



Newsletter

Extension

Fruit ICM News

Volume 7, No. 19
May 22, 2003

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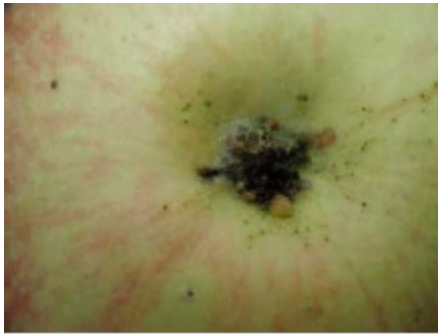
June 9: Plasticulture Strawberry, Blueberry, Blackberry, Raspberry Twilight Meeting; OSU South Centers, 1864 Shyville Road, Piketon, Ohio 45661. Field tours are from 5:00-7:00 p.m.; supper will be served from 7:00-8:00. Contact Brad Bergefurd, at 740-289-3727, 1-800-297-2072 (in Ohio only). E-mail: bergefurd.1@osu.edu. Web site: <http://www.southcenters.osu.edu>.

June 25: Ohio Fruit Growers Society Summer Tour, Glen Hill Orchard, 17156 Glen Road, Mt. Vernon, OH. Registration begins at 8:00 a.m. Member registration fees are \$15 per family and \$10 per individual. (Non-member fees are \$20 and \$15.) Morning refreshments and noontime meal will be available for purchase. Rooms are available at the Mount Vernon AmeriHost at a rate of \$60/single or \$64/double. Call the hotel by June 3 for reservations: 800-480-8221. You may contact the Ohio Fruit Growers Society at 614-246-8292 for additional information.

Abstinence Makes the Moths Grow Frustrated

Source: Adapted from articles by Kathryn Carter, Pome Fruit IPM Specialist and Neil Carter, Tender Fruit & Grape IPM Specialist, Ontario Hort Matters, Volume 7, Issue 3, May 7, 2003

Many Ontario growers have been struggling with controlling internal lepidoptera (codling moth and oriental fruit moth) in their apples over the past few years. We are not alone; infestations of apples are occurring with increasing frequency and severity in several Northeastern states. In 2001, approximately 50% of the orchards monitored in Norfolk experienced OFM damage; by 2002 this number had increased to approximately 80%. Oriental fruit moth damage has been identified in the following apple growing regions: Brant, Essex, Haldimand, Norfolk, Kent, Middlesex, and Niagara. However, due to the frequent movement of apples between different growing regions in Ontario (packing and shipping), it is likely that OFM may eventually spread to other apple production areas within the province.



OFM calyx entry on apple



OFM side entry on apple

If you're planning to use mating disruption to help manage oriental fruit moth (OFM), a good way to remember how it works is to think of it as an "enforced abstinence program for OFM." Knowing how this technology works is a good way to remember what needs to be done to use it.

Enforced Abstinence: Many insects communicate using chemicals called pheromones. "Sex pheromones" help insects find mates. In moths, it is usually the female that emits sex pheromones and the male who follows the trail or plume of pheromones to find his mate(s). Many types of sex pheromones have been studied and their chemical components identified. Some of these pheromones are produced commercially and are becoming available as pest control products. The basic idea is that if you saturate an area with synthetic sex pheromones of a particular insect species, males will not be able to find females. If females are not mated, they can't lay fertile eggs so there are no larvae to infest your fruit. The "enforced abstinence" described above is usually called "mating disruption" or "disruptive pheromone technology."

Mating Disruption: Mating disruption (MD) is a well-established technique worldwide with over 350,000 acres treated annually. It is very important to remember that sex pheromones are species-specific; they work on one species only and will not provide any control of any other pests. Also, MD is not a "stand-alone" technology; supplemental insecticide sprays may be needed either for other pests in the orchard or to lower the target pest population so that MD can work. MD works best with low initial populations of the pest. If the target pest population is very high, MD will not prevent chance pest encounters and matings. MD also works best when large areas are treated. The minimum recommended at present is 10 contiguous acres, preferably roughly square. You cannot try this technology out on a few rows - - it won't work! Unlike pesticides, sex pheromones don't kill anything. They don't even kill the target pest! Because of the special nature of MD and special requirements for monitoring, *I highly recommend that MD be used as part of a well-planned IPM program under the supervision of a qualified, experienced crop consultant.*

Isomate M100 and OFM: At present, there is only one registered OFM mating disruption product in Ontario. Isomate M100 is a "twist-tie" type pheromone dispenser that is put manually into the orchard at a rate of 100 dispensers per acre. The dispensers are easy to put on and anyone should be able to cover more than 2 acres per hour. Installation time depends most greatly on supervision and direction of workers and their motivation. These dispensers should be hung at around head height and ladders are not usually necessary unless you choose to hang them higher on the upwind edge of the orchard.

Other Products: We can expect to see sprayable formulations of OFM pheromone on our market sometime in the future. These are usually effective for about 3 weeks and would be applied just before each main flight of moths. However, they may be recommended as part of a Low Rate Frequent Application (LRFA) program where growers would apply smaller amounts on a more regular basis,

perhaps anytime another spray application was being done. Other types of dispensers may also be available in the coming years, including a clip-on style plastic dispenser.

Does this really work? Experience in Niagara peach orchards with Isomate M100 (1997-1999) showed that the product performed comparably to conventional pesticide programs. In that efficacy study, first generation OFM were treated with insecticides and pheromone dispensers were installed before second flight of OFM. From 2000-2002, a longer-lived dispenser (which should be available in our market soon) provided a season-long management option for OFM, but first generation was still sprayed with insecticide to help reduce the initial population. If and when populations are consistently demonstrated to be low, MD will still not be entirely stand-alone; pesticides may be required for other pests and are always needed as back-up in case MD is not performing satisfactorily.

Orchard Borders: Borders of pheromone-treated sites may require special monitoring and treatment. There is the possibility that mated females may fly to an MD orchard and lay eggs (most often on the border) or the pheromone concentration may not be sufficiently high on some edges to cause complete disruption of mate finding. To protect borders, try extending the pheromone application into adjacent orchards (remember, bigger is better with MD). You can also increase the rate of dispensers on the orchard edge, or overspray with insecticide on the edges (4-6 rows) for additional protection. Don't count on border sprays alone to control OFM. Most importantly, extra monitoring on the edges is required and, again, that's where the services of a crop consultant and monitoring services are key to a successful MD program.

Parting shots: Pheromone traps will still be needed in MD sites, but they shouldn't catch any moths. Obviously, you can't monitor OFM populations in an OFM pheromone treated site. There is also a carry-over effect to the following year which may provide trap shut down (no moths caught) but should not be relied upon to provide adequate disruption of mating.

The OMAF website has an Infosheet describing the use of Isomate M100 in more detail. Read it before setting up your OFM-MD program.

http://www.gov.on.ca/OMAF/english/crops/hort/tender_fruit/info_matingdis.htm

Finally, remember that MD is most effective with:

- Low initial pest populations
- Large areas treated
- The guidance of a qualified IPM consultant.

Summer Red Raspberry Spring 2003 Evaluation

Source: OSU South Centers Horticulture and Dr. Richard Funt, Dept. of Hort. & Crop Science, OSU, Columbus

Eight varieties of thornless summer-bearing red raspberries [Lauren, Emily (formerly JAM-2), PCA-B4, PCS-1, PCS-2, MDJ-W4, NAN-5, and OAM-W2] were planted on 2 foot spacing in May 2000 at the VanMeter farm in the Scioto River Valley of Ohio. Plots were replicated four times, except Lauren.

Soils at the site are predominantly Huntington silt loam. Average temperatures range between 32 to 75 and relative humidity ranges between 79 to 93%.

The mean annual rainfall is approximately 36 inches +8 inches, with about 40% of the precipitation

falling between May and September. Drip irrigation was installed and is used to maintain adequate soil moisture. Recommended pest control measures were followed to control weeds, insects, and disease.

Varietal descriptions are based upon the breeders' comments and are not necessarily indicative of what we observe at this site:

- **Lauren** (USPP#10610) [USDA, Maryland, 1997 (Reveille x Titan)] was selected at the Wye Institute as a very large, very early, vigorous and productive spring-bearing red raspberry. It is short chilling and performs well in -20F weather in Minnesota, producing fruit the size of 'Titan', but with more uniform stands in wetter soils. Its flavor was much superior to 'Titan', but like 'Titan', it suffered when experiencing warm spells followed by cold in March or April. Typically, Lauren survives January and February cold very well and can produce if kept cool.
- **Emily** (USPP#12173) was selected at the Wye Institute as having the firmest, most conic fruit. It is only mildly flavored. It has a longer chilling requirement than 'Lauren', it readily winterkills, and is susceptible to Phytophthora and overuse of typical residual herbicides.
- **PCA-B4** is a species hybrid (*R.stellarcriscus*, *R. corchorifolius*, *R. pileatus*, *R.occidentalis*, and *R. strigosis* = *R. x prittsii*) selected for clean foliage, resistance to root rot, and large size. Fruit is flavorful and acceptably firm (arising from soft parents).
- **PCS-1** is a very vigorous and productive early fruiter. It has good flavored, moderate-sized fruit.
- **PCS-2** is a very vigorous and very productive late fruiter. It has large and flavorful fruit. PCS-2 canes are clean of fungi, especially in their protracted ripening period.
- **MDJ-W4** is a cold hardy, red raspberry selection that has AmosH, NY 817, Skeena, and Titan in its background. It is productive with medium-sized round fruit that is somewhat soft.
- **NAN-5** is a small-fruited hybrid with high sugar and high acid. It is productive, purple, cold hardy, and has good flavor.
- **OAM-W2** has conic, large, flavorful species hybrid fruit. OAM-W2 fruit may be somewhat soft, but the plant has survived -20F and lower temperatures.

This year plants were pruned the week of April 14, 2003. Rows were narrowed to approximately 22 inches (slightly wider than the recommended width of 18 inches), spent floricanes were removed, dead tips on the current year floricanes were removed, and weak canes were also removed. Nine feet of row in each plot were randomly selected and the number of canes was counted and average height determined. Based upon cane counts, we can say:

- **PCS-1** has at least an acceptable average cane count in three of the four plots, and one of those is slightly high.
- **NAN-5** has the highest stand count in one plot and acceptable levels in a second plot.
- **OAM-W2** has acceptable cane survival in one of the four plots.

The average height of canes is somewhat dependent on location in the field, but when averaged across the field they are ranked from tallest (=1) to shortest (=8).

1. PCS-1
3. (tie) OAM-W2, PCA-B4
4. NAN-5
5. PCS-2
6. Lauren
7. MDJ-W4
8. Emily - floricanes did not survive the winter, although there are new primocanes developing.

Our winter low temperature was measured on January 27 and was approximately 4F.

Pest Phenology

Coming Event	Degree Day Accum. Base 50° F
Peachtree borer 1 st catch	299 - 988
Codling moth 1 st flight peak	307 - 824
Obliquebanded leafroller 1 st catch	392 - 681
Lesser peachtree borer flight peak	392 - 1526
San Jose scale 1 st flight subsides	434 - 656
Oriental fruit moth 1 st flight subsides	442 - 1026
European red mite summer egg hatch	442 - 582
Pear psylla 1 st summer adults present	443 - 512
Spotted tentiform leafminer 2 nd flight begins	449 - 880

Degree Day Accumulations for Ohio Sites May 21, 2003

Ohio Location	Degree Day Accumulations			
	Base 45° F		Base 50° F	
	Actual	Normal	Actual	Normal
Akron/Canton	607	529	358	324
Cincinnati	875	825	587	536
Cleveland	565	498	339	305
Columbus	805	643	526	407
Dayton	756	656	486	419
Kingsville	423	424	229	256
Mansfield	576	515	335	316
Norwalk	546	484	321	297

Piketon	919	844	598	553
Toledo	511	472	286	290
Wooster	680	483	419	289
Youngstown	523	469	293	283

Fruit Observations & Trap Reports

Insect Key	
AM:	apple maggot
CM:	codling moth
ESBM:	eye-spotted budmoth
LAW:	lesser apple worm
LPTB:	lesser peachtree borer
OBLR:	obliquebanded leafroller
OFM:	oriental fruit moth
PTB:	peachtree borer
RBLR:	redbanded leafroller
SJS:	San Jose scale
STLM:	spotted tentiform leafminer
TABM:	tufted apple budmoth
VLR:	variegated leafroller

Site: Waterman Lab, Columbus
 Dr. Celeste Welty, OSU Extension Entomologist

Apple: 5/14/03 to 5/23/03

CM: 22.7 (down from 55.7)
 ESBM: 0 (same as last week)
 LAW: 55 (up from 46)
 OBLR: 0 (same as last week)
 RBLR: 0 (same as last week)
 SJS: 0 (down from 4)
 STLM: 0 (down from 1)
 TABM: 7 (up from 0)
 VLR: 0 (same as last week)

Peach: 5/14 to 5/21/03

OFM: 0 (same as last week)
 LPTB: 7 (up from 1)
 PTB: 0 (first report)

Site: Medina, Wayne, & Holmes Counties
 Ron Becker, IPM Program Assistant

Apple: 5/14 to 5/21/03

STLM: Holmes: 0 (down from 58)
Medina: 0 (down from 56)
Wayne: 0 (down from 50)

RBLR: Holmes: .3 (down from 9.3)
Medina: 2 (down from 9.3)
Wayne: .3 (down from 4.3)

CM: Holmes: 12.9 (up from 5.3)
Medina: 1.8 (up from 0)
Wayne: 48.1 (up from 27.1)

Biofix for CM - May 2 in Wayne Co.

Peach: 5/14to 5/21/03

LPTB: Holmes: 5 (up from 3)
Medina: 2 (up from 0)
Wayne: 0 (down from 4)

OFM: Holmes: 0 (down from 1)
Medina: 12 (up from 2)
Wayne: 1 (down from 4)

PTB: Holmes: 0 (same as last week)
Medina: 0 (same as last week)
Wayne: 0 (same as last week)

Insects found in apples include European red mite, potato leafhopper (both adult & nymph), and aphids. Two-spotted spider mite continues to be found in strawberries. Slugs are also active in the strawberry beds.

Site: East District: Erie & Lorain Counties

Jim Mutchler, IPM Scout

Apple: 5/14 to 5/21/03

CM: 4.7 (up from 0)
OFM: 4.9 (down from 6.1)
RBLR: 5.5 (down from 21.8)
STLM: 159 (down from 431)

Beneficials found include native lady beetles.

Peach: 5/14 to 5/21/03
OFM: 1.0 (down from 2.3)
RBLR: 5.4 (down from 16.3)

Site: West District: Huron, Ottawa, Richland, & Sandusky Counties - Gene Horner, IPM Scout

Apple: 5/13 to 5/20/03
CM: 1.3 (up from 0.4)
OFM: 20.9 (down from 59.9)
RBLR: 9.0 (down from 37.0)
STLM: 177 (down from 541)

Peach: 5/13 to 5/20/03
LPTB: 4.6 (up from 4)
OFM: 1.9 (down from 6.7)
RBLR: 5.4 (down from 18.8)

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Information presented above and where trade names are used, they are supplied with the understanding that no discrimination is intended and no endorsement by Ohio State University Extension is implied. Although every attempt is made to produce information that is complete, timely, and accurate, the pesticide user bears responsibility of consulting the pesticide label and adhering to those directions.

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