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Update on Pest Management and Crop Development

FRUIT JOURNAL

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INSECTS

JUNE BUGS

ORCHARD RADAR DIGEST

Geneva Predictions:

Roundheaded Appletree Borer

Peak emergence: June 10. Peak egglaying period roughly: June 24 to July 9. First RAB eggs hatch roughly: June 23.

Codling Moth

Codling moth development as of June 13: 1st generation adult emergence at 77% and 1st generation egg hatch at 25%.

Key codling moth management dates: 1st generation 3% CM egg hatch: June 8 (= target date for first spray where multiple sprays needed to control 1st generation CM).

1st generation 20% CM egg hatch: June 12 (= target date where one spray needed to control 1st generation codling moth).

Obliquebanded Leafroller

1st generation OBLR flight, first trap catch expected: June 10.

The optimum date to begin 2 to 4 weekly low-rate Bt applications for small OBLR larvae is: June 19.

The optimum date for application of Intrepid, SpinTor or other insecticide with comparable efficacy against OBLR (with possible follow-up at 10-14 days) is: June 25.

Oriental Fruit Moth

2nd generation OFM flight begins around: June 30.

San Jose Scale

1st generation SJS crawlers appear: June 18.

Spotted Tentiform Leafminer

2nd STLM flight begins around: June 15.

Rough guess of when 2nd generation sap-feeding mines begin showing: July 6.

Highland Predictions:

Roundheaded Appletree Borer

Peak emergence: June 11. Peak egglaying period roughly: June 23 to July 7. First RAB eggs hatch roughly: June 23.

Codling Moth

Codling moth development as of June 13: 1st generation adult emergence at 83% and 1st generation egg hatch at 35%.

Key codling moth management dates: 1st generation 20% CM egg hatch: June 11 (= target date where one spray needed to control 1st generation codling moth).

continued...

IN THIS ISSUE...

Obliquebanded Leafroller
1st generation OBLR flight, first trap catch expected: June 9.
The optimum date to begin 2 to 4 weekly low-rate Bt applications for small OBLR larvae is: June 16.
The optimum date for application of Intrepid, SpinTor or other insecticide with comparable efficacy against OBLR (with possible follow-up at 10-14 days) is: June 22.

San Jose Scale
1st generation SJS crawlers appear: June 15.

Spotted Tentiform Leafminer
2nd STLM flight begins around: June 13.
Rough guess of when 2nd generation sap-feeding mines begin showing: July 2.

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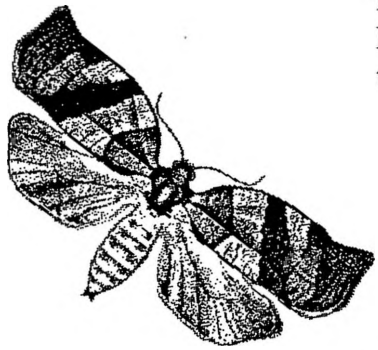

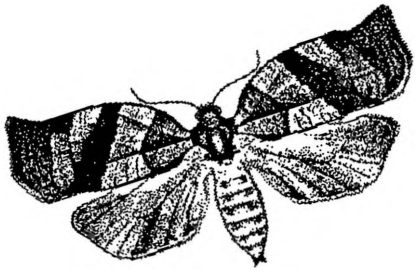

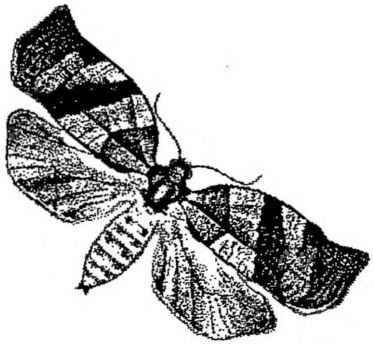

BAG IT

BETTER THAN SEX
(Art Agnello, Entomology, Geneva)

❖❖ Last year, I conducted some field trials to assess new technology in hand-applied pheromone dispensers for mating disruption of oriental fruit moth in apples. This trial was conducted in mixed plantings of fresh and processing apples on six commercial farms in Wayne and Ontario Counties. A low-density pheromone "bag" dispenser was compared against two types of "twist-tie" dispensers for efficacy in suppressing pheromone trap catches of oriental fruit moth (OFM), when applied against the 2nd and 3rd generations of this pest. Apple varieties included Gala, R.I. Greening, Golden Delicious, Red Delicious, Monroe, Ida Red, Empire, and McIntosh.

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Methods

The pheromone bag treatment, termed "MSTRS" technology (Metered Semiochemical Timed Release System, AgBio Inc., Westminster, CO) consisted of food-grade plastic enclosing a 6.4 x 6.4 cm natural fiber pad containing 65.8 g of OFM pheromone (85.4 : 5.5 : 0.9% of Z:E8-12 acetate : Z8-12 alcohol), which was deployed in a grid pattern at a spacing of 75 ft between dispensers, resulting in densities between 5.2–8.0 per acre. A pole+hoop applicator was used to position the dispensers in the top one-third of the tree canopy; deployment took place from 9–13 July.

The MSTRS dispensers were compared against the following treatments in single-plot replicates ranging in size from 3–5.0 acres:

1 – Isomate M Rosso ties (CBC America Corp., Commack, NY), applied 16–22 April at a rate of 200/acre at four of the sites (1–4).

2 – Isomate M-100 ties (CBC America), applied 16–18 June at a rate of 100/acre at two of the sites (5 and 6).

Grower standard blocks were used as check plots at each site, and had no pheromone treatments, but received pesticide sprays according to conventional practice. Treatment efficacy in depressing adult male trap catch was monitored by using 3–4 Pherocon IIB traps per plot, each baited with a standard Scentry oriental fruit moth lure, and checked weekly from 9 July to 16 September.

Results

As ease of use and labor requirements are considerations in deciding the type of pheromone dispenser to be used in a particular situation, data were taken on the time and number of people required to deploy the MSTRS dispensers in each plot. This product is used at a certain inter-dispenser spacing rather than a specific per-acre rate, so plot geometry as well as area dictate the total number of dispensers needed per block; density decreases as area increases. The following specifics pertain to the six sites where the MSTRS were deployed in this trial:

			No. Applied		Time req'd. (worker-minutes)	
Site	Area, A	Dimensions, ft	Total	per A	Total	per A
1	5.0	360 x 450	26	5.2	40	8.0
2	5.0	216 x 920	33	6.6	60	12.0
3	3.5	294 x 504	28	8.0	30	8.6
4	3.5	273 x 425	24	6.9	25	7.1
5	5.0	312 x 1512	36	7.2	40	8.0
6	3.0	180 x 760	22	7.3	25	8.3

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Time measurements for hand-applied deployment of the twist-tie OFM dispensers taken in parallel studies have averaged approximately 240 ties/hr/person, or 25 min per A for the Isomate M-100 dispenser, and 50 min per A for Isomate Rosso. The MSTRS time requirements correspond to a ~50–70% reduction over the M-100 ties, and ~75–85% over the Rosso ties.

Pheromone trap catches of OFM adult males in the test sites were lower than they might normally have been, owing to unfavorable cool and rainy weather during July and August. Nevertheless, sufficient numbers of moths were caught in the non-disrupted check plots to indicate the degree of effectiveness of the pheromone treatments in the adjacent plantings. Both the Isomate M-100 and Rosso treatments completely suppressed OFM trap catches in their respective plots for the duration of the study; in 4 of the 6 sites, traps in the MSTRS plots caught 1–2 moths on one or two occasions.

Because of time constraints resulting from a shipping error at the production facility, the MSTRS dispensers were received without the proper tree-attaching clips, so an arrangement was improvised using rubber bands. Unfortunately, these degraded with the prolonged exposure to sunlight, so a certain proportion (10–20%) of the bags ended up on the ground in most plots by late August or early September, possibly detracting from the degree of pheromone saturation attained in the tree canopy space. Nonetheless, overall treatment efficacy and efficiency of this type of dispenser appears to be high enough to encourage further investigation of opportunities to integrate this type of product into future demonstration-research plots involving OFM mating disruption as one management component.

The principle of using a low-density, high-yield dispenser to disrupt chemical communication between the sexes incorporates elements of both mechanisms of mating disruption as currently proposed — false trail following by the males as they are attracted up the plumes from the bags, coupled with sex pheromone habituation from exposure to the strong doses — which would serve to arrest them in mid-flight. While this approach may be suitable for a species such as OFM, which is relatively easy to disrupt, other studies have shown that species such as codling moth tend to respond better to higher numbers of pheromone point sources, with perhaps greater concentrations on the block edges. Therefore, the utility of the MSTRS design may be best realized against a selected smaller number of pest species.❖❖

INSECT TRAP CATCHES (Number/Trap/Day)

Geneva, NY

	6/2	6/6	6/13
Redbanded leafroller	0.7	0.6	0.0
Spotted tentiform leafminer	3.0	3.6	0.6
Oriental fruit moth	0.8	0.5	0.3
Lesser appleworm	4.2*	2.3	1.5
San Jose scale	2.3*	79.4	1.6
Codling moth	0.0	0.3*	0.3
American plum borer	0.7	1.4	0.4
Lesser peachtree borer	–	3.8*	3.6
Peachtree borer	–	0.1*	0.1
Pandemis leafroller	–	0.1*	1.5
Obliquebanded leafroller	–	0.0	1.1*

Highland, NY

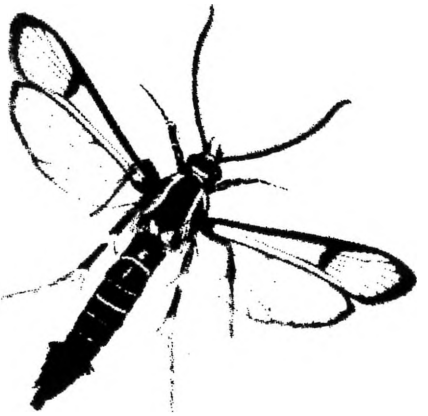
	6/6	6/13
Redbanded leafroller	0.1	0.0
Spotted tentiform leafminer	5.8	11.6
Oriental fruit moth	0.9	0.8
Lesser appleworm	2.5	2.4
San Jose scale	0.0	0.0
Codling moth	0.6	0.5
Obliquebanded leafroller	0.3*	0.9

* first catch

PEST FOCUS

Geneva: 1st catch of **dogwood borer** 6/8. 1st **obliquebanded leafroller** caught today (6/13).

Highland:
Degree days (base 50°F) since first **codling moth** trap catch = 371. Degree days (base 45°F) since first **oriental fruit moth** trap catch = 572. Degree days (base 50°F) since first **San Jose scale** trap catch = 292. Degree days (base 43°F) since first **obliquebanded leafroller** trap catch = 246.



UPCOMING PEST EVENTS

	43°F	50°F
Current DD accumulations (Geneva 1/1–6/13):	943	580
(Geneva 1/1–6/13/2004):	1014	610
(Geneva "Normal"):	950	560
(Geneva 6/20 Predicted):	1120	709
(Highland 1/1–6/13):	1078	678

Coming Events:	**Ranges(Normal± StDev):**	
Codling moth 1st flight peak	599–989	325–581
European red mite summer eggs hatch	737–923	424–572
Spotted tentiform leafminer 1st flight subsides	651–921	351–551
Cherry fruit fly 1st catch	755–1289	424–806
Lesser appleworm 1st flight subsides	950–1372	570–874
Pandemis leafroller flight peak	878–1048	512–606
Obliquebanded leafroller 1st flight peak	943–1317	564–830
Pear psylla 2nd brood hatching	967–1185	584–750
San Jose scale 1st flight subsides	850–1170	516–718
San Jose scale 1st generation crawlers present	1033–1215	619–757
Spotted tentiform leafminer 2nd flight begins	947–1181	557–739

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NOTE: Every effort has been made to provide correct, complete and up-to-date pesticide recommendations. Nevertheless, changes in pesticide regulations occur constantly, and human errors are possible. These recommendations are not a substitute for pesticide labelling. Please read the label before applying any pesticide.

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