-7C		
8	HGW86 10SE + NIS	10.1 oz/A	PF, 1C	0.05 a	0.05 a
	Alticor	3.0 oz/A	2-7C		
9	Avaunt 30WG	6.0 oz/A	PF	0.13 a	0.08 a
	HGW86 10SE + NIS	10.1 oz/A	1C		
	Altacor 35WG	3.0 oz/A	2-7C		
10	Untreated			0.30 b	0.25 b
P value for transformed data				0.058	0.014

[a] Evaluation made on June 5 on Ginger Gold cultivar. RHL= rose leafhopper, *Edwardsiana rosae* (Linnaeus) *WALH = white apple leafhopper,* Typhlocyba pomaria*, PLH = potato leafhopper, Empoasca* fabae (Harris). Percent data were transformed using $\log_{10}(x+1)$ conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 5b Evaluations Of Insecticide Schedules For Controlling Leafhopper Complex On Apple [a]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

	Treatment / Formulation	Rate	Timing	Leaf hopper injury /5 terminal leaves RLH / WALH (0-4)	PLH (0-3)
1	Proclaim 5SG	3.84 oz/A	PF	0.13 ab	0.00 a
	AgriFlexi 16.9SC	2.5 floz/A	PF		
	Endigo ZCX	5.5 oz/A	PF, 3,7C		
	Volium Express	9.0floz/A	1-2,4-6C		
	LI700	0.25% v/v	PF-7C		
2	Proclaim 5SG	3.84 oz/A	PF, 1-2C	0.13 ab	0.25 a
	AgriFlexi 16.9SC	2.5 floz/A	PF		
	Endigo ZCX	5.5 oz/A	PF, 3,7C		
	Volium Express	6.0floz/A	4-6C		
	LI700	0.25% v/v	PF-6C		
3	Lambda-Cy	5.12 oz/A	P, 1C	0.05 a	0.13 a
	Assail 30SG	5.0 oz/A	PF		
	Vendex	1.5 lb/A	1C		
	Assail 30SG	8.0 oz/A	2C		
	Assail 30SG	6.0 oz/A	3,7C		
	Delegate WG	5.2 oz/A	4-5C		
	Imidan 70WP	3.0 lb/A	6C		
4	Lambda-Cy	5.12 oz/A	P, 4-5C	0.05 a	0.05 a
	Endigo ZCX	5.5 oz/A	PF		
	AgriMek+NIS	10.0 oz/A	PF		
	Alticor	3.0 oz/A	1-2C		
	Esteem +NIS	5.0 oz/A	3C		
	Assail 30SG	5.0 oz/A	4-5C		
	Imidan 70WP	3.0 lb/A	6-7C		
5	Assail 30SG	6.0 oz/A	P	0.28 bc	0.08 a
	Assail 30SG	8.0 oz/A	PF, 1,3C		
	Vendex	1.5 lb/A	1C		
	Esteem +NIS	5.0 oz/A	3C		
	Lambda-Cy	5.12 oz/A	4-7C		
6	Perm-Up	10.0 oz/A	P	0.18 ab	0.08 a
	Leverage	2.8 oz/A	PF		
	Movento + NIS	9.0 oz/A	PF		
	AgriMek+NIS	10.0 oz/A	PF		
	Calypso SC	6.0 oz/A	1,5C		
	Belt	4.0 oz/A	3-4C		
	Calypso SC	4.0 oz/A	2C		
	Imidan 70WP	3.0 lb/A	6-7C		
7	HGW86 10SE + NIS	10.1 oz/A	PF	0.20 ab	0.05 a
	Alticor	3.0 oz/A	1-7C		
8	HGW86 10SE + NIS	10.1 oz/A	PF, 1C	0.10 ab	0.03 a
	Alticor	3.0 oz/A	2-7C		
9	Avaunt 30WG	6.0 oz/A	PF	0.10 ab	< 0.01 a
	HGW86 10SE + NIS	10.1 oz/A	1C		
	Altacor 35WG	3.0 oz/A	2-7C		
10	Untreated			0.43 c	0.23 a
P value for transformed data				0.019	0.193

[a] Evaluation made on June 4 on Red Delecious cultivar. RHL= rose leafhopper, *Edwardsiana rosae* (Linnaeus) *WALH =* white apple leafhopper*, Typhlocyba pomaria, PLH = potato leafhopper, Empoasca* fabae (Harris). Percent data were transformed using $\log_{10}(x+1)$ conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Rating scale 0-4 WALH for stippling, 0-3 scale PLH chlorosis from margin to mid-rib discoloration.

Table 6a Evaluations Of Insecticide Schedules For Controlling Scale Complex On Apple [a]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

	Treatment / Formulation	Rate	Timing	Incidence (%) of scale damage on a 0-3 scale 1	2	3	Clean
1	Proclaim 5SG	3.84 oz./A	PF	0.7 a	0.0 a	4.3 a	95.1 a
	AgriFlexi 16.9SC	2.5 fl. oz./A	PF				
	Endigo ZCX	5.5 oz./A	PF, 3,7C				
	Volium Express	9.0fl. oz./A	1-2,4-6C				
	LI700	0.25% v/v	PF-7C				
2	Proclaim 5SG	3.84 oz./A	PF, 1-2C	0.0 a	0.0 a	0.0 a	100.0 a
	AgriFlexi 16.9SC	2.5 fl. oz./A	PF				
	Endigo ZCX	5.5 oz./A	PF, 3,7C				
	Volium Express	6.0 fl. oz./A	4-6C				
	LI700	0.25% v/v	PF-6C				
3	Lambda-Cy	5.12 oz./A	P, 1C	0.5 a	0.5 a	1.8 a	97.3 a
	Assail 30SG	5.0 oz./A	PF				
	Vendex	1.5 lb./A	1C				
	Assail 30SG	8.0 oz./A	2C				
	Assail 30SG	6.0 oz./A	3,7C				
	Delegate WG	5.2 oz./A	4-5C				
	Imidan 70WP	3.0 lb./A	6C				
4	Lambda-Cy	5.12 oz./A	P, 4-5C	0.8 a	0.0 a	5.8 a	93.5 a
	Endigo ZCX	5.5 oz./A	PF				
	AgriMek+NIS	10.0 oz./A	PF				
	Alticor	3.0 oz./A	1-2C				
	Esteem +NIS	5.0 oz./A	3C				
	Assail 30SG	5.0 oz./A	4-5C				
	Imidan 70WP	3.0 lb./A	6-7C				
5	Assail 30SG	6.0 oz./A	P	0.5 a	0.0 a	0.5 a	99.0 a
	Assail 30SG	8.0 oz./A	PF, 1,3C				
	Vendex	1.5 lb./A	1C				
	Esteem +NIS	5.0 oz./A	3C				
	Lambda-Cy	5.12 oz./A	4-7C				
6	Perm-Up	10.0 oz./A	P	1.3 a	1.3 a	1.3 a	96.3 a
	Leverage	2.8 oz./A	PF				
	Movento + NIS	9.0 oz./A	PF				
	AgriMek+NIS	10.0 oz./A	PF				
	Calypso SC	6.0 oz./A	1,5C				
	Belt	4.0 oz./A	3-4C				
	Calypso SC	4.0 oz./A	2C				
	Imidan 70WP	3.0 lb./A	6-7C				
7	HGW86 10SE + NIS	10.1 oz./A	PF	0.5 a	0.0 a	0.5 a	99.0 a
	Alticor	3.0 oz./A	1,2C				
8	HGW86 10SE + NIS	10.1 oz./A	PF, 1C	1.5 a	0.0 a	1.0 a	97.5 a
	Alticor	3.0 oz./A	2C				
9	Avaunt 30WG	6.0 oz./A	PF	0.5 a	0.0 a	0.0 a	99.5 a
	HGW86 10SE + NIS	10.1 oz./A	1C				
	Altacor 35WG	3.0 oz./A	2C				
10	Untreated			1.1 a	0.0 a	0.7 a	98.3 a
P value for transformed data				0.903	0.464	0.426	0.532

[a] Evaluation made on July 3 on Ginger Gold cultivar.

Percent data were transformed using arcsine(Sqrt(x)) conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 6b Evaluations Of Insecticide Schedules For Controlling Scale Complex On Apple [a]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

				Incidence (%) of scale damage on a 0-3 scale			
	Treatment / Formulation	Rate	Timing	1	2	3	Clean
1	Proclaim 5SG	3.84 oz./A	PF	0.8 ab	0.3 a	0.0 a	99.0 ab
	AgriFlexi 16.9SC	2.5 fl. oz./A	PF				
	Endigo ZCX	5.5 oz./A	PF, 3,7C				
	Volium Express	9.0fl. oz./A	1-2,4-6C				
	LI700	0.25% v/v	PF-7C				
2	Proclaim 5SG	3.84 oz./A	PF, 1-2C	0.9 ab	0.0 a	0.8 a	98.4 ab
	AgriFlexi 16.9SC	2.5 fl. oz./A	PF				
	Endigo ZCX	5.5 oz./A	PF, 3,7C				
	Volium Express	6.0 fl. oz./A	4-6C				
	LI700	0.25% v/v	PF-6C				
3	Lambda-Cy	5.12 oz./A	P, 1C	1.3 abc	0.5 a	0.3 a	98.0 ab
	Assail 30SG	5.0 oz./A	PF				
	Vendex	1.5 lb./A	1C				
	Assail 30SG	8.0 oz./A	2C				
	Assail 30SG	6.0 oz./A	3,7C				
	Delegate WG	5.2 oz./A	4-5C				
	Imidan 70WP	3.0 lb./A	6C				
4	Lambda-Cy	5.12 oz./A	P, 4-5C	4.3 bc	1.8 a	4.3 a	89.6 b
	Endigo ZCX	5.5 oz./A	PF				
	AgriMek+NIS	10.0 oz./A	PF				
	Alticor	3.0 oz./A	1-2C				
	Esteem +NIS	5.0 oz./A	3C				
	Assail 30SG	5.0 oz./A	4-5C				
	Imidan 70WP	3.0 lb./A	6-7C				
5	Assail 30SG	6.0 oz./A	P	1.8 abc	1.5 a	1.5 a	92.3 ab
	Assail 30SG	8.0 oz./A	PF, 1,3C				
	Vendex	1.5 lb./A	1C				
	Esteem +NIS	5.0 oz./A	3C				
	Lambda-Cy	5.12 oz./A	4-7C				
6	Perm-Up	10.0 oz./A	P	0.5 a	0.3 a	0.0 a	99.3 ab
	Leverage	2.8 oz./A	PF				
	Movento + NIS	9.0 oz./A	PF				
	AgriMek+NIS	10.0 oz./A	PF				
	Calypso SC	6.0 oz./A	1,5C				
	Belt	4.0 oz./A	3-4C				
	Calypso SC	4.0 oz./A	2C				
	Imidan 70WP	3.0 lb./A	6-7C				
7	HGW86 10SE + NIS	10.1 oz./A	PF	1.6 ab	1.8 a	3.5 a	93.2 ab
	Alticor	3.0 oz./A	1,2C				
8	HGW86 10SE + NIS	10.1 oz./A	PF, 1C	6.1 c	1.1 a	21.4 b	71.4 c
	Alticor	3.0 oz./A	2C				
9	Avaunt 30WG	6.0 oz./A	PF	0.0 a	0.0 a	0.0 a	100.0 a
	HGW86 10SE + NIS	10.1 oz./A	1C				
	Altacor 35WG	3.0 oz./A	2C				
10	Untreated			0.0 a	0.0 a	0.0 a	100.0 a
P value for transformed data				0.028	0.506	< 0.001	0.002

[a] Evaluation made on July 3 on Red Delicious cultivar.

Percent data were transformed using arcsine(Sqrt(x)) conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 7a Evaluations Of Insecticide Schedules For Controlling Insect Complex On Apple During Harvest[a]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

						Incidence (%) of insect damage								
	Treatment / Formulation	Rate	TPB	EAS	Early Lep.	Early PC	Late PC	SJS	Internal Lep.	Ext. Lep.	Punct. AM	Tunnel AM	CLEAN
1	Proclaim 5SG	3.84 oz./A	2.1 a	0.0 a	3.6 a	2.6 ab	13.9 a	4.6 a	2.5 a	10.1 a	5.0 a	4.8 b	63.1 ab
	AgriFlexi 16.9SC	2.5 fl. oz./A											
	Endigo ZCX	5.5 oz./A											
	Volium Express	9.0 fl. oz./A											
	LI700	0.25% v/v											
2	Proclaim 5SG	3.84 oz./A	8.3 a	0.8 a	4.8 a	5.0 ab	10.8 a	0.5 a	5.0 a	8.0 a	4.3 a	3.5 ab	65.0 ab
	AgriFlexi 16.9SC	2.5 fl. oz./A											
	Endigo ZCX	5.5 oz./A											
	Volium Express	6.0 fl. oz./A											
	LI700	0.25% v/v											
3	Lambda-Cy	5.12 oz./A	9.0 a	1.0 a	3.3 a	6.3 ab	18.8 a	0.8 a	5.8 a	6.5 a	3.3 a	2.3 ab	55.5 ab
	Assail 30SG	5.0 oz./A											
	Vendex	1.5 lb./A											
	Assail 30SG	8.0 oz./A											
	Assail 30SG	6.0 oz./A											
	Delegate WG	5.2 oz./A											
	Imidan 70WP	3.0 lb./A											
4	Lambda-Cy	5.12 oz./A	3.8 a	0.5 a	1.0 a	5.3 ab	26.3 a	0.5 a	5.0 a	12.5 a	0.8 a	0.8 ab	53.5 ab
	Endigo ZCX	5.5 oz./A											
	AgriMek+NIS	10.0 oz./A											
	Alticor	3.0 oz./A											
	Esteem +NIS	5.0 oz./A											
	Assail 30SG	5.0 oz./A											
	Imidan 70WP	3.0 lb./A											
5	Assail 30SG	6.0 oz./A	3.8 a	0.3 a	2.0 a	8.3 ab	17.8 a	0.8 a	6.3 a	11.3 a	1.5 a	0.8 ab	56.8 ab
	Assail 30SG	8.0 oz./A											
	Vendex	1.5 lb./A											
	Esteem +NIS	5.0 oz./A											
	Lambda-Cy	5.12 oz./A											
6	Perm-Up	10.0 oz./A	6.8 a	1.8 a	1.5 a	1.5 a	4.0 a	1.8 a	3.5 a	10.3 a	3.0 a	2.5 ab	70.8 ab
	Leverage	2.8 oz./A											
	Movento + NIS	9.0 oz./A											
	AgriMek+NIS	10.0 oz./A											
	Calypso SC	6.0 oz./A											
	Belt	4.0 oz./A											
	Calypso SC	4.0 oz./A											
	Imidan 70WP	3.0 lb./A											
7	HGW86 10SE	10.1 oz./A	8.0 a	1.5 a	2.3 a	12.0 bc	20.0 a	0.8 a	2.8 a	15.5 a	3.5 a	3.0 b	50.5 b
	Alticor	3.0 oz./A											
8	HGW86 10SE	10.1 oz./A	7.3 a	1.0 a	1.0 a	3.8 ab	12.3 a	3.5 a	4.8 a	14.8 a	0.3 a	0.3 a	62.0 ab
	Alticor	3.0 oz./A											
9	Avaunt 30WG	6.0 oz./A	2.0 a	0.8 a	1.0 a	3.0 ab	10.3 a	0.3 a	4.0 a	9.0 a	0.5 a	0.5 ab	76.0 a
	HGW86 10SE	10.1 oz./A											
	Altacor 35WG	3.0 oz./A											
10	Untreated		11.5 a	1.5 b	13.0 a	27.8 c	27.1 a	0.6 a	15.4 a	17.6 a	16.6 b	15.5 c	27.0 c
P value for transformed data			0.179	0.313	0.057	0.010	0.118	0.664	0.281	0.418	0.011	0.004	0.018

[a] Evaluation made on July 27 on Ginger Gold cultivar.

Percent data were transformed using arcsine(Sqrt(x)) conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 7b Evaluations Of Insecticide Schedules For Controlling Insect Complex On Apple During Harvest[a]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

	Treatment / Formulation	Rate		Incidence (%) of insect damage										
				TPB	EAS	Early Lep.	Early PC	Late PC	SJS	Internal Lep.	Ext. Lep.	Punct. AM	Tunnel AM	CLEAN
1	Proclaim 5SG	3.84 oz./A	PF	0.3 a	0.0 a	0.0 a	2.1 ab	6.7 a	31.2 bc	0.0 a	0.3 ab	0.0 a	0.0 a	63.0 bcd
	AgriFlexi 16.9SC	2.5 fl. oz./A	PF											
	Endigo ZCX	5.5 oz./A	PF, 3,7C											
	Volium Express	9.0 fl. oz./A	1-2,4-6C											
	LI700	0.25% v/v	PF-7C											
2	Proclaim 5SG	3.84 oz./A	PF, 1-2C	0.5a	0.0 a	0.3 a	2.6 ab	6.2 a	9.2 ab	0.0 a	0.0 a	0.0 a	0.0 a	83.7 ab
	AgriFlexi 16.9SC	2.5 fl. oz./A	PF5.0 a											
	Endigo ZCX	5.5 oz./A	PF, 3,7C											
	Volium Express	6.0 fl. oz./A	4-6C											
	LI700	0.25% v/v	PF-6C											
3	Lambda-Cy	5.12 oz./A	P, 1C	0.0 a	0.0 a	0.3 a	1.5 ab	13.0 abcd	10.3 ab	0.8 a	0.5 ab	0.0 a	0.0 a	81.0 abc
	Assail 30SG	5.0 oz./A	PF											
	Vendex	1.5 lb./A	1C											
	Assail 30SG	8.0 oz./A	2C											
	Assail 30SG	6.0 oz./A	3,7C											
	Delegate WG	5.2 oz./A	4-5C											
	Imidan 70WP	3.0 lb./A	6C											
4	Lambda-Cy	5.12 oz./A	P, 4-5C	0.0 a	0.0 a	0.3 a	3.7 ab	21.9 d	9.8 ab	0.7 a	0.0 a	0.0 a	0.0 a	67.3 abcd
	Endigo ZCX	5.5 oz./A	PF											
	AgriMek+NIS	10.0 oz./A	PF											
	Alticor	3.0 oz./A	1-2C											
	Esteem +NIS	5.0 oz./A	3C											
	Assail 30SG	5.0 oz./A	4-5C											
	Imidan 70WP	3.0 lb./A	6-7C											
5	Assail 30SG	6.0 oz./A	P	0.0 a	0.0 a	0.3 a	5.3 ab	7.9 ab	5.1 ab	0.5 a	1.3 b	0.5 a	0.3 ab	68.2 abcd
	Assail 30SG	8.0 oz./A	PF, 1,3C											
	Vendex	1.5 lb./A	1C											
	Esteem +NIS	5.0 oz./A	3C											
	Lambda-Cy	5.12 oz./A	4-7C											
6	Perm-Up	10.0 oz./A	P	0.3 a	0.0 a	0.0 a	1.5 ab	2.8 a	0.0 a	0.3 a	0.0 a	0.0 a	0.0 a	95.3 a
	Leverage	2.8 oz./A	PF											
	Movento + NIS	9.0 oz./A	PF											
	AgriMek+NIS	10.0 oz./A	PF											
	Calypso SC	6.0 oz./A	1,5C											
	Belt	4.0 oz./A	3-4C											
	Calypso SC	4.0 oz./A	2C											
	Imidan 70WP	3.0 lb./A	6-7C											
7	HGW86 10SE + NIS	10.1 oz./A	PF	0.0 a	0.3 a	0.0 a	7.5 b	19.3 bcd	10.5 ab	0.0 a	0.3 ab	0.0 a	0.0 a	66.3 bcd
	Alticor	3.0 oz./A	1,2C											
8	HGW86 10SE + NIS	10.1 oz./A	PF, 1C	0.3 a	0.0 a	0.0 a	0.5 a	23.4 cd	47.4 c	0.0 a	1.0 ab	0.0 a	0.0 a	40.5 d
	Alticor	3.0 oz./A	2C											
9	Avaunt 30WG	6.0 oz./A	PF	0.0 a	0.0 a	0.0 a	2.8 ab	7.5 abc	0.0 a	0.0 a	0.3 ab	0.3 a	0.0 a	89.3 ab
	HGW86 10SE + NIS	10.1 oz./A	1C											
	Altacor 35WG	3.0 oz./A	2C											
10	Untreated			1.3 a	0.5 a	0.5 a	21.3 c	22.0 d	8.5 ab	6.8 b	6.3 c	1.0 a	0.8 b	51.0 cd
P value for transformed data				0.248	0.068	0.509	0.001	0.006	0.024	<0.001	<0.001	0.081	0.051	0.023

[a] Evaluation made on August 8 on McIntosh cultivar.

Percent data were transformed using arcsine(Sqrt(x)) conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 7c Evaluations Of Insecticide Schedules For Controlling Insect Complex On Apple During Harvest[a]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

	Treatment / Formulation	Rate		Incidence (%) of insect damage										
				TPB	EAS	Early Lep.	Early PC	Late PC	SJS	Internal Lep.	Ext. Lep.	Punct. AM	Tunnel AM	CLEAN
1	Proclaim 5SG	3.84 oz./A	PF	0.8 a	0.0 a	1.3 a	5.6 a	4.5 ab	34.1 d	0.0 a	0.5 ab	2.7 ab	0.9 ab	56.4 bc
	AgriFlexi 16.9SC	2.5 fl. oz./A	PF											
	Endigo ZCX	5.5 oz./A	PF, 3,7C											
	Volium Express	9.0 fl. oz./A	1-2,4-6C											
	LI700	0.25% v/v	PF-7C											
2	Proclaim 5SG	3.84 oz./A	PF, 1-2C	1.0 a	0.0 a	0.0 a	3.0 a	1.8 ab	5.3 abc	0.0 a	0.0 a	0.0 a	0.0 a	89.5 a
	AgriFlexi 16.9SC	2.5 fl. oz./A	PF5.0 a											
	Endigo ZCX	5.5 oz./A	PF, 3,7C											
	Volium Express	6.0 fl. oz./A	4-6C											
	LI700	0.25% v/v	PF-6C											
3	Lambda-Cy	5.12 oz./A	P, 1C	0.3 a	0.0 a	0.5 a	10.5 a	4.8 ab	19.3 abcd	1.0 bc	2.5 ab	1.3 ab	1.0 ab	65.3 ab
	Assail 30SG	5.0 oz./A	PF											
	Vendex	1.5 lb./A	1C											
	Assail 30SG	8.0 oz./A	2C											
	Assail 30SG	6.0 oz./A	3,7C											
	Delegate WG	5.2 oz./A	4-5C											
	Imidan 70WP	3.0 lb./A	6C											
4	Lambda-Cy	5.12 oz./A	P, 4-5C	0.3 a	0.5 bc	4.3 a	11.0 a	4.5 ab	5.5 abc	1.3 c	2.0 ab	3.8 bc	1.5 ab	69.3 ab
	Endigo ZCX	5.5 oz./A	PF											
	AgriMek+NIS	10.0 oz./A	PF											
	Alticor	3.0 oz./A	1-2C											
	Esteem +NIS	5.0 oz./A	3C											
	Assail 30SG	5.0 oz./A	4-5C											
	Imidan 70WP	3.0 lb./A	6-7C											
5	Assail 30SG	6.0 oz./A	P	0.3 a	0.0 a	0.8 a	13.9 a	9.5 ab	16.0 abcd	1.3 bc	2.0 b	1.0 ab	0.8 ab	60.1 abc
	Assail 30SG	8.0 oz./A	PF, 1,3C											
	Vendex	1.5 lb./A	1C											
	Esteem +NIS	5.0 oz./A	3C											
	Lambda-Cy	5.12 oz./A	4-7C											
6	Perm-Up	10.0 oz./A	P	0.0 a	0.0 a	1.8 a	2.5 a	0.8 a	17.8 abcd	1.3bc	1.5 ab	1.3 ab	1.3 ab	73.8 ab
	Leverage	2.8 oz./A	PF											
	Movento + NIS	9.0 oz./A	PF											
	AgriMek+NIS	10.0 oz./A	PF											
	Calypso SC	6.0 oz./A	1,5C											
	Belt	4.0 oz./A	3-4C											
	Calypso SC	4.0 oz./A	2C											
	Imidan 70WP	3.0 lb./A	6-7C											
7	HGW86 10SE + NIS	10.1 oz./A	PF	1.3 a	0.0 a	0.7 a	18.5 ab	10.1 b	23.1 bcd	1.6 abc	3.6 ab	4.5 bc	1.3 ab	46.7 bc
	Alticor	3.0 oz./A	1,2C											
8	HGW86 10SE + NIS	10.1 oz./A	PF, 1C	0.5 a	0.3 ab	0.3 a	10.2 a	7.3 ab	20.5 cd	0.0 a	2.0 ab	4.3 bc	2.3 bc	57.2 bc
	Alticor	3.0 oz./A	2C											
9	Avaunt 30WG	6.0 oz./A	PF	1.5 a	1.0 c	0.5 a	7.3 a	3.5 ab	1.5 ab	0.3 ab	1.8 ab	5.3 bc	1.3 ab	77.8 ab
	HGW86 10SE + NIS	10.1 oz./A	1C											
	Altacor 35WG	3.0 oz./A	2C											
10	Untreated			0.8 a	0.0 a	1.3 a	33.8 b	26.6 c	2.0 a	11.1 d	8.9 c	8.0 c	6.0 c	32.7 c
P value for transformed data				0.316	0.004	0.731	0.026	0.025	0.059	<0.001	0.017	0.037	0.016	0.057

[a] Evaluation made on October 1 on Red Delicious cultivar.

Percent data were transformed using arcsine(Sqrt(x)) conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 8 Treatment Schedule For Seasonal Apple Insecticide Screen.
N.Y.S.A.E.S., Hudson Valley Lab., Highland, N.Y. - 2012.

Treatment / Formulation	Rate	Timing	Application Dates
1. Apta 15 SC + NIS	21.0 fl oz/A	PF-6C*	30 April, 12, 28 May, 16 June, 1, 17, 30 July, 17 Aug.
2. Apta 15 SC + NIS	24.0 fl oz/A	PF-6C*	30 April, 12, 28 May, 16 June, 1, 17, 30 July, 17 Aug..
3. Apta 15 SC + NIS	24.0 fl oz/A	P-6C*	8, 30 April, 12, 28 May, 16 June, 1, 17, 30 July, 17 Aug..
4. Avaunt + NIS	6.0 oz./A	P-8C	8, 30 April, 12, 28 May, 16 June, 1, 17, 30 July, 17 Aug.
5. Avaunt + NIS	6.0 oz./A	PF-8C	30 April, 12, 28 May, 16 June, 1, 17, 30 July, 17 Aug..
6. Azadirect + M-PEDE	12.0 fl oz/A 1.0% v/v	P-8C	8, 30 April, 12, 28 May, 16 June, 1, 17, 30 July, 17 Aug.
7. Azadirect + M-PEDE	20.0 fl oz/A 2.0% v/v	P-8C	8, 30 April, 12, 28 May, 16 June, 1, 17, 30 July, 17 Aug.
8. Surround WP Pyganic 1.4EC Entrust	50.0 lbs/A 64.0 oz./A 3.0 oz./A	P-8C P-6C 7-8C	8, 30 April, 12, 28 May, 16 June, 1, 17, 30 July, 17 Aug. 8, 30 April, 12, 28 May, 16 June, 1, 17 July, 30 July, 17 Aug.
9. Surround WP	50.0 lbs/A	P-EOS	8, 30 April, 12, 28 May, 16 June, 1, 17, 30 July, 17 Aug.
10. UNTREATED			

NIS = BioCover at 0.25% V/V
*Trmts received Assail in 7-8C @ 8 oz./A on 30 July, 17 Aug.

Table 9a Evaluations Of Insecticide Schedules For Controlling Early Season Insect Complex On Apple [a]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

Treatment / Formulation	Rate	Timing	Incidence (%) of insect damaged cluster fruit PC	EAS	TPB	MPB	LEP	Clean
1 APTA 15SC + NIS	21.0 floz/A 0.25% v/v	PF-EOS PF-EOS	15.5 bcd	4.0 a	1.0 a	0.5 a	1.0 ab	78.0 abc
2 APTA 15SC + NIS	24.0 fl oz/A 0.25% v/v	PF-EOS PF-EOS	18.8 bcd	4.0 a	2.0 a	1.0 a	1.1 ab	73.1 abcd
3 APTA 15SC + NIS	24.0 fl oz/A 0.25% v/v	P-EOS P-EOS	13.5 abc	14.5 a	0.5 a	0.0 a	1.5 ab	70.0 abcd
4 Avaunt + NIS	6.0 oz/A 0.25% v/v	P-EOS P-EOS	4.0 a	12.0 a	1.0 a	0.0 a	0.0 a	83.0 a
5 Avaunt + NIS	6.0 oz/A 0.25% v/v	PF-EOS PF-EOS	7.4 ab	9.9 a	3.0 a	0.0 a	0.0 a	79.7 abc
6 Azadirect + M-PEDE	12.0 fl oz/A 1.0% v/v	P-EOS P-EOS	21.0 bcd	6.5 a	3.5 a	0.0 a	1.0 ab	68.0 bcd
7 Azadirect + M-PEDE	20.0 fl oz/A 2.0% v/v	P-EOS P-EOS	26.5 cd	3.0 a	4.0 a	0.5 a	1.0 ab	65.0 cd
8 Surround WP Pyganic 1.4EC	50.0 lb/A 64.0 oz/A	P-EOS P-EOS	8.5 ab	4.5 a	1.0 a	0.0 a	1.0 ab	85.0 ab
9 Surround WP	50.0 lb/A	PF-EOS	15.5 bcd	3.5 a	0.5 a	0.0 a	3.0 bc	78.0 abc
10 Untreated			30.0 d	11.0 a	2.0 a	0.0 a	6.0 c	52.5 d
P value for transformed data			0.008	0.347	0.308	0.129	0.013	0.039

[a] Evaluation made on May 29 on Ginger Gold cultivar.

Percent data were transformed using arcsine(Sqrt(x)) conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 9b Evaluations Of Insecticide Schedules For Controlling Early Season Insect Complex On Apple [A]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

Treatment / Formulation	Rate	Timing	Incidence (%) of insect damaged cluster fruit PC	EAS	TPB	MPB	LEP	Clean
1 APTA 15SC + NIS	21.0 floz/A 0.25% v/v	PF-EOS PF-EOS	27.5 cd	0.6 a	0.0 a	1.1 a	1.1 a	69.8 bc
2 APTA 15SC + NIS	24.0 fl oz/A 0.25% v/v	PF-EOS PF-EOS	21.0 bc	1.5 a	1.0 a	0.5 a	2.5 ab	74.0 abc
3 APTA 15SC + NIS	24.0 fl oz/A 0.25% v/v	P-EOS P-EOS	17.5 abc	1.0 a	0.5 a	1.0 a	1.0 a	79.0 abc
4 Avaunt + NIS	6.0 oz/A 0.25% v/v	P-EOS P-EOS	6.5 a	1.0 a	2.5 a	1.5 a	1.0 a	88.5 a
5 Avaunt + NIS	6.0 oz/A 0.25% v/v	PF-EOS PF-EOS	7.0 a	0.5 a	3.5 a	0.5 a	1.5 ab	87.0 a
6 Azadirect + M-PEDE	12.0 fl oz/A 1.0% v/v	P-EOS P-EOS	21.5 bc	1.5 a	0.0 a	1.0 a	1.5 ab	74.5 abc
7 Azadirect + M-PEDE	20.0 fl oz/A 2.0% v/v	P-EOS P-EOS	27.3 cd	2.0 a	1.8 a	2.0 a	3.5 ab	62.8 cd
8 Surround WP Pyganic 1.4EC	50.0 lb/A 64.0 oz/A	P-EOS P-EOS	12.0 ab	1.0 a	0.5 a	0.0 a	0.0 a	86.5 ab
9 Surround WP	50.0 lb/A	PF-EOS	16.0 abc	0.5 a	1.0 a	1.0 a	5.0 bc	76.0 abc
10 Untreated			43.7 d	1.5 a	3.0 a	5.1 a	7.7 c	43.0 d
P value for transformed data			<0.001	0.961	0.162	0.124	0.008	<0.001

[a] Evaluation made on May 30 on Red Delicious cultivar.

Percent data were transformed using arcsine(Sqrt(x)) conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 10 Evaluations Of Insecticide Schedules For Controlling Codling Moth On Apple [a]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

				Incidence (%) of codling moth damage on cluster fruit	
	Treatment / Formulation	Rate	Timing	Ginger Gold	Red Delicious
1	APTA 15SC + NIS	21.0 floz/A 0.25% v/v	PF-EOS PF-EOS	2.5 bcde	5.2 de
2	APTA 15SC + NIS	24.0 fl oz/A 0.25% v/v	PF-EOS PF-EOS	2.3 bcd	2.2 abcd
3	APTA 15SC + NIS	24.0 fl oz/A 0.25% v/v	P-EOS P-EOS	1.0 ab	2.0 abcd
4	Avaunt + NIS	6.0 oz/A 0.25% v/v	P-EOS P-EOS	0.3 a	0.5 ab
5	Avaunt + NIS	6.0 oz/A 0.25% v/v	PF-EOS PF-EOS	0.3 a	0.3 a
6	Azadirect + M-PEDE	12.0 fl oz/A 1.0% v/v	P-EOS P-EOS	4.8 cde	2.8 abcd
7	Azadirect + M-PEDE	20.0 fl oz/A 2.0% v/v	P-EOS P-EOS	2.5 bcde	4.0 bcd
8	Surround WP Pyganic 1.4EC	50.0 lb/A 64.0 oz/A	P-EOS P-EOS	1.5 abc	1.0 abc
9	Surround WP	50.0 lb/A	PF-EOS	5.5 de	3.3 cd
10	Untreated			6.5 e	10.0 e
P value for transformed data				<0.001	0.001

[a] Evaluation made on June 25 on Ginger Gold and Red Delicious cultivars.
Percent data were transformed using arcsine(Sqrt(x)) conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 11a Evaluations Of Insecticide Schedules For Controlling Mite Complex On Apple [a]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

Treatment / Formulation	Rate	Timing	Number of Adult mites and eggs present per leaf						
			ERM	ERME	TSM	TSME	AMB	AMBE	ARM
1 APTA 15SC + NIS	21.0 fl. oz./A 0.25% v/v	PF-EOS PF-EOS	0.08 a	0.24 a	0.00 a	0.06 a	0.00 a	0.00 a	2.24 a
2 APTA 15SC + NIS	24.0 fl oz./A 0.25% v/v	PF-EOS PF-EOS	0.02 a	0.08 a	0.00 a	0.00 a	0.06 a	0.02 a	1.92 a
3 APTA 15SC + NIS	24.0 fl oz./A 0.25% v/v	P-EOS P-EOS	0.08 a	0.02 a	0.04 a	0.04 a	0.12 a	0.08 a	2.88 a
4 Avaunt + NIS	6.0 oz./A 0.25% v/v	P-EOS P-EOS	0.10 a	0.28 a	0.00 a	0.00 a	0.00 a	0.00 a	1.28 a
5 Avaunt + NIS	6.0 oz./A 0.25% v/v	PF-EOS PF-EOS	0.06 a	0.00 a	0.00 a	0.00 a	0.02 a	0.00 a	1.28 a
6 Azadirect + M-PEDE	12.0 fl oz./A 1.0% v/v	P-EOS P-EOS	0.00 a	0.02 a	0.00 a	0.00 a	0.02 a	0.00 a	2.24 a
7 Azadirect + M-PEDE	20.0 fl oz./A 2.0% v/v	P-EOS P-EOS	0.04 a	0.12 a	0.00 a	0.02 a	0.04 a	0.00 a	1.92 a
8 Surround WP Pyganic 1.4EC	50.0 lb./A 64.0 oz./A	P-EOS P-EOS	0.04 a	0.28 a	0.00 a	0.00 a	0.00 a	0.00 a	2.56 a
9 Surround WP	50.0 lb./A	PF-EOS	0.10 a	0.14 a	0.08 a	0.02 a	0.06 a	0.02 a	3.20 a
10 Untreated			0.00 a	0.00 a	0.02 a	0.00 a	0.00 a	0.00 a	32.96 a
P value for transformed data			0.510	0.687	0.157	0.500	0.244	0.500	0.836

[a] Evaluation made on June 20 on Red Delicious cultivar.

Percent data were transformed using $\log_{10}(x+1)$ conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 11a Evaluations Of Insecticide Schedules For Controlling Mite Complex On Apple [a].
N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

Treatment / Formulation	Rate	Timing	Number of Adult mites and eggs present per leaf								
			ERM	ERME	TSM	TSME	ZM	ZME	AMB	AMBE	ARM
1 APTA 15SC + NIS	21.0 fl. oz./A 0.25% v/v	PF-EOS PF-EOS	9.25 a	19.77 b	1.49 a	3.03 a	0.02 a	0.12 ab	0.05 a	0.01 a	9.92 a
2 APTA 15SC + NIS	24.0 fl oz./A 0.25% v/v	PF-EOS PF-EOS	0.06 a	0.12 a	0.40 a	0.07 a	0.14 a	0.12 a	0.00 a	0.00 a	5.12 a
3 APTA 15SC + NIS	24.0 fl oz./A 0.25% v/v	P-EOS P-EOS	0.02 a	0.12 a	6.54 a	16.46 a	0.00 a	0.00 a	0.00 a	0.00 a	4.48 a
4 Avaunt + NIS	6.0 oz./A 0.25% v/v	P-EOS P-EOS	7.99 a	15.14 ab	0.63 a	2.01 a	0.21 a	0.43 ab	0.74 c	0.06 a	25.96 ab
5 Avaunt + NIS	6.0 oz./A 0.25% v/v	PF-EOS PF-EOS	0.30 a	0.41 a	1.98 a	4.14 a	0.44 a	1.44 bc	0.57 bc	0.06 a	76.32 bc
6 Azadirect + M-PEDE	12.0 fl oz./A 1.0% v/v	P-EOS P-EOS	0.19 a	0.64 a	0.51 a	0.38 a	0.10 a	0.09 a	0.59 bc	0.01 a	104.80 bc
7 Azadirect + M-PEDE	20.0 fl oz./A 2.0% v/v	P-EOS P-EOS	0.08 a	0.41 a	1.43 a	1.83 a	0.31 a	0.21 ab	0.24 abc	0.00 a	113.92 c
8 Surround WP Pyganic 1.4EC	50.0 lb./A 64.0 oz./A	P-EOS P-EOS	12.50 a	26.98 b	6.12 a	6.46 a	0.51 a	0.22 ab	0.18 abc	0.02 a	66.94 bc
9 Surround WP	50.0 lb./A	PF-EOS	28.71 a	18.13 b	2.62 a	7.96 a	0.25 a	0.14 ab	0.18 abc	0.03 a	63.94 bc
10 Untreated			1.11 a	2.08 ab	0.09 a	0.64 a	1.02 a	1.29 c	0.13 ab	0.01 a	108.08 c
P value for transformed data			0.119	0.027	0.275	0.335	0.244	0.025	0.045	0.149	<0.001

[a] Evaluation made on July 25 on Red Delicious cultivar.

Percent data were transformed using $\log_{10}(x+1)$ conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 11 Evaluations Of Insecticide Schedules For Controlling Leafhopper Complex On Apple [a]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

				Damage rating scale of 25 apical or mid terminal lvs./ tree			
				Ginger Gold		Red Delicious	
Treatment / Formulation	Rate	Timing		RLH	PLH	RLH	PLH
1 APTA 15SC	21.0 fl. oz./A	PF-EOS		0.12 ab	0.08 a	0.15 a	0.08 a
+ NIS	0.25% v/v	PF-EOS					
2 APTA 15SC	24.0 fl oz./A	PF-EOS		0.20 abc	0.13 a	0.15 a	0.08 a
+ NIS	0.25% v/v	PF-EOS					
3 APTA 15SC	24.0 fl oz./A	P-EOS		0.23 abc	0.03 a	0.10 a	0.08 a
+ NIS	0.25% v/v	P-EOS					
4 Avaunt	6.0 oz./A	P-EOS		0.10 a	0.03 a	0.05 a	0.03 a
+ NIS	0.25% v/v	P-EOS					
5 Avaunt	6.0 oz./A	PF-EOS		0.33 bcd	0.00 a	0.15 a	0.05 a
+ NIS	0.25% v/v	PF-EOS					
6 Azadirect	12.0 fl oz./A	P-EOS		0.20 abc	0.15 a	0.13 a	0.00 a
+ M-PEDE	1.0% v/v	P-EOS					
7 Azadirect	20.0 fl oz./A	P-EOS		0.35 cd	0.18 a	0.41 a	0.03 a
+ M-PEDE	2.0% v/v	P-EOS					
8 Surround WP	50.0 lb./A	P-EOS		0.13 ab	0.13 a	0.10 a	0.00 a
Pyganic 1.4EC	64.0 oz./A	P-EOS					
9 Surround WP	50.0 lb./A	PF-EOS		0.5 d	0.13 a	0.10 a	0.05 a
10 Untreated				0.28 abcd	0.15 a	0.30 a	0.10 a
P value for transformed data				0.031	0.370	0.063	0.816

[a] Evaluation made on June 5 on Ginger Gold and Red Delicious cultivars RHL= rose leafhopper, *Edwardsiana rosae* (Linnaeus) *WALH* = white apple leafhopper*, Typhlocyba pomaria, PLH = potato leafhopper, Empoasca* fabae (Harris). Percent data were transformed using $\log_{10}(x+1)$ conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Rating scale 0-4 WALH for stippling, 0-3 scale PLH chlorosis from margin to mid-rib discoloration. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 12a Evaluations Of Insecticide Schedules For Controlling Scale Complex On Apple [a]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

Treatment / Formulation	Rate	Timing	Incidence (%) of insect damaged cluster fruit 1	2	3	Clean
1 APTA 15SC + NIS	21.0 fl. oz./A 0.25% v/v	PF-EOS PF-EOS	0.0 a	0.0 a	0.0 a	100.0 a
2 APTA 15SC + NIS	24.0 fl oz./A 0.25% v/v	PF-EOS PF-EOS	1.1 a	0.0 a	1.0 a	98.0 a
3 APTA 15SC + NIS	24.0 fl oz./A 0.25% v/v	P-EOS P-EOS	0.5 a	0.5 a	0.3 a	98.8 a
4 Avaunt + NIS	6.0 oz./A 0.25% v/v	P-EOS P-EOS	1.0 a	0.5 a	4.5 a	94.0 a
5 Avaunt + NIS	6.0 oz./A 0.25% v/v	PF-EOS PF-EOS	5.8 a	2.2 a	4.4 a	87.8 a
6 Azadirect + M-PEDE	12.0 fl oz./A 1.0% v/v	P-EOS P-EOS	0.5 a	0.5 a	0.0 a	99.0 a
7 Azadirect + M-PEDE	20.0 fl oz./A 2.0% v/v	P-EOS P-EOS	0.3 a	0.0 a	0.0 a	99.8 a
8 Surround WP Pyganic 1.4EC	50.0 lb./A 64.0 oz./A	P-EOS P-EOS	1.0 a	0.0 a	0.3 a	98.8 a
9 Surround WP	50.0 lb./A	PF-EOS	1.3 a	0.0 a	2.3 a	96.5 a
10 Untreated			1.0 a	0.8 a	0.3 a	98.0 a
P value for transformed data			0.834	0.398	0.464	0.636

[a] Evaluation made on July 4 on Ginger Gold cultivar.

Percent data were transformed using arcsine(Sqrt(x)) conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 12b Evaluations Of Insecticide Schedules For Controlling Scale Complex On Apple [a]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

Treatment / Formulation	Rate	Timing	Incidence (%) of insect damaged cluster fruit 1	2	3	Clean
1 APTA 15SC + NIS	21.0 fl. oz./A 0.25% v/v	PF-EOS PF-EOS	4.3 a	0.5 a	2.4 a	92.8 a
2 APTA 15SC + NIS	24.0 fl oz./A 0.25% v/v	PF-EOS PF-EOS	0.5 a	0.0 a	0.0 a	99.5 a
3 APTA 15SC + NIS	24.0 fl oz./A 0.25% v/v	P-EOS P-EOS	2.2 a	0.0 a	1.8 a	96.0 a
4 Avaunt + NIS	6.0 oz./A 0.25% v/v	P-EOS P-EOS	1.3 a	2.0 a	16.8 a	80.0 a
5 Avaunt + NIS	6.0 oz./A 0.25% v/v	PF-EOS PF-EOS	0.5 a	0.0 a	10.5 a	89.0 a
6 Azadirect + M-PEDE	12.0 fl oz./A 1.0% v/v	P-EOS P-EOS	0.5 a	0.0 a	0.3 a	99.3 a
7 Azadirect + M-PEDE	20.0 fl oz./A 2.0% v/v	P-EOS P-EOS	1.3 a	0.8 a	5.8 a	92.3 a
8 Surround WP Pyganic 1.4EC	50.0 lb./A 64.0 oz./A	P-EOS P-EOS	0.0 a	0.0 a	10.5 a	89.5 a
9 Surround WP	50.0 lb./A	PF-EOS	0.0 a	0.0 a	3.5 a	96.5 a
10 Untreated			2.0 a	1.8 a	0.0 a	96.2 a
P value for transformed data			0.511	0.064	0.888	0.894

[a] Evaluation made on July 4 on Red Delicious cultivar.

Percent data were transformed using arcsine(Sqrt(x)) conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 13a Evaluations Of Insecticide Schedules For Controlling Insect Complex On Apple During Harvest[a]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

				Incidence (%) of insect damaged cluster fruit										
Treatment / Formulation	Rate	Timing	TPB	EAS	E.LEP	E.PC	L.PC	SJS	InLEP	ExLep	AMP	AMT	Clean
1 APTA 15SC + NIS	21.0 fl. oz./A 0.25% v/v	PF-EOS PF-EOS	2.3 a	1.0 a	2.3 a	29.8 a	23.5 abc	9.8 a	5.8 a	5.5 a	1.8 a	1.0 a	37.3 a
2 APTA 15SC + NIS	24.0 fl oz./A 0.25% v/v	PF-EOS PF-EOS	0.3 a	1.3 a	1.0 a	33.0 a	17.8 ab	0.3 a	5.1 a	7.5 a	0.4 a	0.7 a	45.6 a
3 APTA 15SC + NIS	24.0 fl oz./A 0.25% v/v	P-EOS P-EOS	4.8 a	1.8 a	1.0 a	40.8 a	10.8 a	0.8 a	2.5 a	5.8 a	2.3 a	0.5 a	36.0 a
4 Avaunt + NIS	6.0 oz./A 0.25% v/v	P-EOS P-EOS	3.0 a	2.5 a	2.8 a	14.8 a	9.6 a	15.5 a	1.5 a	5.0 a	0.3 a	0.0 a	51.3 a
5 Avaunt + NIS	6.0 oz./A 0.25% v/v	PF-EOS PF-EOS	4.0 a	1.3 a	1.5 a	40.5 a	13.3 a	1.3 a	3.3 a	10.3 a	4.8 a	4.8 a	36.5 a
6 Azadirect + M-PEDE	12.0 fl oz./A 1.0% v/v	P-EOS P-EOS	3.0 a	1.0 a	1.5 a	38.0 a	30.0 bc	0.0 a	5.0 a	9.5 a	1.0 a	0.8 a	29.8 a
7 Azadirect + M-PEDE	20.0 fl oz./A 2.0% v/v	P-EOS P-EOS	1.3 a	0.3 a	0.8 a	39.5 a	38.8 c	0.0 a	6.5 a	4.0 a	1.8 a	1.0 a	30.3 a
8 Surround WP Pyganic 1.4EC	50.0 lb./A 64.0 oz./A	P-EOS P-EOS	0.5 a	0.0 a	1.8 a	16.5 a	29.0 abc	0.3 a	5.5 a	9.0 a	0.0 a	0.0 a	47.5 a
9 Surround WP	50.0 lb./A	PF-EOS	2.8 a	2.3 a	1.8 a	21.3 a	26.3 abc	0.3 a	7.5 a	10.8 a	1.5 a	1.3 a	40.8 a
10 Untreated			3.8 a	0.5 a	2.3 a	36.0 a	35.8 bc	0.5 a	10.5 a	19.5 a	3.8 a	1.5 a	18.5 a
P value for transformed data			0.660	0.603	0.987	0.534	0.021	0.766	0.144	0.175	0.274	0.258	0.688

[a] Evaluation made on July 27 on Ginger Gold cultivar.

Percent data were transformed using arcsine(Sqrt(x)) conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 13b Evaluations Of Insecticide Schedules For Controlling Insect Complex On Apple During Harvest[a].
N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

				Incidence (%) of insect damaged cluster fruit										
Treatment / Formulation	Rate	Timing	TPB	EAS	E.LEP	E.PC	L.PC	SJS	InLEP	ExLep	AMP	AMT	Clean
1 APTA 15SC + NIS	21.0 fl. oz./A 0.25% v/v	PF-EOS PF-EOS	1.8 a	0.0 a	2.0 ab	5.3 a	12.0 abc	19.8 a	0.8 a	7.5 b	0.5 ab	0.5 ab	60.5 a
2 APTA 15SC + NIS	24.0 fl oz./A 0.25% v/v	PF-EOS PF-EOS	0.8 a	0.3 a	0.8 ab	7.5 a	13.9 abc	11.8 a	1.3 a	0.5 ab	1.0 ab	1.0 ab	74.5 a
3 APTA 15SC + NIS	24.0 fl oz./A 0.25% v/v	P-EOS P-EOS	1.3 a	0.5 a	3.8 ab	11.8 ab	14.0 abc	8.5 a	1.3 a	5.3 ab	0.0 a	0.0 a	62.8 a
4 Avaunt + NIS	6.0 oz./A 0.25% v/v	P-EOS P-EOS	0.0 a	0.5 a	0.5 ab	10.0 a	3.5 ab	27.8 a	0.3 a	0.0 a	0.0 a	0.0 a	59.9 a
5 Avaunt + NIS	6.0 oz./A 0.25% v/v	PF-EOS PF-EOS	1.5 a	0.5 a	2.0 ab	4.9 a	3.0 a	26.4 a	0.3 a	2.3 ab	2.5 abc	1.7 ab	58.7 a
6 Azadirect + M-PEDE	12.0 fl oz./A 1.0% v/v	P-EOS P-EOS	1.3 a	0.8 a	2.5 ab	30.8 c	14.5 abc	5.8 a	1.5 ab	5.3 ab	3.5 ab	2.5 ab	47.5 a
7 Azadirect + M-PEDE	20.0 fl oz./A 2.0% v/v	P-EOS P-EOS	1.5 a	0.3 a	3.8 b	16.7 abc	20.7 c	14.5 a	2.8 ab	6.2 b	4.5 bc	4.3 bc	53.7 a
8 Surround WP Pyganic 1.4EC	50.0 lb./A 64.0 oz./A	P-EOS P-EOS	0.5 a	0.0 a	0.3 a	15.5 abc	16.3 bc	38.3 a	3.5 b	1.0 ab	0.5 ab	0.3 ab	38.0 a
9 Surround WP	50.0 lb./A	PF-EOS	0.8 a	0.5 a	3.2 ab	14.0 abc	19.4 c	17.9 a	3.5 b	3.5 b	0.5 ab	0.5 ab	54.0 a
10 Untreated			3.2 a	0.0 a	11.6 c	32.3 bc	39.2 d	7.8 a	5.9 b	16.8 c	13.6 c	11.9 c	24.2 a
P value for transformed data			0.478	0.738	0.008	0.040	0.007	0.516	0.020	0.003	0.030	0.024	0.548

[a] Evaluation made on August 9 on McIntosh cultivar.

Percent data were transformed using arcsine(Sqrt(x)) conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 13c Evaluations Of Insecticide Schedules For Controlling Insect Complex On Apple During Harvest[a].
N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

				Incidence (%) of insect damaged cluster fruit										
Treatment / Formulation	Rate	Timing		TPB	EAS	E.LEP	E.PC	L.PC	SJS	InLEP	ExLep	AMP	AMT	Clean
1 APTA 15SC + NIS	21.0 fl. oz./A 0.25% v/v	PF-EOS PF-EOS		0.8 a	0.5 a	8.2 a	17.1 cde	6.1 cd	41.1 c	3.3 bcd	12.7 bc	10.0 abc	6.6 abc	39.9 bc
2 APTA 15SC + NIS	24.0 fl oz./A 0.25% v/v	PF-EOS PF-EOS		2.6 a	0.8 a	5.4 a	15.2 cde	4.3 bcd	21.0 abc	1.8 bc	10.9 bc	18.6 abc	3.8 abc	51.7 ab
3 APTA 15SC + NIS	24.0 fl oz./A 0.25% v/v	P-EOS P-EOS		1.1 a	0.0 a	5.4 a	14.4 cd	7.2 d	33.1 bc	1.8 ab	9.7 bc	5.3 a	2.3 a	56.8 ab
4 Avaunt + NIS	6.0 oz./A 0.25% v/v	P-EOS P-EOS		0.5 a	0.8 a	3.0 a	5.0 ab	0.8 a	27.0 abc	0.0 a	3.5 a	10.5 bcd	11.3 cde	56.8 ab
5 Avaunt + NIS	6.0 oz./A 0.25% v/v	PF-EOS PF-EOS		1.2 a	0.3 a	4.8 a	8.3 bc	1.0 a	16.0 ab	1.4 ab	6.7 ab	14.2 abc	7.1 abc	64.3 a
6 Azadirect + M-PEDE	12.0 fl oz./A 1.0% v/v	P-EOS P-EOS		0.5 a	0.5 a	8.8 a	27.0 e	8.3 d	5.8 a	8.0 d	17.5 cd	5.8 abc	8.0 bcd	30.5 c
7 Azadirect + M-PEDE	20.0 fl oz./A 2.0% v/v	P-EOS P-EOS		3.7 a	0.3 a	8.4 a	27.2 e	10.4 d	6.3 a	7.7 d	17.5 cd	70.7 cd	14.3 cd	31.4 c
8 Surround WP Pyganic 1.4EC	50.0 lb./A 64.0 oz./A	P-EOS P-EOS		1.5 a	0.5 a	2.5 a	1.8 a	2.8 abc	13.9 ab	9.0 cd	19.4 cd	23.0 ab	33.1 ab	60.2 ab
9 Surround WP	50.0 lb./A	PF-EOS		0.8 a	0.8 a	4.8 a	13.0 cd	1.0 ab	25.8 abc	8.3 d	26.0 d	5.5 ab	5.8 abc	43.5 bc
10 Untreated				1.3 a	0.8 a	8.1 a	22.8 de	7.6 d	5.4 a	8.0 d	19.1 cd	39.6 d	17.2 e	29.6 c
P value for transformed data				0.409	0.823	0.445	<0.001	0.001	0.046	<0.001	<0.001	0.019	0.003	0.002

[a] Evaluation made on October 1 on Red Delicious cultivar.

Percent data were transformed using arcsine(Sqrt(x)) conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 14 Treatment Schedule For Seasonal Pear Insecticide Screen.
N.Y.S.A.E.S., Hudson Valley Lab., Highland, N.Y. - 2012.

Treatment / Formulation	Rate	Timing	Application Dates
1 BioCover	3% v/v	DD	15 March
BioCover	1% v/v	WB, 7d pPF – EOS	4, 30 April, 9, 18 May, 1, 14 June, 7, 20 Aug.
2. Surround WP	50.0 lbs./A	DD, WB, 7d pPF	15 March, 4, 30 April
BioCover	1% v/v	2C – EOS	9, 18 May, 1, 14 June, 7, 20 Aug.
3. Esteem 35 WP	5.0 oz/A	DD	15 March
Centaur 0.7 WDG + oil	46.0 oz/A	WB	4 April
AgriMek 0.15EC + oil	16.0 fl oz/A	7d pPF	30 April
HGW86 10SE + oil	13.5 fl oz/A	14, 28dpPF	18 May, 1 June
4. Esteem 35 WP	5.0 oz/A	DD	15 March
Centaur 0.7 WDG + oil	46.0 oz/A	WB	4 April
AgriMek 0.15EC + oil	16.0 fl oz/A	7d pPF	30 April
HGW86 10SE + oil	16.5 fl oz/A	14, 28dpPF	18 May, 1 June
5. Esteem 35 WP	5.0 oz/A	DD	15 March
Centaur 0.7 WDG + oil	46.0 oz/A	WB	4 April
AgriMek 0.15EC + oil	16.0 fl oz/A	7d pPF	30 April
Delegate 25WG + oil	7.0 oz/A	14, 28dpPF	18 May, 1 June
6. Esteem 35 WP	5.0 oz/A	DD	15 March
Centaur 0.7 WDG + oil	46.0 oz/A	WB	4 April
Apta + oil	21.0 fl oz/A	7d pPF, 28dpPF	30 April, 1 June
7. Esteem 35 WP	5.0 oz/A	DD	15 March
Centaur 0.7 WDG + oil	46.0 oz/A	WB	4 April
Apta + oil	27.0 fl oz/A	7d pPF, 28dpPF	30 April, 1 June
8. UNTREATED			

Evaluations on Bartlett. BioCover horticultural oil used as the adjuvant in all treatments as tank mix at 0.25% v/v.

Table 15a Evaluations Of Insecticide Schedules For Controlling Early Season Insect Complex On Pear [a]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. -2012.

	Treatment / Formulation	Rate	Timing	Pear psylla nymphs per bud/leaf						
				Apr 4	Apr 16	May 8	May 29	Jun 11	Jun 25	Jul 9
1	BioCover Hort oil BioCover Hort oil	3% v/v 1% v/v	D WB, PF-EOS	1.5 a	1.3 a	0.7 ab	5.1 bc	1.6 a	0.3 a	0.2 a
2	Surround WP BioCover Hort oil	50.0 lb/A 1% v/v	D, WB, PF 2C-EOS	0.3 a	0.6 a	0.2 a	7.9 c	2.3 a	0.2 a	0.4 a
3	Esteem 35WP Centaur 0.7WDG + 0.25%oil AgriMek 0.15EC + 0.25%oil HGW86 10SE + 0.25%oil	5.0 oz/A 46.0 oz/A 16.0 fl.oz/A 13.5 fl.oz/A	DD WB PF 14,28dpPF	1.2 a	4.0 b	1.4 bc	3.4 ab	0.8 a	0.2 a	0.2 a
4	Esteem 35WP Centaur 0.7WDG + 0.25%oil AgriMek 0.15EC + 0.25%oil HGW86 10SE + 0.25%oil	5.0 oz/A 46.0 oz/A 16.0 fl.oz/A 16.5 fl.oz/A	DD WB PF 14,28dpPF	-	-	-	7.7 c	1.5 a	0.2 a	0.1 a
5	Esteem 35WP Centaur 0.7WDG + 0.25%oil AgriMek 0.15EC + 0.25%oil Delegate 25WG + 0.25%oil	5.0 oz/A 46.0 oz/A 16.0 fl.oz/A 7.0 oz/A	DD WB PF 14,28dpPF	-	-	-	4.2 bc	0.8 a	0.1 a	<0.1 a
6	Esteem 35WP Centaur 0.7WDG + 0.25%oil Apta + 0.25%oil	5.0 oz/A 46.0 oz/A 21.0 fl.oz/A	DD WB PF	-	-	-	1.5 a	0.7 a	0.2 a	0.1 a
7	Esteem 35WP Centaur 0.7WDG + 0.25%oil Apta + 0.25%oil	5.0 oz/A 46.0 oz/A 27.0 fl.oz/A	DD WB PF	-	-	-	4.9 bc	1.3 a	0.3 a	0.1 a
8	Untreated			3.9 a	16.1 b	2.5 c	4.4 bc	0.4 a	0.3 a	0.1 a
P value for transformed data				0.511	0.007	0.003	0.007	0.456	0.983	0.129

[a] Seasonal evaluations made on 'Bartlett'.

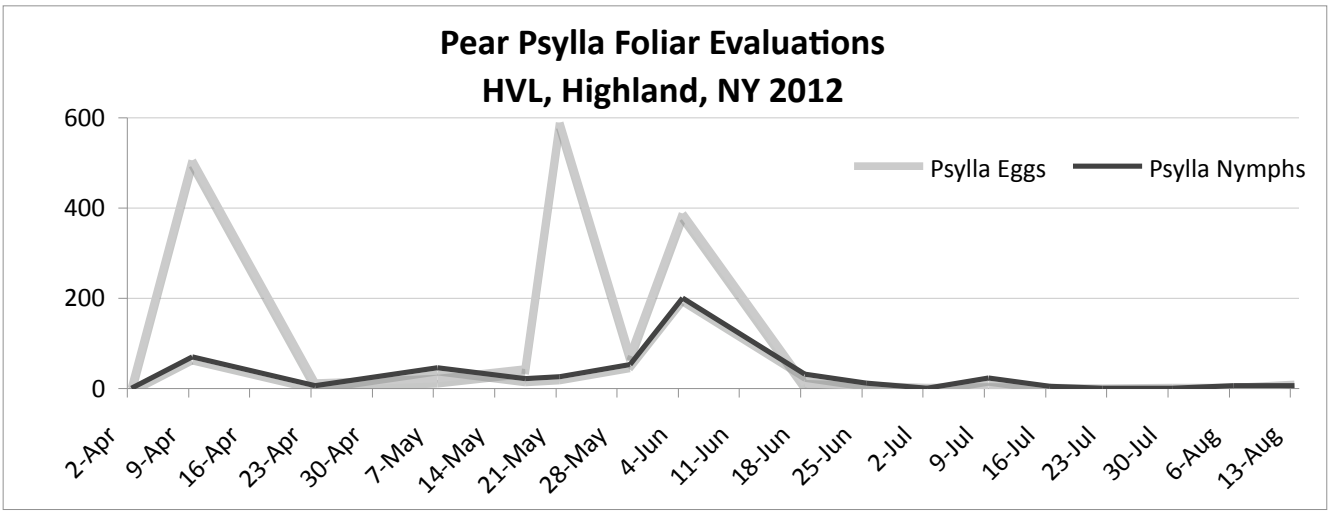
Percent data were transformed using $\log_{10}(x+1)$ conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using John Bean Airblast delivering 148.8 GPA at 200 psi. traveling at an average of 2.86 mph.

Table 15b Evaluations Of Insecticide Schedules For Controlling Early Season Insect Complex On Pear [a]. N.Y.S.A.E.S. Hudson Valley Lab. Highland N.Y. - 2012.

	Treatment / Formulation	Rate	Timing	Pear psylla eggs per bud/leaf Apr 4	Apr 16	May 8	May 29	Jun 11	Jun 25	Jul 9
1	BioCover Hort oil BioCover Hort oil	3% v/v 1% v/v	D WB, PF-EOS	49.8 a	7.9 b	1.5 a	15.9 a	1.5 a	0.1 a	0.1 a
2	Surround WP BioCover Hort oil	50.0 lb/A 1% v/v	D, WB, PF 2C-EOS	18.3 a	0.4 a	1.6 a	28.8 a	1.3 a	0.1 a	0.1 a
3	Esteem 35WP Centaur 0.7WDG + 0.25%oil AgriMek 0.15EC + 0.25%oil HGW86 10SE + 0.25%oil	5.0 oz/A 46.0 oz/A 16.0 fl.oz/A 13.5 fl.oz/A	DD WB PF 14,28dpPF	53.4 a	23.0 c	1.3 a	8.4 a	0.6 a	0.1 a	<0.1 a
4	Esteem 35WP Centaur 0.7WDG + 0.25%oil AgriMek 0.15EC + 0.25%oil HGW86 10SE + 0.25%oil	5.0 oz/A 46.0 oz/A 16.0 fl.oz/A 16.5 fl.oz/A	DD WB PF 14,28dpPF	-	-	-	20.1 a	1.6 a	0.4 a	<0.1 a
5	Esteem 35WP Centaur 0.7WDG + 0.25%oil AgriMek 0.15EC + 0.25%oil Delegate 25WG + 0.25%oil	5.0 oz/A 46.0 oz/A 16.0 fl.oz/A 7.0 oz/A	DD WB PF 14,28dpPF	-	-	-	8.7 a	0.8 a	0.1 a	0.1 a
6	Esteem 35WP Centaur 0.7WDG + 0.25%oil Apta + 0.25%oil	5.0 oz/A 46.0 oz/A 21.0 fl.oz/A	DD WB PF	-	-	-	7.2 a	1.1 a	0.2 a	0.1 a
7	Esteem 35WP Centaur 0.7WDG + 0.25%oil Apta + 0.25%oil	5.0 oz/A 46.0 oz/A 27.0 fl.oz/A	DD WB PF	-	-	-	12.4 a	1.6 a	0.1 a	<0.1 a
8	Untreated			46.3 a	33.2 c	3.7 a	11.0 a	0.2 a	0.2 a	<0.1 a
P value for transformed data				0.196	<0.001	0.113	0.111	0.466	0.221	0.536

[a] Seasonal evaluations made on 'Bartlett'.

Percent data were transformed using $\log_{10}(x+1)$ conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. Arithmetic means reported. All applications made using a three-point hitch tractor mounted 'Pack Tank' sprayer and pecan handgun applied dilute to runoff.



Raspberry: Rubus, cv. 'Caroline'

Spotted Wing Drosophila (SWD): *Drosophila suzukii*

EVALUATION OF INSECTICIDES FOR CONTROLLING SWD ON RASPBERRY, 2012 – Cornell University's Hudson Valley Lab:

Treatments were applied to a commercial patch of a single mature row, 4' h x 2' w in 8' rows of Caroline, a red, primocane, fall, autumn fruiting berry, in 3 plant plots of 4 treatments randomized in 6 replicates, on 24, 30 August, 17, 24 September. Treatments were made using a Solo 450 mist blower employing a 3-gallon tank calibrated to deliver 76.4 GPA.

Treatments made on tight interval schedules did not appear to be effective at reducing ovipositional injury by SWD.

Table 16 Evaluations of Insecticide Schedules for Controlling Spotted Wing Drosophila on Raspberry [a]. Milton, N.Y. - 2012.

		% of raspberries with drosophila breathing tube observed			
Treatment	oz./A	30 Aug.	5 Sept.	20 Sept.	24 Sept.
1. Exeril + LI700	20.5 32.0	58.3 a	96.7 c	56.7 a	30.0 a
2. Bifenture + LI700 + LI700	16.0 32.0	81.7 a	86.7 bc	60.0 a	31.7 a
3. Delegate + LI700 + LI700	6.0 32.0	48.3 a	66.7 a	73.3 b	30.0 a
4. Untreated	-	70.0 a	100c	86.7 b	58.3 b
P value for transformed data		0.083	0.003	0.001	0.006

[a] Evaluation made on 30 August, 5, 20, 24 September on Caroline cultivar. Percent data were transformed using $\log_{10}(x+1)$ conducted prior to analysis. Untransformed data are presented in each table. Mean separation by Fishers Protected LSD ($P \leq 0.05$). Treatment means followed by the same letter are not significantly different. All treatments received Elevate 50WDG to control botrytis fruit rot.

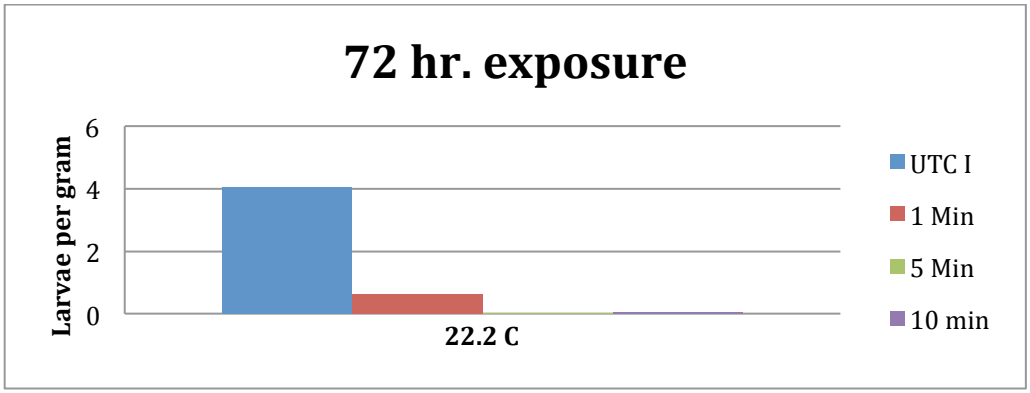
Raspberry: Rubus, cv. 'Caroline'

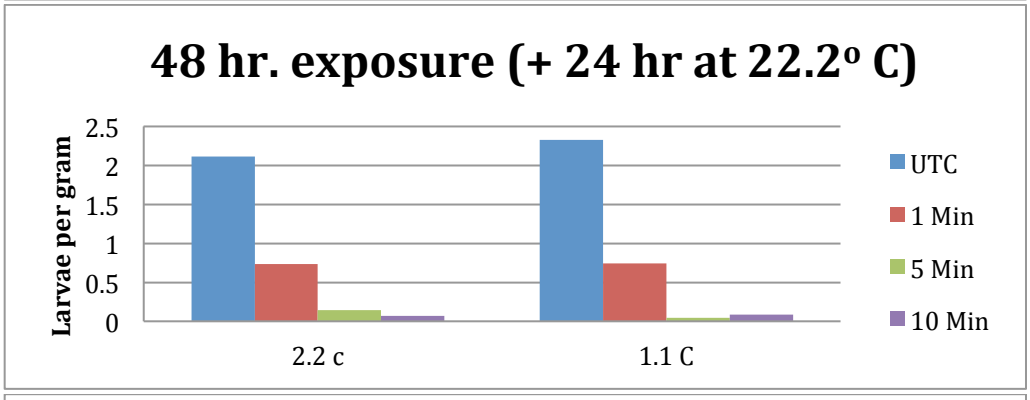
Spotted Wing Drosophila (SWD): *Drosophila suzukii*

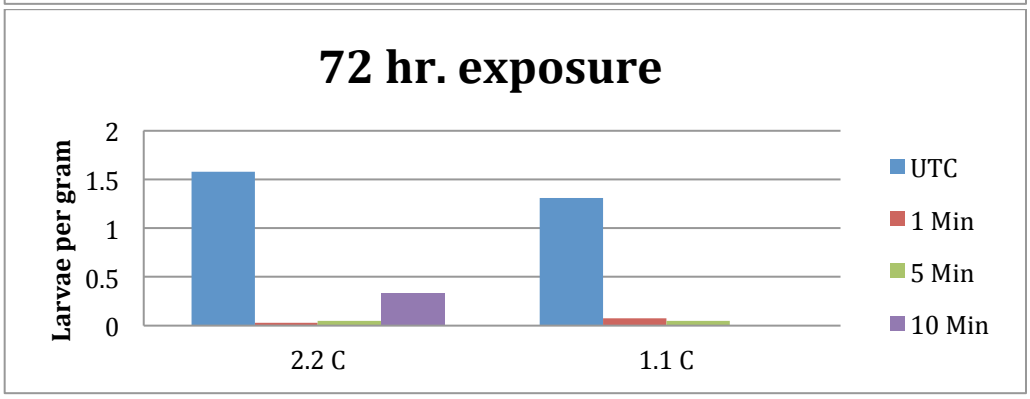
POST HARVEST EVALUATION OF AMIGO (MSO) FOR CONTROLLING SWD ON RASPBERRY, 2012 – Cornell University's Hudson Valley Lab:

Two submersion treatments were applied to berries of Caroline, a red, primocane, fall, autumn fruiting berry, in a split lot of 4 treatments randomized in 5 replicates on 24 September. Treatments were made by immersing berries in 1% vegetable oil (MSO) for 1, 5 or 10 minutes, dried and exposed to 1.1 °C or 2.2 °C for 48 or 72 hours compared to berries held at 22.2°C, (room temperature) for 72 hours. The 48 hour exposures were then held at room temperature for the remaining 72 hour period. Temperature treatments were compared to untreated controls (UTC) held at room temperature with and without oil treatments. After 72 hours berries were teased apart to tally larval presence.

Berry treatments were made to determine the effects temperature and oil have on egg hatch and larval survival. Reduced larval numbers were observed in both 48 and 72-hour temperature treatments. In all untreated samples of all temperature exposures, high levels of live larva were found. All berries treated with 1% oil showed nearly 100% larval mortality. Lowest levels of egg hatch were observed in berries held at room temperature, treated with 1% oil for 5 or 10 minutes. The data suggests 1% oil applications alone may reduce egg viability if used in field applications prior to harvest.



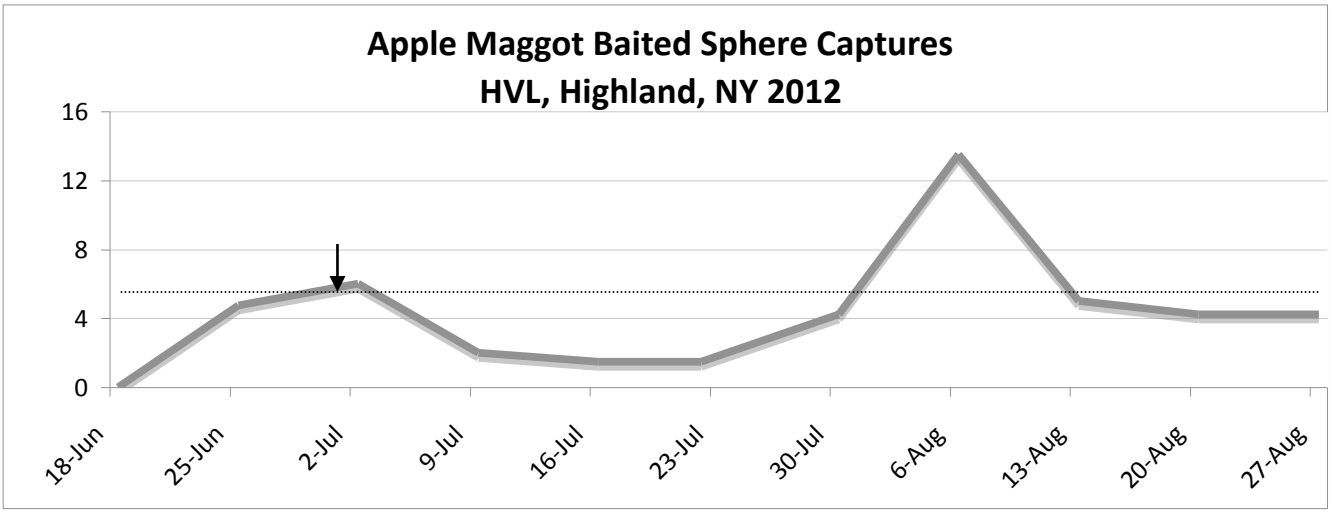


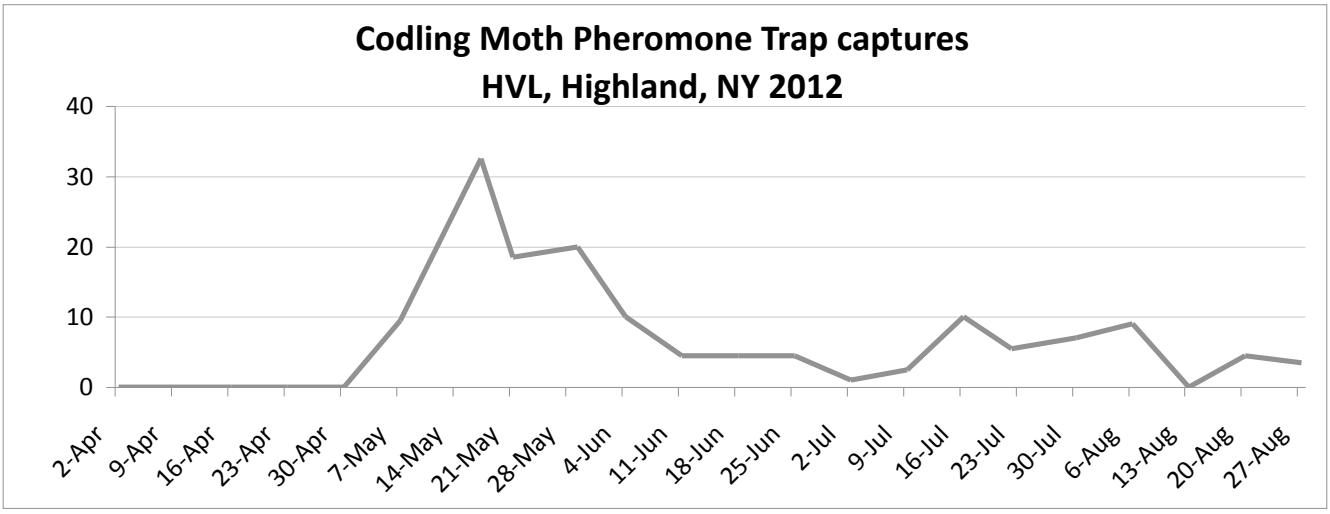


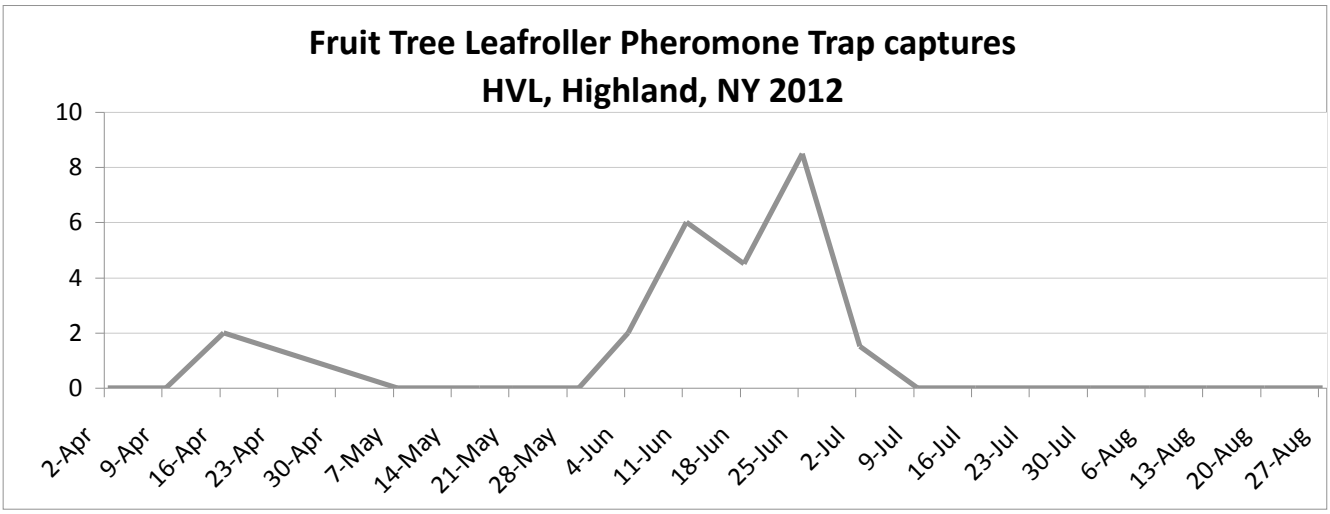
McIntosh Phenology, HVL, Highland, NY

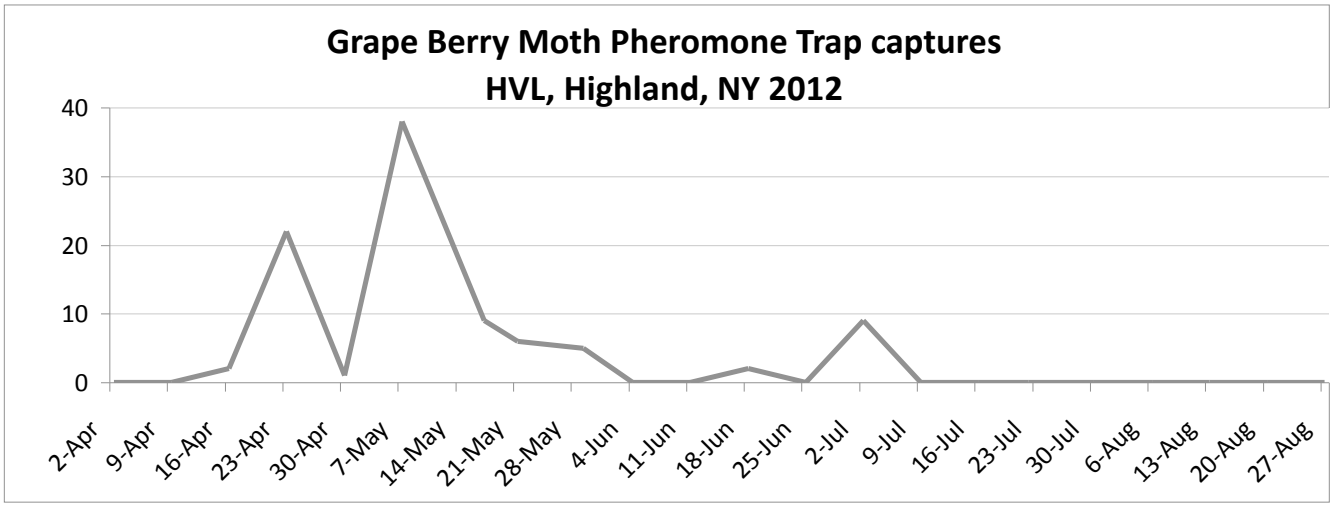
Year	GT	HIG	T.C.	Pink	Bloom	P.F.	PF DD_{43}	PF DD_{50}	
2012	**3/16**	**3/18**	**3/25**	**4/8**	**4/16**	**4/21**	**506.5**	**267.5**	
2011	4/4	4/11	4/25	5/1	5/9	5/16	526.0	268.3	
2010	3/20	4/2	4/6	4/10	4/20	4/28	305.0	168.5	
2009	4/6	4/13	4/20	4/24	4/29	5/7	452.0	219.6	
2008	4/10	4/14	4/21	4/24	4/29	5/7	404.5	207.4	
2007	4/2	4/21	4/24	5/2	5/7	5/14	397.0	228.3	
2006	4/3	4/10	4/17	4/22	4/26	5/8	419.2	220.0	
2005	4/7	4/11	4/18	4/26	5/8	5/16	493.7	258.6	
2004	4/12	4/19	4/22	4/27	5/3	5/13	558.5	304.7	
2003	4/7	4/16	4/24	4/28	5/1	5/19	595.0	324.7	
2002	3/25	4/10	4/14	4/15	4/16	5/7	498.0	283.2	
2001	4/11	4/17	4/25	4/28	5/2	5/10	481.3	288.0	
2000	3/27	4/2	4/14	4/24	5/1	5/8	488.3	346.0	
1999	4/2	4/7	4/12	4/26	5/2	5/13	530.1	174.4	
1998	3/27	3/29	4/1	4/10	4/23	5/4	498.1	382.0	
1997	4/4	4/11	4/21	4/28	5/1	5/14	422.7	250.0	
1996	4/15	4/19	4/22	4/29	5/6	5/20			
1995	4/11	4/19	4/24	4/29	5/8	5/19			
1994	4/11	4/14	4/20	4/29	5/5	5/12			
1993	4/12	4/19	4/24	5/1	5/3	5/10			
1992	4/13	4/21	5/4	5/7	5/12	5/18			
1991	4/5	4/8	4/11	4/17	4/27	5/7			
1990	3/21	4/16	4/23	4/26	4/29	5/11			
1989	3/29	4/17	4/28	5/3	5/9	5/19			
1988	4/4	4/9	4/28	5/5	5/8	5/19			
1987	3/29	4/10	4/18	4/22	4/29	5/16			
1986	3/31	4/7	4/19	4/27	5/3	5/8			
1985	3/30	4/12	4/15	4/22	5/4	5/12			
1984	4/10	4/26	4/30	5/6	5/16	5/24			
1983	4/12	4/27	4/30	5/2	5/5	5/18			
1982	4/15	4/22	4/30	5/4	5/13	5/17			
1981		4/8	4/16	4/22	5/5	5/14			
1980	4/15		4/24	5/2	5/5	5/10			
Earliest day	**3/16**	**3/18**	**3/25**	**4/8**	**4/16**	**4/21**	305.0	168.5	**Low**
Latest day	**4/15**	**4/27**	**5/4**	**5/7**	**5/16**	**5/24**	595.0	382.0	**High**
Mean	**4 April**	**12 April**	**21 April**	**27 April**	**3 May**	**13 May**	**467.4**	**261.1**	

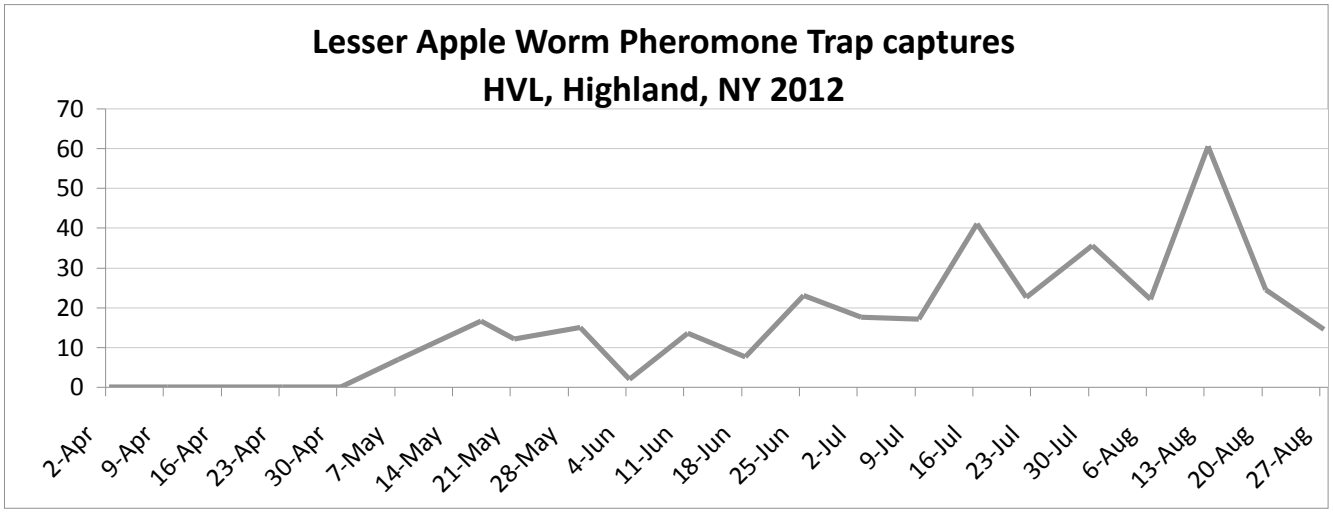
Midrange: **3/31** (+/-15D)
4/7 (+/-19D)
4/12 (+/-17D)
4/22 (+/-14D)
5/1 (+/-15D)
5/7 (+/-16D)

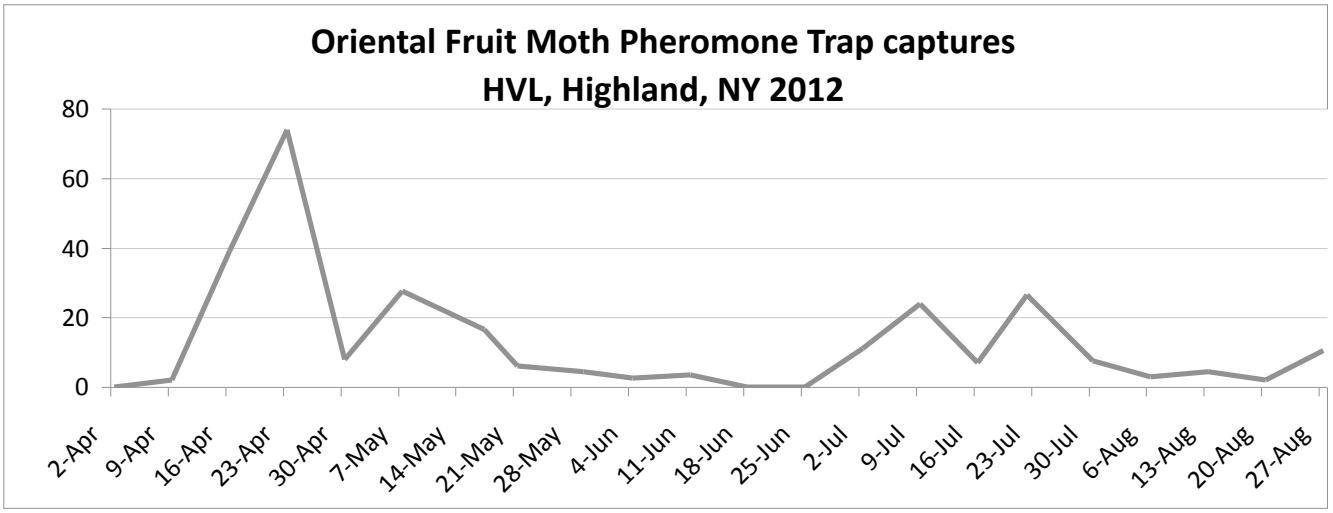

Apple Maggot Baited Sphere Captures
HVL, Highland, NY 2012
16
12
8
4
0
18-Jun
25-Jun
2-Jul
9-Jul
16-Jul
23-Jul
30-Jul
6-Aug
13-Aug
20-Aug
27-Aug

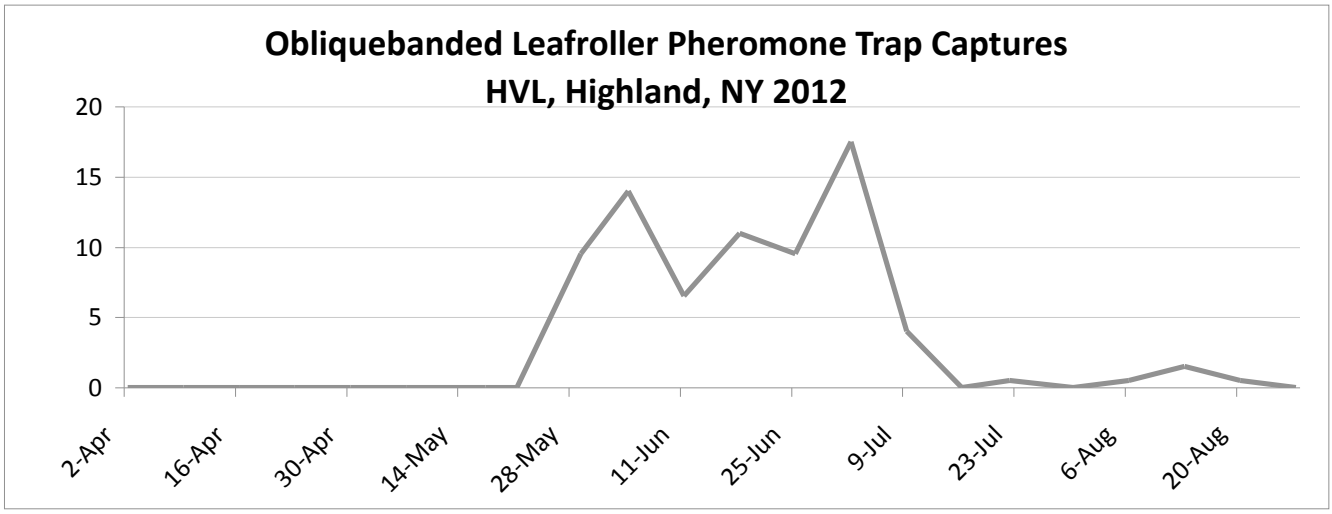

Codling Moth Pheromone Trap captures
HVL, Highland, NY 2012
40
30
20
10
0
2-Apr
9-Apr
16-Apr
23-Apr
30-Apr
7-May
14-May
21-May
28-May
4-Jun
11-Jun
18-Jun
25-Jun
2-Jul
9-Jul
16-Jul
23-Jul
30-Jul
6-Aug
13-Aug
20-Aug
27-Aug

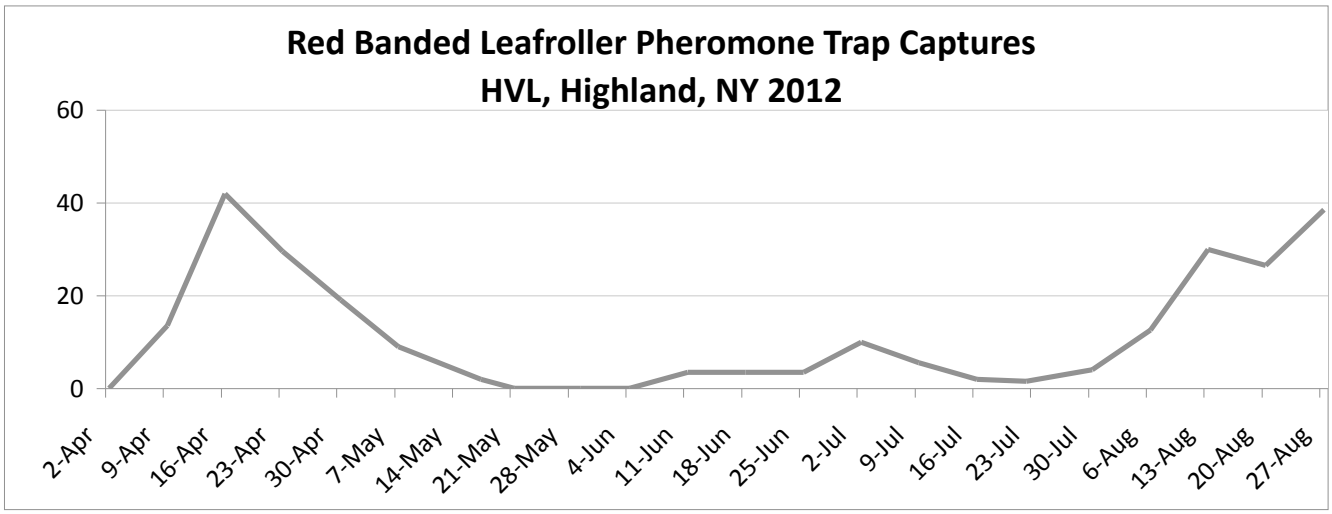

Fruit Tree Leafroller Pheromone Trap captures
HVL, Highland, NY 2012
10
8
6
4
2
0
2-Apr
9-Apr
16-Apr
23-Apr
30-Apr
7-May
14-May
21-May
28-May
4-Jun
11-Jun
18-Jun
25-Jun
2-Jul
9-Jul
16-Jul
23-Jul
30-Jul
6-Aug
13-Aug
20-Aug
27-Aug

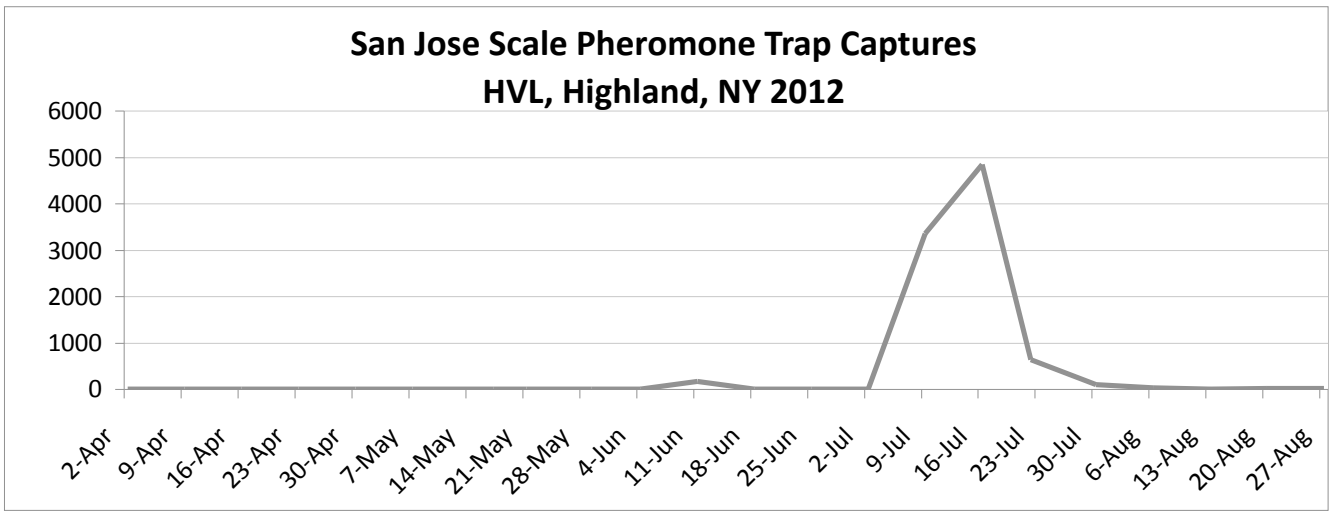

Grape Berry Moth Pheromone Trap captures
HVL, Highland, NY 2012
40
30
20
10
0
2-Apr
9-Apr
16-Apr
23-Apr
30-Apr
7-May
14-May
21-May
28-May
4-Jun
11-Jun
18-Jun
25-Jun
2-Jul
9-Jul
16-Jul
23-Jul
30-Jul
6-Aug
13-Aug
20-Aug
27-Aug

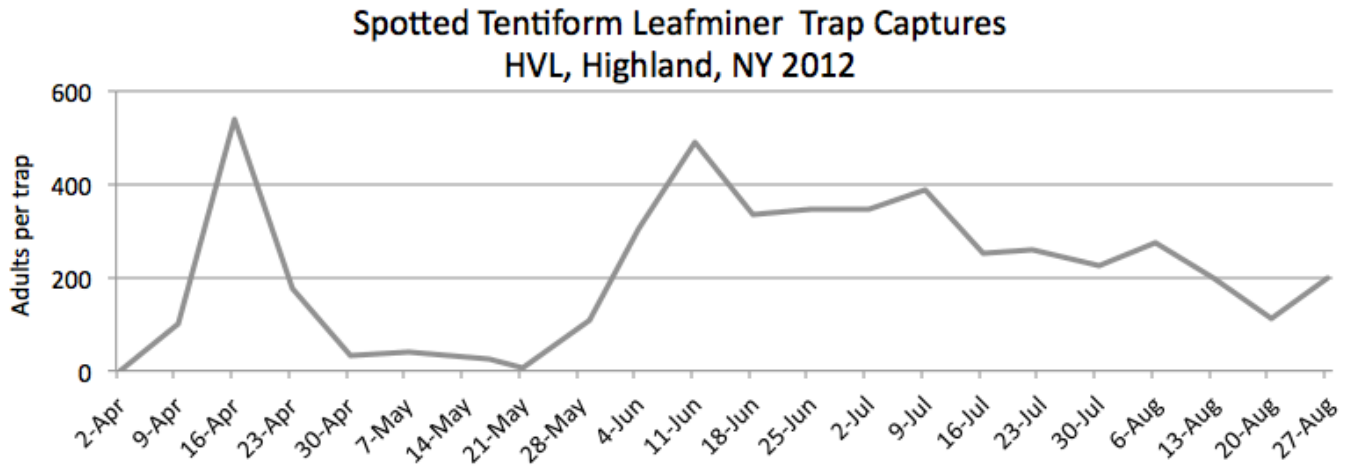

Lesser Apple Worm Pheromone Trap captures
HVL, Highland, NY 2012
70
60
50
40
30
20
10
0
2-Apr
9-Apr
16-Apr
23-Apr
30-Apr
7-May
14-May
21-May
28-May
4-Jun
11-Jun
18-Jun
25-Jun
2-Jul
9-Jul
16-Jul
23-Jul
30-Jul
6-Aug
13-Aug
20-Aug
27-Aug

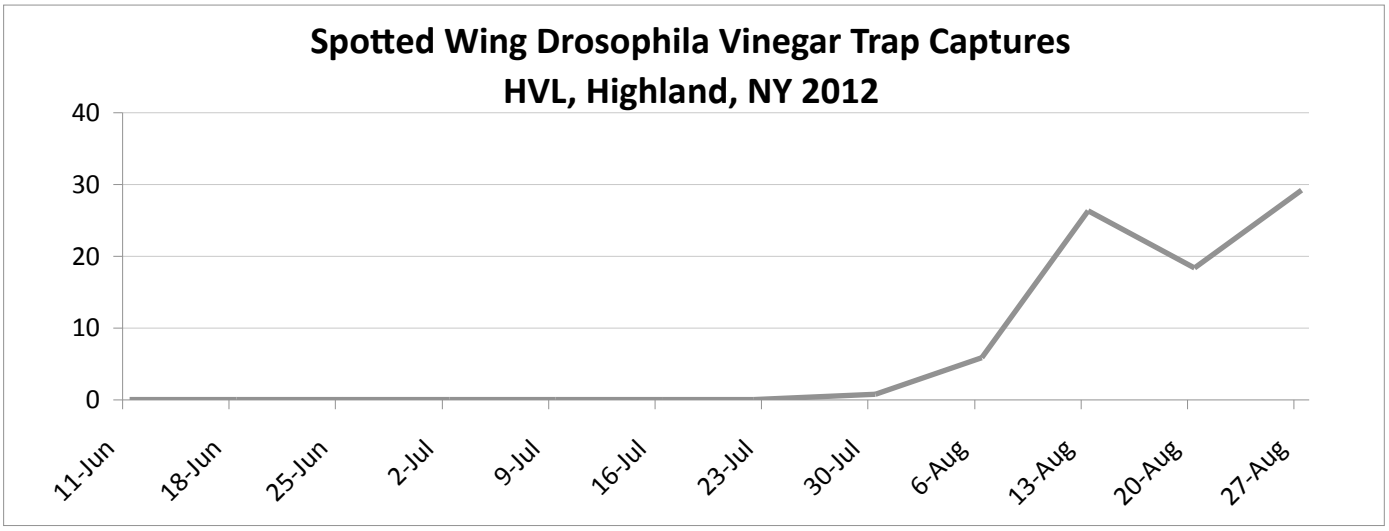

Oriental Fruit Moth Pheromone Trap captures
HVL, Highland, NY 2012
80
60
40
20
0
2-Apr
9-Apr
16-Apr
23-Apr
30-Apr
7-May
14-May
21-May
28-May
4-Jun
11-Jun
18-Jun
25-Jun
2-Jul
9-Jul
16-Jul
23-Jul
30-Jul
6-Aug
13-Aug
20-Aug
27-Aug

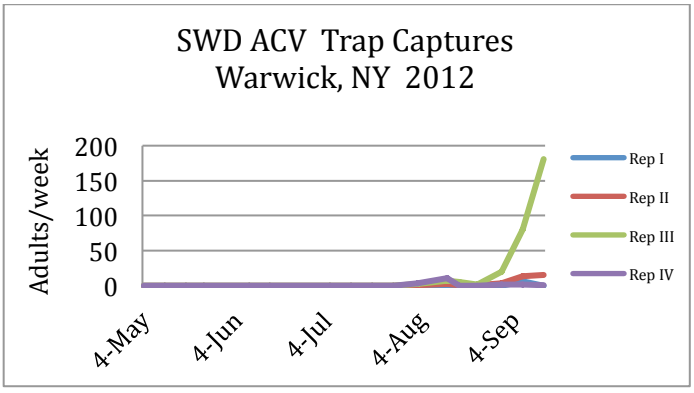

Obliquebanded Leafroller Pheromone Trap Captures
HVL, Highland, NY 2012
20
15
10
5
0
2-Apr
16-Apr
30-Apr
14-May
28-May
11-Jun
25-Jun
9-Jul
23-Jul
6-Aug
20-Aug

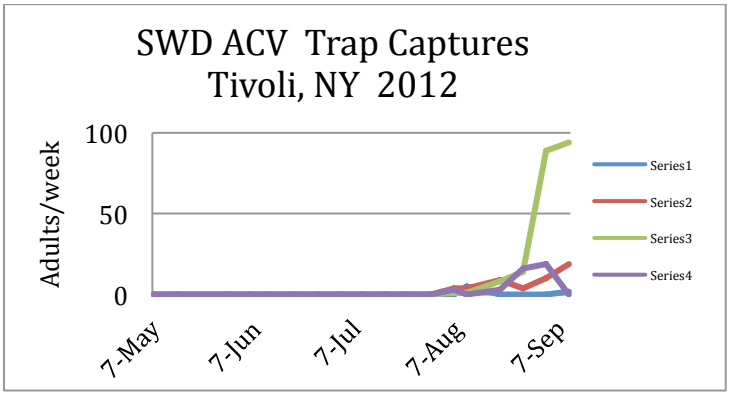

Red Banded Leafroller Pheromone Trap Captures
HVL, Highland, NY 2012
60
40
20
0
2-Apr
9-Apr
16-Apr
23-Apr
30-Apr
7-May
14-May
21-May
28-May
4-Jun
11-Jun
18-Jun
25-Jun
2-Jul
9-Jul
16-Jul
23-Jul
30-Jul
6-Aug
13-Aug
20-Aug
27-Aug


San Jose Scale Pheromone Trap Captures
HVL, Highland, NY 2012
6000
5000
4000
3000
2000
1000
0
2-Apr
9-Apr
16-Apr
23-Apr
30-Apr
7-May
14-May
21-May
28-May
4-Jun
11-Jun
18-Jun
25-Jun
2-Jul
9-Jul
16-Jul
23-Jul
30-Jul
6-Aug
13-Aug
20-Aug
27-Aug


Spotted Tentiform Leafminer Trap Captures
HVL, Highland, NY 2012
Adults per trap
600
400
200
0
2-Apr
9-Apr
16-Apr
23-Apr
30-Apr
7-May
14-May
21-May
28-May
4-Jun
11-Jun
18-Jun
25-Jun
2-Jul
9-Jul
16-Jul
23-Jul
30-Jul
6-Aug
13-Aug
20-Aug
27-Aug


Spotted Wing Drosophila Vinegar Trap Captures
HVL, Highland, NY 2012
40
30
20
10
0
11-Jun
18-Jun
25-Jun
2-Jul
9-Jul
16-Jul
23-Jul
30-Jul
6-Aug
13-Aug
20-Aug
27-Aug


SWD ACV Trap Captures
Warwick, NY 2012
Adults/week
200
150
100
50
0
4-May
4-Jun
4-Jul
4-Aug
4-Sep
Rep I
Rep II
Rep III
Rep IV


SWD ACV Trap Captures
Tivoli, NY 2012
Adults/week
100
50
0
7-May
7-Jun
7-Jul
7-Aug
7-Sep
Series1
Series2
Series3
Series4

2012 MAXIMUM AND MINIMUM TEMPERATURES AND PRECIPITATION

Hudson Valley Laboratory, Highland, NY

All readings were taken from daily Max and Min on the dates indicated from NEWA-HVL

	MARCH			APRIL			MAY			JUNE			JULY			AUGUST			SEPTEMBER		
Date	Max	Min	Precip	Max	Min	Precip	Max	Min	Precip	Max	Min	Precip	Max	Min	Precip	Max	Min	Precip	Max	Min	Precip
1	35.0	31.0	0.57	45.0	35.0	0.21	61.0	48.0	0.28	72.1	52.8	0.02	90.5	67.9	0.00	81.8	65.3	0.00	85.7	67.8	0.0
2	34.0	29.0	0.28	51.0	32.0	0.01	54.0	49.0	0.02	70.9	57.2	0.72	84.6	62.9	0.00	87.6	65.5	0.00	80.3	65.8	0.0
3	56.0	33.0	0.43	60.0	28.0	0.00	59.0	49.0	0.15	72.7	50.0	0.01	85.4	60.9	0.00	89.8	67.1	0.00	71.4	62.0	0.0
4	42.0	28.0	0.00	62.0	44.0	0.00	76.0	52.0	0.46	59.8	51.5	0.05	90.2	67.9	0.27	89.6	70.8	0.00	77.0	64.9	0.1
5	39.0	22.0	0.00	50.0	37.0	0.00	70.0	56.0	0.00	62.8	48.9	0.01	83.7	69.0	0.00	84.3	71.1	0.47			
6	42.0	18.0	0.00	52.0	30.0	0.00	66.0	49.0	0.00	73.7	47.5	0.34	87.1	62.2	0.00	82.3	64.3	0.00			
7	60.0	32.0	0.00	57.0	33.0	0.00	66.0	47.0	0.01	75.7	49.9	0.15	86.4	63.0	0.02	82.5	58.0	0.00			
8	69.0	47.0	0.01	63.0	37.0	0.00	58.0	52.0	0.38	76.9	52.7	0.16	85.0	61.0	0.00	87.1	63.6	0.00			
9	46.0	30.0	0.12	57.0	45.0	0.00	70.0	57.0	0.05	72.1	55.0	0.03	82.7	58.0	0.00	87.1	68.8	0.00			
10	39.0	24.0	0.00	57.0	43.0	0.00	60.0	45.0	0.32	83.6	59.9	0.00	83.0	54.0	0.00	73.3	64.0	0.68			
11	62.0	29.0	0.00	51.0	39.0	0.00	69.0	44.0	0.00	76.5	59.0	0.00	88.0	57.0	0.00	82.6	64.0	0.03			
12	70.0	41.0	0.00	56.0	40.0	0.00	80.0	43.0	0.00	70.0	58.0	0.46	87.8	65.2	0.02	82.5	67.6	0.00			
13	74.0	52.0	0.00	65.0	40.0	0.00	82.0	56.0	0.00	74.3	60.6	1.07	89.3	68.6	0.00	84.1	61.5	0.00			
14	66.0	47.0	0.00	71.0	39.0	0.00	70.0	59.0	0.02	76.7	58.5	0.00	87.1	69.7	0.00	76.2	61.8	0.20			
15	55.0	39.0	0.00	73.0	57.0	0.00	65.0	59.0	0.52	78.4	51.0	0.00	85.1	67.7	0.54	79.8	59.0	0.81			
16	52.0	41.0	0.02	87.0	60.0	0.00	77.0	61.0	0.00	81.2	49.0	0.00	89.3	67.2	0.33	84.4	61.9	0.00			
17	66.0	42.0	0.00	73.0	54.0	0.00	67.0	47.0	0.00	72.9	54.0	0.00	91.0	68.0	0.00	83.4	60.5	0.04			
18	71.0	43.0	0.00	55.0	42.0	0.00	74.0	43.0	0.00	70.9	51.0	0.00	92.8	72.9	0.01	76.4	58.9	0.20			
19	77.0	49.0	0.00	72.0	41.0	0.00	80.0	48.0	0.00	75.8	60.0	0.00	79.0	66.2	0.00	73.8	52.9	0.00			
20	74.0	53.0	0.00	75.0	49.0	0.00	81.0	54.0	0.00	96.0	66.7	0.00	68.6	60.5	0.50	78.6	55.7	0.13			
21	71.0	56.0	0.00	76.0	49.0	0.37	63.0	56.0	0.68	95.9	71.1	0.00	79.4	60.9	0.19	78.1	59.2	0.05			
22	80.0	51.0	0.00	47.0	39.0	0.64	69.0	60.0	0.79	87.1	67.1	0.43	82.2	61.8	0.00	81.0	56.6	0.00			
23	72.0	56.0	0.00	52.0	39.0	0.56	78.0	62.0	0.00	85.2	62.7	0.73	82.9	66.4	0.22	84.9	61.0	0.00			
24	64.0	51.0	0.00	55.0	37.0	0.01	72.0	61.0	0.00	80.4	56.3	0.33	89.9	67.2	0.00	86.7	58.7	0.00			
25	54.0	42.0	0.01	58.0	36.0	0.00	75.0	61.0	0.04	74.4	55.6	0.88	85.0	58.0	0.00	83.1	61.9	0.00			
26	49.0	32.0	0.00	59.0	34.0	0.00	84.0	65.0	0.14	70.6	50.9	0.28	83.8	63.8	0.65	82.9	61.6	0.00			
27	46.0	25.0	0.00	52.0	35.0	0.02	81.0	61.0	0.02	81.7	56.7	0.00	85.4	68.9	0.03	80.3	64.0	1.21			
28	60.0	37.0	0.11	59.0	33.0	0.00	85.0	65.0	0.02	88.5	61.1	0.00	73.7	66.8	0.34	86.4	65.3	0.12			
29	50.0	37.0	0.01	60.0	34.0	0.00	88.2	66.1	0.65	91.6	68.2	0.06	76.5	65.2	0.03	76.7	58.5	0.00			
30	50.0	29.0	0.00	64.0	32.0	0.00	79.7	62.0	0.32	91.3	66.0	0.00	81.8	64.0	0.00	79.4	51.0	0.00			
31	38.0	30.0	0.38				79.5	56.9	0.00				77.7	64.8	0.00	87.5	60.5	0.00			
Avg/ total	80.0	18.0	1.94	87.0	28.0	1.82	88.2	43.0	4.87	96.0	47.5	5.73	92.8	54.0	3.15	89.8	51.0	3.94	85.7	62.0	0.1