

NOT FOR PUBLICATION

FRUIT INSECT AND MITE CONTROL STUDIES

EASTERN NEW YORK

1981

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Materials Tested

Ambush 2E	ICI America, Inc.
Ammo 2.5E	FMC Corporation
CAAM 1.5EC	UpJohn Chemical
Carzol 92SP	NOR-AM Agric. Prod., Inc.
Cygon 4EC	American Cyanamid Company
Diazinon 50WP	Ciba-Geigy Corporation
DPX 3247 38WP	DuPont Company
Guthion 50WP; 2S	Mobay Chemical Corp.
HAG 107 0.3EC	American Hoechst Corp.
Imidan 50WP	Stauffer Chemical Company
Kelthane 4F; 35WP	Rohm and Haas Company
Kryocide 90WP	Pennwalt Corporation
Lannate 1.8L	DuPont Company
Lorsban 4E	Dow Chemical Company
Oil 60 sec	Sun Oil Company
Pay Off 2.5EC	American Cyanamid Company
Penncap 2FM	Pennwalt Corporation
Plictran 50WP	Dow Chemical Company
Pydrin 2.4EC	Shell Development Co.
SN 72129 50WP	NOR-AM Agric. Prod., Inc.
Supracide 2E	Ciba-Geigy Corporation
Thiodan 50WP	FMC Corporation
UBI 1314 30WP	Uniroyal Chemical Company
UBI 1315 30WP	Uniroyal Chemical Company
UBI 1425 50WP	Uniroyal Chemical Company
UBI 1426 50WP	Uniroyal Chemical Company
Vydate 2L	DuPont Company

Date	Temp.		Rain in.
	Max	Min	
July 16	82	57	
17	85	58	
18	86	62	
19	89	62	.02
20	85	67	.12
21	74	67	.51
22	88	64	
23	76	53	
24	79	55	
25	80	60	
26	78	65	
27	81	68	.04
28	82	54	
29	78	62	
30	84	51	
31	75	55	
TOTAL			3.70
Aug. 1	84	51	
2	71	49	
3	77	53	
4	72	47	.01
5	85	46	.01
6	87	43	
7	70	44	
8	75	45	
9	88	64	.03
10	64	43	
11	91	47	
12	87	59	.23
13	77	46	
14	82	50	
15	85	56	
16	91	67	.04
17	87	50	
18	76	47	
19	79	52	
20	81	54	
21	81	52	
22	84	60	
23	77	51	
24	84	57	
25	79	56	.03
26	76	59	
27	80	58	
28	86	63	
29	85	62	
30	75	65	
31	79	66	
TOTAL			.35

1981 WEATHER CONDITIONS - HUDSON VALLEY LABORATORY, HIGHLAND, NY

Date	Temp.		Rain in.
	Max	Min	
Sep 1	76	65	.13
2	74	61	.02
3	80	64	
4	71	62	
5	72	59	
6	77	58	
7	77	64	
8	74	62	
9	75	52	1.08
10	75	43	
11	76	53	
12	83	57	
13	89	54	
14	83	60	
15	87	63	
16	67	56	.31
17	65	54	.07
18	67	57	
19	68	53	.06
20	61	51	.01
21	70	39	
22	68	49	
23	71	50	.15
24	60	45	.20
25	56	42	
26	72	50	
27	68	49	
28	79	47	.02
29	63	39	.01
30	61	35	
	TOTAL		2.06

1981 WEATHER CONDITIONS - NEW PALTZ, NY

Date	Temp		Rain in.	Date	Temp		Rain in.	Date	Temp		Rain in.
	Max	Min			Max	Min			Max	Min	
Apr 1	68	34		May 25	84	51		Jul 17	85	51	
2	64	45	.79	26	87	58		18	85	55	
3	60	38		27	85	65		19	88	57	
4	77	42		28	85	59		20	86	65	.13
5	71	39		29	80	61	.19	21	78	65	.76
6	64	37	.27	30	73	62	.39	22	87	59	.13
7	46	34		31	82	63	.04	23	78	47	
8	62	37		TOTAL			5.61	24	78	48	
9	73	48						25	79	55	
10	67	38	.21	Jun 1	76	39		26	76	62	
11	70	46		2	74	51	.10	27	79	65	.13
12	68	44		3	65	55		28	83	49	
13	53	38		4	75	57	.75	29	79	62	.23
14	59	37		5	83	54		30	82	46	
15	54	32	.84	6	81	61		31	80	49	
16	49	22		7	86	56		TOTAL			4.14
17	65	43		8	73	40					
18	64	47	.08	9	88	57	.06	Aug 1	84	54	
19	75	31		10	79	58		2	87	56	
20	64	41		11	76	49		3	86	59	
21	53	23		12	78	55		4	85	60	
22	51	22		13	84	50	.16	5	87	63	
23	63	36		14	78	57	.74	6	87	58	
24	61	35	.62	15	84	50	.17	7	89	53	
25	63	40	.20	16	85	60	.27	8	82	60	
26	55	39		17	92	70		9	73	62	.08
27	64	42		18	80	47		10	86	59	
28	68	41		19	83	52		11	89	58	
29	67	50	.42	20	83	64		12	88	61	
30	72	45	.56	21	71	60	.44	13	80	59	
TOTAL			3.99	22	79	64	.17	14	83	58	
				23	84	60	.36	15	85	66	
May 1	60	31		24	77	48		16	85	64	.15
2	69	42	.16	25	80	52		17	85	47	
3	60	33		26	80	56	.17	18	76	40	
4	68	38		27	69	44		19	81	43	
5	76	50		28	78	47		20	80	45	
6	73	48		29	84	46		21	81	43	
7	74	34	.21	30	85	55		22	83	43	
8	60	30		TOTAL			3.39	23	79	42	
9	68	29						24	82	52	
10	69	35		Jul 1	84	58		25	80	53	
11	70	46	.10	2	81	65	.24	26	77	50	
12	63	57	2.18	3	78	65	.70	27	80	51	
13	67	42	1.90	4	80	65		28	84	60	
14	69	38		5	77	63	1.39	29	84	57	
15	74	52		6	79	59	.35	30	76	59	
16	73	52	.44	7	83	59		31	80	62	
17	63	39		8	89	60		TOTAL			.23
18	70	35		9	93	67					
19	66	31		10	93	68	.08				
20	67	35		11	88	54					
21	73	35		12	90	69					
22	78	42		13	92	67					
23	78	41		14	89	67					
24	77	37		15	80	52					
				16	83	50					

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1981 WEATHER CONDITIONS - NEW PALTZ, NY

Date	Temp		Rain in.
	Max	Min	
Sep 1	78	61	.28
2	74	58	
3	79	59	
4	72	56	
5	70	55	
6	75	52	
7	76	61	
8	75	57	
9	75	50	1.28
10	71	37	
11	73	47	
12	80	51	
13	85	47	
14	80	53	
15	85	59	.15
16	67	51	.41
17	64	50	
18	65	52	
19	65	48	.08
20	61	47	
21	70	37	
22	67	49	
23	70	45	.60
24	58	40	.11
25	55	38	
26	73	45	
27	69	49	
28	79	49	.05
29	64	34	
30	62	32	
	TOTAL		<u>2.96</u>

1981 Weather Conditions - Peru, NY

Date	Temp.		Rain in.
	Max	Min	
Apr. 1	67	50	.63
2	64	41	
3	78	27	.02
4	78	55	
5	74	50	
6	51	33	
7	60	32	
8	74	30	.20
9	71	46	
10	65	36	.14
11	60	45	
12	59	26	
13	59	21	.05
14	55	36	
15	35	20	
16	50	28	
17	50	35	.42
18	63	46	
19	50	29	.20
20	40	31	
21	38	19	
22	50	19	.06
23	47	24	.35
24	45	34	.22
25	45	38	
26	61	42	
27	64	39	
28	63	45	.15
29	63	46	
30	63	42	
Total			2.44

May 1	63	30	
2	58	37	
3	63	29	
4	73	32	
5	80	41	
6	78	40	.30
7	57	30	
8	69	38	
9	70	40	
10	77	50	
11	65	47	.08
12	72	57	.50
13	63	42	.33
14	70	42	
15	77	41	
16	70	54	.07
17	58	37	.07
18	53	26	
19	65	34	
20	68	41	
21	75	42	
22	72	45	.10
23	70	45	
24	78	37	
25	82	55	

Date	Temp.		Rain in.
	Max	Min	
May 26	81	61	.16
27	79	57	.04
28	82	58	
29	69	60	.08
30	76	55	.07
31	68	55	.03
Total			1.83

Jun. 1	70	43	
2	77	40	
3	74	48	
4	76	57	.30
5	82	55	.03
6	78	60	.24
7	70	53	.30
8	73	42	.30
9	75	58	
10	72	47	
11	75	55	
12	76	54	
13	75	53	.05
14	73	51	
15	84	59	.08
16	94	68	
17	89	64	
18	81	55	
19	85	53	
20	82	61	.13
21	72	54	.17
22	75	52	.12
23	74	57	
24	75	53	
25	76	53	
26	73	55	.38
27	72	48	
28	81	55	
29	84	49	
30	87	61	
Total			2.10

Jul. 1	84	65	
2	87	60	
3	83	58	
4	83	65	
5	82	63	
6	90	64	.09
7	87	75	
8	96	63	
9	95	73	.18
10	90	64	.03
11	90	66	
12	91	55	
13	88	67	
14	94	58	.15
15	82	52	
16	85	60	
17	86	60	

Date	Temp.		Rain in.
	Max	Min	
Jul 18	80	57	.17
19	82	56	
20	77	60	.15
21	80	66	.10
22	75	54	
23	75	49	
24	80	45	
25	84	49	
26	85	56	
27	79	60	.20
28	72	50	
29	60	54	1.25
30	77	48	
31	85	48	
Total			2.32

Aug 1	90	55	
2	90	55	
3	88	63	.09
4	84	59	
5	77	62	.68
6	70	60	
7	70	50	
8	65	50	.22
9	79	56	.23
10	85	60	.40
11	78	60	
12	80	59	
13	77	57	
14	73	42	
15	67	52	.78
16	67	61	.32
17	66	48	.15
18	74	46	
19	78	46	
20	80	50	
21	84	54	
22	84	53	
23	80	57	
24	80	57	.03
25	69	48	.08
26	74	38	
27	72	52	.07
28	73	47	.07
29	73	47	
30	78	47	.05
31	79	64	
Total			3.17

1981 WEATHER CONDITIONS - PERU, NY

Date	Temp		Rain in.
	Max	Min	
Sep 1	77	59	
2	80	63	
3	73	61	.08
4	77	58	
5	75	49	
6	75	54	
7	78	48	
8	76	59	
9	67	50	.73
10	55	34	.20
11	54	45	.10
12	79	44	.14
13	80	51	
14	80	55	
15	70	51	.04
16	63	52	
17	63	46	.03
18	56	41	.22
19	64	50	
20	62	46	
21	60	36	
22	52	46	.87
23	47	55	1.70
24	49	44	.40
25	67	47	
26	67	42	
27	75	52	.12
28	67	46	.04
29	55	36	
30	51	30	
Total			4.67

APPLE: Malus domestica

Rosy apple aphid: Dysaphis plantaginea (Passerini)

Apple aphid: Aphis pomi DeGeer

Spotted tentiform leafminer: Phyllonorycter
biancardella (Fabr.)

White apple leafhopper: Typhlocyba pomaria McAtee

Plum curculio: Conotrachelus nenuphar (Herbst)

Tarnished plant bug: Lygus lineolaris (P. de B.)

Apple maggot: Rhagoletis pomonella (Walsh)

Codling moth: Laspeyresia pomonella (L.)

San Jose Scale: Quadraspidiotus perniciosus (Comstock)

Gypsy moth: Lymantria dispar (L.)

a leafroller: Sparganothis sulfureana Clemens

Variegated leafroller: Platynota flavedana (Clemens)

European apple sawfly: Hoplocampa testudinea (Klug)

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APPLE, INSECT CONTROL, HUDSON VALLEY, HIGHLAND, NEW YORK, 1981: Treatments were applied dilute to runoff using a handgun sprayer at 400 psi to 8 tree plots replicated 3 times in a randomized complete block design. Treatments were applied at pink, Apr 20, 22, petal fall, May 14, and in 7 cover sprays, May 28, Jun 12, Jun 24, Jul 8, Jul 23, Aug 7, and Aug 20, using 4.2 gal spray/tree (403 gal/acre). Trees were 17-yrs-old, ca 12 ft high, on EM2 rootstock, and spaced 15 x 30 ft. The fungicide Baycor 50W was applied over the entire block at the rate of 8 oz form./acre along with 2 qt of Agridex/acre on Apr 28, May 19, Jun 2, and without the Agridex on Jun 23. Thinning sprays utilizing from 5-15 ppm of Naphthaleneacetic acid (depending upon the cultivar) were applied May 20. Early spring frosts reduced the fruit crop throughout the area while a late summer drought further stressed the trees. Temperatures were above normal for most of the season while rainfall was considerably below normal. Pest populations, especially plum curculio, tarnished plant bug, and gypsy moth, were above normal levels. Evaluation of insect damage was assessed by examining 100 fruits/cultivar plot from 'McIntosh' Sep 1, 'Cortland' Sep 10, and 'Golden Delicious' Sep 23.

Pay Off provided the best overall control of all insect species, including aphids, Lepidoptera, tarnished plant bug, and Plum curculio. In general the pyrethroids (HAG 107, Ammo, and Pay Off) were more effective against tarnished plant bug but slightly weaker against San Jose Scale than the organophosphate or carbamate standards. Fruit finish was quite good with all materials except the PennCap + Vydate combination.

Treatment and oz form./100 gal	Mean no. aphid infested terminals/25			Mean no. STLM* mines/ 50 leaves	Mean no. WALH** nymphs/25 leaves
	Rosy apple aphid		Apple aphid		
	May 26		Jun 10	Jun 17	Aug 25
	'Cortland'	'McIntosh'	'Cortland'	'McIntosh'	'Greening'
HAG-107 0.3EC 1.96	0.0 a	3.0 a	1.7 a	2.0 a	0.0 a
HAG-107 0.3EC 2.73	1.7 a	0.0 a	0.3 a	0.3 a	0.0 a
Ammo 2.5EC 0.64.	0.3 a	4.0 a	2.3 a	0.7 a	0.0 a
Ammo 2.5EC 1.28.	0.3 a	0.3 a	0.7 a	1.0 a	0.0 a
Pay Off 2.5EC 2.56	0.0 a	0.7 a	0.3 a	0.0 a	0.0 a
Pay Off 2.5EC 5.12	0.0 a	0.0 a	0.0 a	0.0 a	0.0 a
Pennicap 2FM 8.0					
+Vydate 2L 8.0	0.3 a	9.7 bc	1.3 a	0.0 a	0.0 a
Kryocide 90WP 64.0	10.7 b	13.0 c	7.0 bc	18.7 c	10.0 b
Lannate 1.8L 32.0.	0.0 a	2.3 a	0.0 a	0.0 a	0.0 a
DPX-3247 38WP 18.8	0.0 a	5.0 ab	0.7 a	0.0 a	0.0 a
Imidan 50WP 16.0***.	1.7 a	4.3 a	2.7 ab	12.3 b	0.0 a
Check.	8.7 b	10.0 bc	7.3 c	22.0 c	12.3 b

Means followed by the same letter(s) are not significantly different, K = 100 (P = ca 0.05). Waller and Duncan's BSD test.

*STLM = Spotted tentiform leafminer. **WALH = White apple leafhopper. ***24.0 oz applied at pink and petal fall.

Treatment and oz form./100 gal	% Injured fruit			
	Plum curculio		Apple maggot	
		Tarnished plant bug	punctures	tunnels
HAG-107 0.3EC 1.96	21.0 c	8.3 bc	0.2 ab	0.0 a
HAG-107 0.3EC 2.73	25.0 c	5.1 ab	0.0 a	0.0 a
Ammo 2.5EC 0.64.	7.2 ab	7.9 bc	0.1 a	0.0 a
Ammo 2.5EC 1.28.	2.9 a	3.4 a	0.0 a	0.0 a
Pay Off 2.5EC 2.56	3.8 ab	2.1 a	0.1 a	0.1 a
Pay Off 2.5EC 5.12	1.7 a	2.2 a	0.1 a	0.0 a
Pennicap 2FM 8.0				
+Vydate 2L 8.0	3.2 a	10.8 c	0.2 ab	0.0 a
Kryocide 90WP 64.0	24.4 c	8.0 bc	1.1 c	0.0 a
Lannate 1.8L 32.0	15.2 bc	8.8 bc	0.3 ab	0.0 a
DPX-3247 38WP 18.8	9.3 ab	11.6 c	0.1 a	0.1 a
Imidan 50WP 16.0*.	3.8 ab	9.7 c	0.1 a	0.0 a
Check.	56.7 d	9.7 c	0.9 c	0.4 b

Means followed by the same letter are not significantly different by DMRT, P = 0.05 *24.0 oz applied at pink and petal fall.

Treatment and oz form/100 gal	% Injured fruit			
	Codling moth	San Jose scale	Gypsy moth	SS* VLR**
HAG-107 0.3EC 1.96	0.2 a	0.7 a	0.7 a	1.3 a
HAG-107 0.3EC 2.73	0.1 a	0.4 a	0.6 a	3.4 ab
Ammo 2.5EC 0.64	0.1 a	0.4 a	0.3 a	0.4 a
Ammo 2.5EC 1.28	0.0 a	0.9 a	0.9 a	0.6 a
Pay Off 2.5EC 2.56	0.0 a	0.1 a	0.4 a	0.9 a
Pay Off 2.5EC 5.12	0.0 a	0.0 a	0.9 a	0.8 a
Pennicap 2FM 8.0				
+Vydate 2L 8.0	0.0 a	0.1 a	0.8 a	0.7 a
Kryocide 90WP 64.0	2.6 b	2.9 a	2.3 a	5.7 b
Lannate 1.8L 32.0	0.0 a	0.0 a	0.3 a	1.1 a
DPX-3247 38WP 18.8	0.0 a	0.0 a	0.6 a	0.4 a
Imidan 50WP 16.0***.	0.0 a	0.0 a	0.8 a	0.7 a
Check.	8.2 c	7.9 b	9.9 b	16.8 c

Means followed by the same letter(s) are not significantly different by DMRT, P = 0.05.

*SS = *Sparganothis sulfureana*.

**VLR = Variegated leafroller.

***24.0 oz applied at pink and petal fall.

Treatment and oz form./100 gal	% Injured fruit		
	European apple sawfly	% Clean fruit	\bar{X} russet rating/apple*
HAG-107 0.3EC 1.96	0.9 ab	69.7 cde	0.2
HAG-107 0.3EC 2.73	0.8 ab	66.1 de	0.2
Ammo 2.5EC 0.64	1.3 b	83.6 ab	0.3
Ammo 2.5EC 1.28	0.8 ab	91.4 a	0.1
Pay Off 2.5EC 2.56	0.0 a	93.0 a	0.0
Pay Off 2.5EC 5.12	0.0 a	94.7 a	0.3
Pennicap 2FM 8.0			
+Vydate 2L 8.0	0.0 a	85.0 ab	1.6
Kryocide 90WP 64.0	0.9 ab	58.5 e	0.0
Lannate 1.8L 32.0	0.0 a	75.4 bcd	0.1
DPX-3247 38WP 18.8	0.1 ab	78.9 bc	0.1
Imidan 50WP 16.0**	0.8 ab	85.0 ab	0.6
Check.	0.3 ab	19.3 f	0.0

Means followed by the same letter are not significantly different by DMRT, P = 0.05.

*Based on 0 (best), 3 (worst) finish on 'Golden Delicious' cultivar.

**24.0 oz applied at pink and petal fall.

APPLE: Malus domestica
 Apple rust mite: Aculus schlechtendali (Nalepa)
 European red mite: Panonychus ulmi (Koch)
 a predator: Amblyseius fallacis (Garman)

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APPLE, MITE CONTROL, HUDSON VALLEY, HIGHLAND, NEW YORK, 1981: Eleven treatments were applied to 8 tree plots replicated 3 times in a randomized block design to evaluate seasonal insect control. Treatments were applied by handgun sprayer at 400 psi, dilue to runoff, using 4.2 gal spray/tree (403 gal/acre). Applications were made at pink, Apr 20, 22, petal fall, May 14, and in 7 cover sprays, May 28, Jun 12, Jun 24, Jul 8, Jul 23, Aug 7, and Aug 20. Trees were 17-yrs-old, 12 ft high, and spaced 15 x 30 ft. The fungicide Baycor 50WP (8.0 oz form./acre) was applied with 2 qt of Agridex/acre on Apr 28, May 21, and Jun 2, and without Agridex on Jun 9. The fungicide was applied at 4X (100 gal/acre) concentration with an airblast sprayer. Thinning sprays of Naphthaleneacetic acid were applied by handgun on May 20. Plictran was included with several treatments for mite control on Jul 23. Above normal Spring temperatures hastened the onset of the season resulting in an early buildup of most mite populations. Mite populations were assessed by sampling and brushing with a mite brushing machine 25 'Red Delicious' leaves/tree from 1 tree/replicate.

Pay Off and the Penncap-Vydate combination provided the best early season mite control. Pay Off continued to control mites through the Aug 17 count. Early season buildup of European red mite was noted in the HAG-107 and Ammo treatments as well as the Kryocide and Lannate treatments. The Jul 23 Plictran application greatly reduced mite populations where it was applied. Competition from apple rust mite and predation by Amblyseius fallacis reduced the European red mite population in the check.

* * * * *

Treatment and oz form./100 gal	Mean no. mites*/leaf				
	Jul 16			Aug 17	
	ERM	ARM	Amb	ERM	Amb
HAG-107 0.3EC 1.96					
+Plictran 50WP 4.0**	19.3 bc	31.7	0.03	0.2 a	0.0 a
HAG-107 0.3EC 2.73					
+Plictran 50WP 4.0	32.9 c	3.6	0.15	0.1 a	0.0 a
Ammo 2.5EC 0.64					
+Plictran 50WP 4.0	13.5 ab	4.5	0.04	0.7 a	0.0 a
Ammo 2.5EC 1.28					
+Plictran 50WP 4.0	19.5 bc	34.9	0.0	2.3 a	0.0 a
Pay Off 2.5EC 2.56	0.2 a	12.9	0.13	1.7 a	0.01 a
Pay Off 2.5EC 5.12	0.3 a	11.8	0.0	0.0 a	0.0 a
Penncap 2FM 8.0					
+Vydate 2L 8.0	0.3 a	28.4	0.0	7.3 b	0.01 a
Kryocide 90WP 64.0					
+Plictran 50WP 4.0	15.2 ab	122.6	0.0	0.4 a	0.05 b
Lannate 1.8L 32.0					
+Plictran 50WP 4.0	12.3 ab	98.6	0.03	1.3 a	0.0 a
DPX-3247 38WP 18.8					
+Plictran 50WP 4.0	9.0 ab	198.6	0.0	1.6 a	0.0 a
Imidan 50WP 16.0***					
+Plictran 50WP 4.0	7.0 ab	22.9	0.03	0.7 a	0.01 a
Check	1.3 a	210.8	0.13	0.0 a	0.0 a

Means followed by the same letter are not significantly different by Waller and Duncan's BSD test, K = 100 (p = ca 0.05).

*ERM = European red mite, ARM = apple rust mite, Amb = Amblyseius fallacis.

**Applied with Jul 23 spray.

***24.0 oz applied at pink and petal fall.

APPLE: Malus domestica

Apple aphid: Aphis pomi DeGeer

Apple maggot: Rhagoletis pomonella (Walsh)

Codling moth: Laspeyresia pomonella (L.)

Gypsy moth: Lymantria dispar (L.)

European apple sawfly: Hoplocampa testudinea (Klug)

Spotted tentiform leafminer: Phyllonorycter blancardella (Fabr.)

Rosy apple aphid: Dysaphis plantaginea (Passerini)

Plum curculio: Conotrachelus nenuphar (Herbst)

San Jose Scale: Quadraspidiotus perniciosus (Comstock)

a leafroller: Sparganothis sulfureana Clemens

Tarnished plant bug: Lygus lineolaris (P. de B.)

Variegated leafroller: Platynota flavedana (Clemens)

White apple leafhopper: Typhlocyba pomaria McAtee

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APPLE, SAN JOSE SCALE CONTROL, HIGHLAND, NEW YORK, 1981: A test to compare several programs and chemicals for San Jose Scale control was conducted using 8 tree plots replicated 3 times for each treatment. Treatments were applied either prebloom or in a seasonal schedule designed to control male scales at petal fall, May 14, 15, 1st generation crawlers on Jun 17 and 30, and 2nd generation crawlers Aug 7 and 20. Prebloom comparisons were made at green tip, Apr 2, tight cluster, Apr 8, and pink, Apr 20, 22 (all stages of 'McIntosh' bud development). Treatments were applied dilute to runoff by handgun sprayer at 400 psi using 4.2 gal spray/tree (403 gal/acre). Eight different cultivars were present in each plot, all 17-yrs-old, ca 12 ft high, on the EM2 rootstock, and spaced 15 x 30 ft. The fungicide Baycor 50W was applied over the entire block at the rate of 8 oz form./acre on Apr 28, May 19, Jun 2 and Jun 29. Agridex (2 qt/acre) was included in all but the Jun 29 application. Thinning sprays using 5-15 ppm of Naphthaleneacetic acid were applied May 20. Insect damage was evaluated by examining 100 fruits/plot from the 'McIntosh' cultivar on Sep 8 and the 'Golden Delicious' cultivar on Sep 28. San Jose Scale pressure in the block was reduced, apparently due to the 80% mortality found among overwintering stages following the severe low temperatures during winter. Above normal populations of plum curculio, rosy apple aphid and gypsy moth were present during the season.

The reduced applications of organophosphates timed for San Jose Scale male or crawler activity were sufficient to control most pests except tarnished plant bug and plum curculio. Ambush gave the best overall control, due largely to its being applied at pink in addition to postbloom. Supracide and Lorsban both looked good for control of rosy apple aphid. A slight to moderate finish problem was noted on the 'Golden Delicious' cultivar with both Diazinon and Supracide.

Treatment & oz form./100 gal	Application date(s)	Mean no. aphid infested terminals/25		Mean no. STLM mines/ 10 clusters	Mean no. WALH** /25 leaves
		Rosy apple aphid	Apple aphid	Aug 25	Aug 26
		Jun 1	Jun 22		
		'Cortland'	'Cortland'	'McIntosh'	'Greening'
Oil 60 sec 256	Apr 2	6.3 bc	0.3	17.3 bcd	17.7 abc
Oil 60 sec 128 +Lorsban 4EC 16.0	Apr 2	0.0 a	4.7	16.3 bcd	16.7 abc
Oil 60 sec 128	Apr 8	4.0 abc	3.0	12.0 bc	22.7 abc
Oil 60 sec 128 +Lorsban 4E 16.0	Apr 8	0.0 a	0.3	20.7 d	27.3 bc
Lorsban 4E 16.0	Apr 20	0.3 a	6.0	14.7 bcd	15.3 ab
Supracide 2E 32.0	Apr 20	0.0 a	2.7	14.7 bcd	43.3 c
Ambush 2E 6.4	Apr 22, May 15 Jun 17, 30 Aug 7, 20	0.0 a	0.7	0.0 a	0.0 a
Pennacap 2FM 16.0	May 14, Jun 17, 30 Aug 7, 20	3.0 ab	1.7	19.7 cd	12.0 ab
Diazinon 50WP 16.0	May 15 Jun 17, 30 Aug 7, 20	2.0 ab	4.7	14.7 bcd	1.7 ab
Guthion 50WP 8.0	May 14 Jun 17, 30 Aug 7, 20	13.0 d	1.0	12.7 bcd	8.7 ab
Supracide 2E 32.0	May 15, Jun 17, 30 Aug 7, 20	0.3 a	0.7	10.0 b	0.0 a
Check		8.3 cd	4.3	11.3 b	21.0 abc

Means followed by same letter are not significantly different by Waller and Duncan's BSD test, K = 100.

*STLM = Spotted tentiform leafminer.

**WALH = White apple leafhopper.

Treatment and oz form./100 gal	Application date(s)	% injured fruit			
		Tarnished plant bug	Plum curculio	Apple maggot	
				punctures	tunnels
Oil 60 sec 256	Apr 2	4.0 ab	67.7 b	1.7 abc	1.5 abc
Oil 60 sec 128 +Lorsban 4E 16.0	Apr 2	6.0 ab	58.2 b	3.3 cd	2.2 abc
Oil 60 sec 128	Apr 8	3.8 ab	68.5 b	2.8 bcd	2.2 abc
Oil 60 sec 128 +Lorsban 4E 16.0	Apr 8	6.0 ab	51.3 b	2.0 abc	1.3 ab
Lorsban 4E 16.0	Apr 20	4.3 ab	55.5 b	1.2 abc	0.7 ab
Supracide 2E 32.0	Apr 20	2.8 a	58.8 b	2.8 bcd	2.5 bc
Ambush 2E 6.4	Apr 22, May 15 Jun 17, 30 Aug 7, 20	3.2 a	3.7 a	0.0 a	0.0 a
Pennicap 2FM 16.0	May 14 Jun 17, 30 Aug 7, 20	10.8 d	9.5 a	0.7 abc	0.5 ab
Diazinon 50WP 16.0	May 15 Jun 17, 30 Aug 7, 20	3.5 ab	23.5 a	1.0 abc	0.2 a
Guthion 50WP 8.0	May 14 Jun 17, 30 Aug 7, 20	7.2 bc	22.3 a	1.0 abc	0.3 a
Supracide 2E 32.0	May 15 Jun 17, 30 Aug 7, 20	10.0 cd	60.3 b	0.2 ab	0.0 a
Check		5.6 ab	64.2 b	4.8 d	3.5 c

Means followed by the same letter are not significantly different (p = ca 0.05).

DMRT.

Treatment and oz form./100 gal	Application date(s)	% injured fruit			
		Codling moth	San Jose Scale	European apple sawfly	SS* VLR**
Oil 60 sec 256	Apr 2	8.5 b	0.0 a	0.5 ab	6.5 abc
Oil 60 sec 128 +Lorsban 4E 16.0	Apr 2	10.3 bc	0.7 ab	0.3 ab	5.3 abc
Oil 60 sec 128	Apr 8	16.7 c	2.0 ab	0.3 ab	7.5 bc
Oil 60 sec 128 +Lorsban 4E 16.0	Apr 8	11.3 bc	0.5 ab	0.8 ab	9.0 c
Lorsban 4E 16.0	Apr 20	8.5 b	1.7 ab	0.3 ab	4.7 abc
Supracide 2E 32.0	Apr 20	16.5 c	0.2 a	1.2 ab	6.3 abc
Ambush 2E 6.4	Apr 22, May 15 Jun 17, 30 Aug 7, 20	0.0 a	0.3 ab	0.0 a	1.0 a
Pennicap 2FM 16.0	May 14 Jun 17, 30 Aug 7, 20	1.2 a	0.7 ab	0.0 a	1.5 a
Diazinon 50WP 16.0	May 15 Jun 17, 30 Aug 7, 20	0.0 a	0.0 a	0.3 ab	2.8 ab
Guthion 50WP 8.0	May 14 Jun 17, 30 Aug 7, 20	0.7 a	0.2 a	0.2 ab	0.8 a
Supracide 2E 32.0	May 15 Jun 17, 30 Aug 7, 20	0.7 a	0.0 a	0.0 a	3.5 abc
Check		15.0 bc	2.8 b	1.3 b	9.0 c

Means followed by the same letter are not significantly different (P = ca 0.05)
DMRT.

*SS = Sparganothis sulfureana.

**VLR = Variegated leafroller.

Treatment and oz form./100 gal	Application date(s)	Gypsy moth		% Clean fruit	Mean russet rating/ apple**
		Live larvae/25 terminals*	% injured fruit		
Oil 60 sec 256	Apr 2	6.0 abc	13.2 b	20.2 ab	0.9
Oil 60 sec 128 +Lorsban 4E 16.0	Apr 2	2.7 abc	3.7 a	33.3 ab	0.6
Oil 60 sec 128	Apr 8	8.7 c	5.5 a	19.8 ab	0.6
Oil 60 sec 128 +Lorsban 4E 16.0	Apr 8	1.0 a	1.3 a	31.5 ab	0.4
Lorsban 4E 16.0	Apr 20	2.3 ab	0.7 a	35.5 b	0.9
Supracide 2E 32.0	Apr 20	0.7 a	3.3 a	26.0 ab	0.4
Ambush 2E 6.4	Apr 22, May 15 Jun 17, 30 Aug 7, 20	0.0 a	0.5 a	91.8 d	0.3
Pennacp 2FM 16.0	May 14 Jun 17, 30 Aug 7, 20	0.0 a	0.3 a	77.0 cd	0.8
Diazinon 50WP 16.0	May 15 Jun 17, 30 Aug 7, 20	0.0 a	0.2 a	70.0 c	1.0
Guthion 50WP 8.0	May 14 Jun 17, 30 Aug 7, 20	0.0 a	0.3 a	69.0 c	0.8
Supracide 2E 32.0	May 15 Jun 17, 30 Aug 7, 20	0.0 a	0.2 a	34.0 ab	1.5
Check		8.3 bc	13.8 b	16.8 a	1.2

Means followed by the same letter are not significantly different ($p = 0.05$) DMRT.

*25 terminals/1 'Rome' tree/plot evaluated Jun 1.

**Based on evaluating 100 'Golden Delicious' apples/plot, 0 = best, 3 = worst finish.

APPLE: Malus domestica

Plum curculio: Conotrachelus nenuphar (Herbst)

Tarnished plant bug: Lygus lineolaris (P. de B.)

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APPLE, PYDRIN EUP EVALUATION STUDY, NEW PALTZ, NY, 1981: Two 1 acre blocks of 'Tydeman' and 'Empire' apples were treated with Pydrin over 1/2 and Thiodan over the remainder of each block. The treatments were applied April 28 at the late pink stage of bud development. Treatments were applied dilute by airblast sprayer at 2 3/4 mph using 270 gal/acre. The trees were spaced 15 x 20 ft and were approximately 8 ft tall. Additional sprays over the entire block included: Guthion 50WP 2 lb/acre on May 13, 30, Jun 16, Jul 2, 23, and Aug 7. The fungicides Captan + Benlate were used in May and Jun sprays, while Captan + Fermate were added to the remaining sprays. The fruit was evaluated for insect injury on Jul 29 by examining 25 fruits/tree from 4 trees of each cultivar in each block.

Tarnished plant bug injury was less in the Pydrin treated blocks than in the Thiodan blocks. The timing of the application was very late pink which probably permitted some earlier damage. Plum curculio injury was less in the Pydrin treated Tydeman blocks. It was observed that the Plum curculio injury was almost wholly confined to two trees in the Pydrin treated blocks, while the injury was uniformly distributed throughout several trees in the Thiodan treated blocks.

Treatment and rate form./acre	Cultivar	% Tarnished plant bug injury	% Plum curculio injury
Pydrin 2.4EC 1 pt	'Empire'	1.8	4.7
	'Tydeman'	3.8	1.0
Thiodan 50WP 4 lb	'Empire'	6.3	4.8
	'Tydeman'	7.3	4.8

APPLE: Malus domestica
Tarnished plant bug: Lygus lineolaris (P. de B.)

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APPLE, PYDRIN. EUP EVALUATION STUDY, MARLBORO, NY, 1981: A 4 acre block of 'Rome' and 'Golden Delicious' apple cultivars was divided into unreplicated 2 acre plots. Pydrin was applied in one plot and Thiodan in the other on April 26 (late pink). The treatments were applied with a Bean Model 707 Speed Sprayer at 4X using 100 gal spray/acre at a speed of 3 mph. Trees were spaced 35 x 35 ft and were approximately 17 ft in height. The grower relied on a seasonal program of Guthion 50WP 1 1/2 lb/acre at two week intervals following petal fall. The fruit was evaluated by examining 100 fruits/tree from 4 trees/cultivar/plot.

Pydrin reduced tarnished plant bug injury compared with the Thiodan standard. Differences between cultivars may have been due to differences in the stage of development or susceptibility of the fruit clusters.

Treatment and oz form./acre	Cultivar	% Tarnished plant bug injury
Pydrin 2.4EC 16.0	'Rome'	0.9
	'Golden Delicious'	3.3
Thiodan 50WP 64.0	'Rome'	4.5
	'Golden Delicious'	5.3

APPLE: Malus domestica

Tarnished plant bug: Lygus lineolaris (P. de B.)

a green fruitworm: Orthosia hibisci Guenee

European red mite: Panonychus ulmi (Koch)

a predatory mite: Amblyseius fallacis Garman

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APPLE, EUP STUDIES, CHAMPLAIN VALLEY, PERU, NEW YORK, 1981: Several insecticides were applied May 7 at the pink stage of 'McIntosh' bud development in large 1 1/3 acre plots replicated twice for each treatment. The trees were large 52-yr-old 'McIntosh' trees spaced 40 x 40 ft. Treatments were applied by airblast sprayer using 67 gal/acre (6X concentration) at a speed of 2 1/2 mph. Other pesticides applied over the entire block included: Dodine 2/3 lb/acre - May 27, Jun 4, Jun 9, and Jul 22; Guthion 50WP 1 lb/acre - May 27, Jun 4, and Aug 25; Imidan 50WP 2 lb/acre - Jul 10, Jul 22, and Aug 6; Captan 80WP 1 lb/acre - Jul 22; Polyram 1 lb/acre - Jul 10 and Aug 6; Alar 8 lb/acre - May 29; and Plictran 50WP 2/5 - 4/5 lb, May 27, Jun 4, Jul 10 and Aug 10. All of the forementioned except the test treatments, Alar, and the Jul 10 and Aug 10 Plictran applications were alternate row applications. Severe frosts during the bloom period greatly reduced the crop and severely injured that which remained. The treatments were evaluated for insect injury by sampling 50 apples from the top and 100 from the bottom of 4 'McIntosh' trees in each plot. A mite count was made by collecting and brushing 25 leaves/tree from 4 'McIntosh' trees/plot on Aug 10.

Due to the earlier frost damage insect injury was very difficult to evaluate. The variation between replicates within treatments was much greater than the variation between treatments. A similar situation was found with the mite counts and no clear conclusions can be extrapolated from the data.

Treatment and oz form./acre	% damaged fruit		Mean no. mites/leaf	
	Green fruitworm	Tarnished plant bug	Aug 10	
			ERM*	AMB**
Ambush 2EC 26.0	0.00	0.9	18.0	0.0
Pydrin 2.4EC 10.6	0.09	0.8	12.3	0.07
Pydrin 2.4EC 21.13	0.09	1.8	1.0	0.0
Cygon 4EC 64.0	0.00	0.8	0.3	0.0
Thiodan 50WP 64.0	0.00	1.1	20.1	0.02
Check	0.17	1.2	2.7	0.0

*ERM = European red mite.

**AMB = Amblyseius fallacis.

APPLE: Malus domestica
European red mite: Panonychus ulmi (Koch)

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APPLE, MITE CONTROL, HUDSON VALLEY, MARLBORO, NEW YORK, 1981: Treatments were applied by airblast sprayer using 100 gal spray/acre (4X concentration) to unrepliated 0.5 - 0.75 acre plots of the 'Seedling McIntosh' cultivar. Applications were made back to back on Jun 22 and Jun 29 at a speed of 2.8 mph. Mite counts were made prior to the 1st application on Jun 22 and following the applications on Jun 29, Jul 10, and Aug 3. Counts were made using a binocular scope after brushing 25 leaves/tree from 4 trees/treatment. Check trees consisted of a single tree at each corner of the block.

All treatments effectively reduced mite numbers, with the Kelthane treatments looking slightly better (less mites) than the Plictran standard at the end of the season. The check trees received considerable spray drift which resulted in the low counts found in those trees.

Treatment and Rate form./acre	Mean no. mites/leaf			
	Jun 22 ERM*	Jun 29 ERM	Jul 10 ERM	Aug 3 ERM
Kelthane 4F 4 pt	14.9	1.0	0.1	0.0
Kelthane 35WP 5 1/4 lb	15.7	1.6	0.0	0.0
Plictran 50WP 1 lb	1.1	1.0	0.4	0.3
Check		0.7	0.6	0.6

*ERM = European red mite.

APPLE: Malus domestica

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European red mite: Panonychus ulmi (Koch)

Twospotted spider mite: Tetranychus urticae Koch

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APPLE, MITE CONTROL, HUDSON VALLEY, STONE RIDGE, NEW YORK, 1981: Treatments were applied on Jun 3 and again Jun 18 with an airblast sprayer at 2.5 mph using 100 gal/acre (4X concentration). Treatments were applied to 0.25 - 0.5 acre unreplicated plots of 'Golden Delicious' apple trees spaced 30 x 35 ft. Mites were evaluated by sampling 25 leaves/tree and brushing the leaves with a mite brushing machine. Counts were made using a binocular microscope. Mites were unevenly distributed throughout the plots prior to the 1st application.

All treatments and rates provided season long control of the mite populations.

Treatment and rate form./acre	Mean no. mites/leaf					
	Jun 2		Jun 11		Jul 16	
	ERM*	TSM**	ERM	TSM	ERM	TSM
UBI 1314 30WP 5.0 lb	4.2	0.2	0.4	0.1	0.0	0.1
UBI 1314 30WP 12.0 lb	8.4	0.5	0.6	0.2	0.1	0.0
UBI 1315 30WP 5.0 lb	0.3	0.0	0.0	0.0	0.0	0.0
UBI 1315 50WP 12 lb	0.5	0.3	0.2	0.1	0.1	0.0
Plictran 50WP 1.0 lb	0.0	0.0	0.0	0.0	0.0	0.0
Check	0.6	0.0	0.2	0.1	5.1	1.9

*ERM = European red mite.

**TSM = Twospotted spider mite.

APPLE: Malus domestica

European red mite: Panonychus ulmi (Koch)

Twospotted spider mite: Tetranychus urticae Koch

Predator mite: Amblyseius fallacis (Garman)

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APPLE, MITE CONTROL, CHAMPLAIN VALLEY, PERU, NEW YORK, 1981: Several miticides were applied to unreplicated 1.7 - 4.6 acre plots of 'McIntosh' apple trees ca 20-yrs-old spaced 24 x 40 ft. Treatments were applied Jul 15 by airblast sprayer delivering 100 gal/acre (4X conc.) at 2 1/2 mph. Mite treatments over the entire block included Omite 30WP 4 1/2 lb/acre at pink, May 7, and Plictran 50WP 2/5 lb/acre alternate row on Jun 4. Dodine, Polyram, and Captan were used as fungicides while Guthion and Imidan were applied as insecticides on an alternate row basis every 2-3 weeks from petal fall, May 27, until Aug 25. Early spring frosts damaged both developing leaves and fruits during the bloom period.

The UBI 1425 and 1426 slowly but consistently reduced spider mite populations where they were applied. Mite populations were also reduced in the Plictran treatment used as a standard. No phytotoxicity or fruit finish problems were observed with any of the treatments.

Treatment and rate form./acre	Mean no. mites*/leaf						Aug 10 ERM
	Jul 2			Jul 22			
	ERM	TSM	AMB	ERM	TSM	Amb	
UBI 1425 50WP 7.2 lb . . .	11.7	6.5	0.24	3.4	0.0	0.0	0.2
UBI 1426 50WP 7.2 lb . . .	5.8	0.8	0.03	1.6	0.0	0.0	0.2
UBI 1425 50WP 3.0 lb . . .	2.0	0.1	0.0	1.8	0.0	0.0	0.0
UBI 1426 50WP 3.0 lb . . .	15.1	0.4	0.03	3.0	0.0	0.0	1.7
Plictran 50WP 1.3 lb . . .	0.2	0.0	0.0	0.1	0.0	0.0	0.0
Check.	0.1	0.0	0.0	0.6	0.0	0.14	2.7

*ERM = European red mite; TSM = twospotted spider mite; Amb = Amblyseius fallacis.

APPLE, EVALUATION OF VYDATE PINK SPRAYS, HUDSON VALLEY, NEW YORK, 1981: Treatments were applied at 3 locations throughout the Hudson Valley, Viewmonte and Germantown in southern Columbia County and Clintondale in Ulster County. Applications were made by airblast sprayer using from 100-200 gal spray/acre (4-2X concentration) to 1.0 - 2.0 acre unreplicated plots containing at least 2 different cultivars. The sprays were applied from early to late pink depending upon the cultivar at Viewmonte on Apr 13, Germantown on Apr 23 and 24, and Clintondale on Apr 24. Blossom clusters were counted on 2 ca 10 cm in circumference branches/tree from 4 trees/cultivar/plot during early bloom. Bee activity was observed at early bloom also. The same branches used for blossom cluster counts were resampled for fruit set following Jun drop in late Jul. Spotted tentiform leafminer mines of the 1st generation were counted on the leaves of 25 fruit clusters/tree from 4 trees/cultivar/plot. Frost injury throughout the Hudson Valley reduced the crop considerably.

Bee activity was observed to be similar in both the Vydate treated and the untreated check blocks. A paired T test found no significant differences between the Vydate treated and the untreated check plot means for fruits/cm branch circumference ($p = 0.05$). The population of spotted tentiform leafminer mines was much greater in the untreated checks than in the Vydate treated plots.

Treatment and rate form./acre	Mean no. blossom clusters/cm br. circ.	Mean no. fruits /cm br. circ.	Mean no. STLM* mines/25 clusters
Viewmonte			
	<u>April 27</u>	<u>July 21</u>	<u>May 27</u>
	Macoun		
Vydate 2L 4 pt	19.5	2.5	0.3
Check	16.0	2.5	1.8
	McIntosh		
Vydate 2L 4 pt	15.9	3.7	0.0
Check	13.1	5.6	0.5

Germantown			
	<u>May 1</u>	<u>July 21</u>	<u>June 4</u>
	McIntosh		
Vydate 2L 4 pt	12.7	4.7	0.5
Check	7.9	3.0	2.8
	McIntosh		
Vydate 2L 4 pt	9.9	2.0	0.5
Check	15.5	3.1	10.3

Clintondale			
	<u>May 4</u>	<u>July 27</u>	<u>May 29</u>
	Rome Beauty		
Vydate 2L 4 pt	8.5	5.0	0.0
Check	5.0	3.4	27.5
	Red Delicious		
Vydate 2L 4 pt	13.4	2.2	0.8
Check	10.8	2.8	14.8

*STLM = Spotted tentiform leafminer.

APPLE: Malus domestica

European red mite: Panonychus ulmi (Koch)

San Jose Scale: Quadraspidiotus perniciosus (Comstock)

Spotted tentiform leafminer: Phyllonorycter
blancardella (F.)

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APPLE, SEASONAL MITE AND INSECT CONTROL, CLINTONDALE, NEW YORK, 1981: Two seasonal control programs were compared in adjacent 2 1/2 acre blocks of 'McIntosh' and 'Red Delicious' apple cultivars. Trees were approximately 30 years old, 18-20 ft high, and spaced 40 x 40 ft. Treatments were all applied by the grower using a Meyers airblast sprayer delivering 100 gal/acre (4X) at a speed of 2 1/2 - 3 mph. Pesticide treatments applied over all blocks include: Benlate 50WP 6 oz/acre + Manzate 80WP 2 1/4 lb/acre + Guthion 50WP 1 1/2 lb/acre on Apr 26, May 13, 22, and 31; Captan 50WP 4 lb/acre on Jun 10, 24, Jul 23, Aug 7 and 24; and Vydate 2L 4 pt/acre + Captan 50WP 4 lb/acre + Guthion 50WP 1 1/2 lb/acre on Jul 6. Mites were sampled May 21, Jun 15 and 30, and Jul 24 by collecting 25 leaves/tree from 2 'Red Delicious' and 2 'McIntosh' trees in each block. Leaves from each sample were brushed with a mite brushing machine onto glass plates where the mites were counted. The 1st generation of Spotted tentiform leafminer were assessed Jun 15 by counting the number of mines on the leaves from 25 fruit clusters (ca. 8 leaves/cluster) per tree from 4 'McIntosh' and 4 'Red Delicious' trees/block. Black plastic electricians tape was placed in the tops of 4 'McIntosh' trees in each block on Jun 30. The tape was coated with vaseline to trap any San Jose crawlers moving over the trunk limb. The tapes were removed and counted on Jul 24 following the 1st generation of crawler emergence. The fruit was evaluated by sampling 100 'McIntosh' fruits (50 in top 50 at 1-2 meter level) per tree from 5 trees per block on September 11. The 'Red Delicious' cultivar was evaluated Oct 2 by sampling 50 fruits in the top and 100 around the lower canopy levels of 2 trees/block.

Mite counts in both programs were very low the entire season indicating the pink and petal fall treatments were quite effective. Spotted tentiform leafminer control was better where Carzol was applied in spite of the fact that the timing of the treatments did not coincide well with leafminer flight activity. Greater San Jose Scale infestations were evident in the tops of the trees while the Diazinon treatment had the greatest % of fruit infested but fewest crawlers on the tapes. In examining the infested trees it was found that the trees in the Diazinon block were slightly larger and from 1-2 ft taller than corresponding trees in the Guthion plots. Thus coverage in the tops could have been a major factor in control.

Treatment and rate form./acre	Application date(s)	Mean no. STLM* mines/25 clusters	
		'McIntosh'	'Red Delicious'
1. Plictran 1 lb/acre	Apr 26, May 13 Jul 23	24.0	29.4
Guthion 2 lb/acre	Jun 10, 24 Aug 7, 24		

2. Carzol 1 lb/acre	Apr 26, May 13 Aug 24	9.4	15.4
Diazinon 4 lb/acre	Jun 10, 24 Aug 7, 24		

San Jose Scale					
% infested fruit				crawlers/30	
'McIntosh'		'Red Delicious'		cm tape	
Top	Bot.	Top	Bot.	1st generation	
1.	2.4	0.0	0.0	1.0	106.0
2.	7.2	2.0	1.0	0.0	8.3

*STLM = Spotted tentiform leafminer.

San Jose Scale: *Quadraspidiotus perniciosus* (Comstock)

APPLE, SAN JOSE SCALE CONTROL, KINDERHOOK, NEW YORK, 1981: A 40-yr-old block of 'McIntosh', 'Red Delicious', 'Golden Delicious', 'Rome', 'Gravenstein', and 'Twenty-ounce' apple trees was divided into adjacent 7.5 acre unreplicated plots each receiving a different program designed to control San Jose Scale. The 'green tip' ('McIntosh') spray of 5 gal oil/acre was applied by airblast sprayer using 175 gal spray/acre while the oil + Lorsban spray was applied using 225 gal/acre. The remaining treatments were all applied using 230 gal spray/acre (1.7 X concentration). Guthion at the rate of 1 1/2 lb/acre was applied over the entire block on Apr 23, May 14 and Jul 23. Benlate and Manzate were applied along with all but the Aug applications for disease control. The trees were approximately 16-18 ft high and were spaced 30 x 36 ft. San Jose Scale was evaluated by placing black plastic tape coated with vaseline around the top and bottom scaffold limbs in 4 trees in each block. The tape was removed after 1st generation crawler activity ceased during the end of Jul. Damage was evaluated Sep 3 from 50 fruits in the top and 50 around the bottom of 10 'McIntosh' trees in each program.

More crawlers were found in the Guthion treated blocks than those which received Diazinon for 1st generation crawler control. The greatest percentage of infested fruit was found in the tops of the trees, indicating that coverage of the tops was a problem. The program in which Diazinon and Guthion were alternated for 2nd brood control had the greatest overall infestation level.

Treatment and rate form./acre	Application date(s)	Canopy position	San Jose Scale	
			Mean no. 1st gen. crawlers/cm tape	% infested fruit
1. Oil 60 sec 5 gal	Apr 6			
Diazinon 50WP 4 lb	Jun 11, 27	Top	0.2	1.6
	Jul 8, Aug 7, 20	Bot.	0.0	2.2
				2.2
2. Oil 60 sec 5 gal	Apr 6			
Guthion 50WP 2 lb	Jun 11, 27	Top	412.2	6.2
	Jul 8, Aug 7, 20	Bot.	26.9	1.6
3. Oil 60 sec 4 gal				
+Lorsban 4E 4 pt	Apr 7			
Diazinon 50WP 4 lb	Jun 11, 27, Aug 7	Top	0.0	14.0
Guthion 50WP 2 lb	Jul 8, Aug 20	Bot.	0.0	2.6
4. Oil 60 sec 4 gal				
+Lorsban 4E 4 pt	Apr 7			
Guthion 50WP 2 lb	Jun 11, 27	Top	0.0	3.8
	Jul 8, Aug 7, 20	Bot.	0.0	0.2

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PEAR: Pyrus communis
Pear psylla: Psylla pyricola

PEAR, PEAR PSYLLA CONTROL, HUDSON VALLEY LABORATORY, HIGHLAND, NEW YORK, 1981:
Treatments were applied to 4 tree plots of 7-yr-old 'Bartlett' and 'Bosc' cultivars spaced 12 x 18 ft. Plots were replicated 4 times in a randomized complete block design. Treatments were applied by handgun sprayer dilute to runoff at 400 psi using 2.0 gal spray/tree (400 gal/acre). Pear psylla were evenly distributed throughout the plots at the start of the trial. Treatments were applied against 1st generation nymphs and eggs and those treatments which did not do an effective job were replaced and the plots treated for 2nd generation. Pear psylla was evaluated by counting the number of nymphs and eggs from 10 leaves/tree from 4 'Bartlett' trees in each plot.

SN 72129 and Pydrin effectively controlled pear psylla throughout the season when used in two sprays against 1st generation or 2nd generation. BAAM was also effective in providing seasonal control when applied in back to back treatments against 2nd generation pear psylla.

Treatment and oz form./100 gal	Application date(s)	Mean no. pear psylla nymphs (N) or eggs (E)/leaf					
		May 7	Jun 1		Jun 23		
		N	N	E	N	E	
SN 72129 50WP 6.0	May 8, 26	0.5	0.14 ab	0.03 a	0.1 a	0.1 a	
SN 72129 50WP 12.0	May 8, 26	0.4	0.08 a	0.01 a	0.3 ab	0.0 a	
Guthion 2S 8.0	May 8, 26						
SN 72129 50WP 6.0	Jun 8, 17	0.4	0.16 ab	1.98 d	0.1 a	0.3 a	
Guthion 2S 16.0	May 8, 26						
SN 72129 50WP 12.0	Jun 8, 17	0.3	0.68 c	0.91 bc	0.9 ab	0.5 a	
Guthion 50WP 4.0	May 8, 26						
BAAM 1.5EC 32.0	Jun 8, 17	0.3	0.12 a	0.43 ab	0.1 a	0.7 a	
Guthion 50WP 8.0	May 8, 26						
Pydrin 2.4EC 2.6	Jun 8, 17	0.4	0.25 ab	1.24 c	0.0 a	0.9 a	
Pydrin 2.4EC 2.6	May 8, 26	0.4	0.13 a	0.0 a	0.0 a	0.0 a	
Check		0.4	0.56 bc	1.11 c	9.2 b	5.9 b	

Means followed by same letter are not significantly different Waller and Duncan's BSD test, K = 100.