

# scaffolds

Update on Pest Management  
and Crop Development

F R U I T J O U R N A L

March 24, 2008

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Geneva, NY

ALL  
ABOARD!

MIND THE GAP  
(Art Agnello,  
Entomology,  
Geneva)



**My phone ain't ringin', I know it's you  
that ain't been callin'**

❖❖ People who know about such things tell us that the beginnings, endings and transitions of common processes and events are frequently their most significant points, from the standpoint of being memorable, or important, or even most prone to calamity. We don't generally seem to attach as much import to periods or activities when they are in full swing, as they're usually not as noteworthy as when they're starting or ending. This is probably one of the reasons we dread some changes, since they require identifiable effort. Most growers, as well as those of us who work with them, are reluctant to acknowledge the start of a new season each year because we're not ready to leave what we've been (and probably have been comfortable) doing, so it's only natural to resist shifting ourselves into another mode again 'so soon'. Last year was pretty successful for most growers, the winter wasn't too hard, the rest of the world is crazy as always, and the coming season is unknown and uncertain, also as always. But, the tyranny of the calendar says that it's time to step off in that direction again, it's where we belong. The London subway system is old, and the trains don't always match up well with the station platforms, so to keep riders aware of possible mishaps while stepping off, the automated PA announcement at each stop reminds them to 'mind the gap', which isn't such bad advice for us to follow in many everyday situations.

Earlier this month, I sent out my annual exploratory email announcement that serves as a screen for bad or expired addresses, expecting the usual flurry of bounced messages. To my shock, only one came back as inoperative, and that one

was from a Canadian subscriber, so probably Homeland Security had something to do with that. Starting last year, we went to an all-electronic version of Scaffolds, which puts more import on the accuracy of email communications, so I was glad to see so few complications. Some people did notify me of changed addresses, which is something I'd like to encourage so that there are no subscription interruptions; if we don't hear from you (or get only error messages when we email), we won't know where you are. As noted in the March 6 announcement, we will again be sending Scaffolds out as a pdf file via email each Monday afternoon. However, in response to some requests for a more screen-friendly format than the double column we currently use, I am willing to send

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## IN THIS ISSUE...

GENERAL INFO

CHEM NEWS

HORTICULTURE

❖ Organic apple production

an unformatted plain text version to anyone who requests it, in addition to or in place of the pdf. As before, there is also a web version available from the NYSAES server, which is normally up by Tuesday or Wednesday each week, at: <http://www.nysaes.cornell.edu/ent/scaffolds>.

As always, we are happy to consider contributions (particularly from N.Y. sources) in the form of articles on topics in any of the fruit crop protection or crop production areas, as well as N.Y. field observations, trap data, etc. ❖❖

HAPPY  
NEW  
YEAR

PRODUCT  
REGISTRATION  
UPDATE  
(Art Agnello,  
Entomology, Geneva)

### Label Changes

- Use of Guthion/azinphosmethyl products is reduced this year, in accordance with the scheduled phase-out guidelines previously established by EPA. In apples and pears, a total of 6 lb formulated product/A is allowed in 2008/2009; this will go to 4 lb/A in 2010, and 3 lb/A in 2011-2012, before being completely phased out. In cherries, it's 3 lb/A in 2008-2009, and 1.5 lb/A in 2010-2012. There is now a 60-ft buffer required from permanent bodies of water and occupied buildings, and a PHI in Pick-Your-Own operations scaled from 33-44 days, according to use rate. Read your labels carefully. Recall that these products had been previously excluded from use on peaches, nectarines, plums, prunes, and apricots.

- A reminder that dimethoate has been withdrawn for use on apples; it remains registered in pears.

- Mitac has been voluntarily cancelled by the manufacturer, and its NYS registration expired last September.

- Pounce 3.2EC registration is expected to expire at the end of this month, so will not be available for use this season.

### New Labels

Some new products added to the 2008 NY Pest Management Guidelines for Commercial Tree Fruit Production include:

- Checkmate CM-F (Suterra) EPA Reg. No: 56336-37

- Checkmate CM-OFM Duel (Suterra) EPA Reg. No: 56336-49

- Isomate CM/OFM TT (CBC) EPA Reg. No: 53575-30

and a couple of generics from United Phosphorus (formerly Cerexagri):

- Bifenture (bifenthrin) 2EC; EPA Reg. No: 70506-57

- Lambda-Cy (lambda-cyhalothrin) 1EC; EPA Reg. No: 70506-121

- Perm-Up (permethrin) 3.2EC; EPA Reg. No: 70506-9

*plus*

- Taiga Z (lambda-cyhalothrin, from Agriliance) 1CS; EPA Reg. No: 100-1112-1381

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### scaffolds

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<http://www.nysaes.cornell.edu/ent/scaffolds/>

Also, although it didn't make it into the print version of the Guidelines, Gowan has begun NYS distribution of its Onager 1EC miticide, which has the same a.i. as Savey (hexythiazox); EPA Reg. No: 10163-277. [The web version of the Guidelines will be available soon.]

Finally, Brian Olson from Dow AgroSciences has sent the following message regarding chlorpyrifos: "I have heard through the rumor-mill that some folks think chlorpyrifos registrations will be canceled. This rumor is completely without merit. EPA will start their re-registration review of chlorpyrifos later on this year or early 2009 and will likely [take] 6 to 9 years before any action, if any, is taken. EPA cannot involuntarily cancel registrations without a formal FIFRA Section 6 special review and must demonstrate an imminent risk. That can also take years. What probably started this rumor of cancellation is the following [announcement]...sent...in October 2007:

'The Natural Resources Defense Council (NRDC) and the Pesticide Action Network of North America (PANNA) filed a petition with the U.S. Environmental Protection Agency (EPA) on September 12, 2007, to revoke all tolerances for chlorpyrifos under the Federal Food, Drug, and Cosmetic Act (FFDCA) and cancel all registrations for chlorpyrifos under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). These laws, which govern all U.S. pesticide registrations, have provisions allowing "any person" to file a petition seeking to establish, modify or revoke a pesticide tolerance (FFDCA) or to cancel a pesticide registration (FIFRA). On October 17, 2007, EPA announced in the Federal Register (FR) that it has opened a 60-day notice and comment period in response to the activist petition. EPA's FR notice and comment period on the petition should not be misconstrued as a sign of imminent regulatory action on chlorpyrifos.' ❖❖

## SOFT LANDING

THINKING  
ORGANIC?  
(David A. Rosenberger,  
Plant Pathology,  
Highland)

❖❖ During the past year, we have received many inquiries from both existing and "wannabe" apple growers about the feasibility of producing apples for the organic market. While I have no first-hand experience with organic apple production, I have heard numerous presentations on the subject at winter meetings and have reviewed (at least partially) information available on the internet. The latter is a daunting task: Enter "organic apple Cornell University" in a Google search and you will get 33,300 documents that contain all of those words. Despite the seeming abundance of information relating to organic apple production, finding practical "how to" info is surprisingly difficult. We still lack a good comprehensive, science-based organic production guide for apples.

Because organic apple production is in a state of flux, no one can provide a "how to" list that will work for all growers in all locations. Therefore, this article provides only general observations that I hope will stimulate further thinking and questioning by those considering organic apple production. The good news is that methods do exist for producing apples organically in Northeastern United States. The bad news is that profitability of those systems remains questionable.

**Planning for organic production:** A critical first step for anyone planning to start an organic orchard is to consult with the organization that will provide organic certification for your orchard. Methods acceptable in organic production have been standardized by federal law, but many details are left to the discretion

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of the local certifying organization. Any land formerly used for traditional agriculture (i.e., receiving conventional fertilizers and/or pesticides) must go through a three-year transition period before crops produced on that land can be certified as organic. Misunderstandings about what your certifying organization will accept can result in an extended transition period. Get all recommendations in writing so that they will be available for future reference.

A second critical step in organic production (as for any other agricultural enterprise) is determining how the crop will be sold. Selling several hundred bushels of locally produced organic apples is relatively easy right now. However, the market is likely to become more competitive as more growers attempt to capitalize on the premium currently offered for organic apples. A well-managed block of organic apples should produce at least 800 bushels of apples per acre, so a marketing strategy will be critical for anyone planning a five or 10-acre block of organic apples.

**Planning the orchard:** To date, most growers interested in organic apple production have focused on transitioning existing orchards over to organic production. BIG MISTAKE! Existing orchards usually contain the wrong varieties at the wrong spacing in the wrong location with soils that need major fertility and/or pH adjustments. Furthermore, the three-year costs of transitioning to organic are substantial and the crop during those three years has no increased value compared to conventional fruit.

A more logical approach is to plan an organic orchard as a new planting. The new orchard will include cultivars that are resistant to apple scab (for reasons described below), and some of these will need to be custom-budded by nurseries. While the trees are being produced in the nursery, the land can be properly prepared for planting by adjusting soil pH, adding fertility via animal manures, and planting cover crops that will increase soil organic matter. Using the orchard establishment and

training systems developed by Terence Robinson and other horticulturists, newly planted orchards should produce a substantial harvest the third year after planting. If trees are planted during the second year of transitioning land to organic, then the first organic apples should be available for sale less than three years after trees are planted.

**Selecting varieties:** Identifying the right mix of varieties may be the greatest challenge in orchard establishment. Scab-susceptible cultivars such as McIntosh have no place in organic orchards because they will require constant spraying with sulfur and liquid lime-sulfur (LLS). Repeated applications of sulfur and/or LLS will reduce yield by at least 20 to 25%, and there are no other organically approved fungicides that will control apple scab. Furthermore, the fuel costs associated with spraying sulfur/LLS ten or 15 times during the season will only increase in coming years. If consumers begin buying products based on energy use or “carbon footprint”, then organic apples sprayed 15 times per year with sulfur may ultimately prove no more acceptable than conventional non-organic apples.

Fortunately, we now have many good apple cultivars that are either fully or partially resistant to apple scab. Paulared, Sansa, and Honeycrisp are commercialized cultivars with sufficient scab resistance to make them attractive for organic farms. (Note, however, that it may be difficult to control summer fruit decays on Honeycrisp planted in warmer regions such as the Hudson Valley). Red-free, William’s Pride, Priscilla, Enterprise, Crimson Crisp, Sundance, and Goldrush are all scab-resistant cultivars from the Purdue-Rutgers-Illinois breeding program. All of these except Enterprise are highly susceptible to cedar rust diseases. Topaz and NovaSpy are other cultivars worth considering. All of these cultivars have their limitations, some of which are described in a 1995 summary that is available at <http://orchard.uvm.edu/sap/srcupdate.html>. If I were establishing an organic orchard to-

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day, I would probably plant Paulared, Sansa, Honeycrisp, Crimson Crisp, Enterprise (although the skin is too tough to eat without peeling), and Gold-rush.

**Weed control:** Plans for weed control should be in place prior to planting the orchard. Many options have been investigated, and the perfect option remains elusive. Hay mulches and synthetic mulches harbor vole populations, and controlling weeds along edges of synthetic mulches is difficult because mowers snag the mulches. Some burn-down herbicides are approved for use in organic plantings, but these are expensive and must be re-applied frequently. Propane flamers sound like fun for pyromaniacs but are expensive and have proven only marginally effective over the long haul.

Weed badgers are also expensive to operate, damage tree roots, and tend to create dips and ridges beneath the trees. A better cultivation tool may be the “Wonder Weeder,” a rotating tine cultivator pictured on page 9 of an organic apple production report by Ian Merwin and Greg Peck (see: [www.organic.cornell.edu/research/tsfsumms/2005/apples.pdf](http://www.organic.cornell.edu/research/tsfsumms/2005/apples.pdf)). Peck and Merwin reported recently that two or three cultivations per year are often adequate in their Ithaca test orchard.

Wood chip mulch has provided acceptable weed control without harboring voles, but the transport and installation costs for a wood chip mulch can be substantial. Wood chip mulches must be renewed every several years, and perennial weeds such as Canada thistle can become a problem in wood chip mulches. Wood chip mulches provide some benefits for fertility and moisture retention, but long-term management is more complex than for weed control by tilling. Wood chips should never be tilled into the soil because they will tie up all of the available nitrogen for several years after incorporation. Thus, one cannot mix wood chips and tillage.

An option worth exploring would be a removable and re-usable synthetic mulch. Several com-

panies manufacture durable plastic and/or fiber-glass-based ground covers that have worked well to suppress weeds. When left in place during winter, these mulches harbor damaging populations of voles. However, it should be feasible to design a machine that would mechanically install the mulch in spring (perhaps in early May) and then recover that mulch onto a roll in mid-August so that it could be stored until it is reinstalled the next spring. A plastic mulch installer like those used for vegetables might be modified and off-set so that a ground cover could be installed on one side of a tree with the outside edge buried in soil to hold it in place. After installation was completed on both sides of a tree row (with separate 3-ft-wide strips of mulch on each side), the center overlap along the tree row would need to be manually stabilized to resist wind by inserting long wire “staples” into the ground or by weighting the center edge with rocks, wood chip mulch, or a long water-filled hose. Wood chip mulch installed over removable synthetic mulch could presumably be shaken to the ground when the synthetic mulch is removed in fall and then covered over with the synthetic mulch the next year. However, removable synthetic mulches need to be tested experimentally and will become practical only if their installation and removal can be mechanized.

**Crop load adjustment:** Work by Jim Schupp and Terence Robinson showed that back-to-back sprays of LLS plus oil can effectively thin the crop in organic apple orchards. More work will be required to fine-tune thinning regimes for different cultivars and to determine how thinning sprays with LLS+oil should be adjusted for weather conditions. Nevertheless, we have enough information to know that organic growers need not depend solely on hand thinning to adjust crop load.

**Disease control:** Various plant pathologists working with organic apple production have all agreed that the two most problematic groups of diseases in organic apple production are rust diseases

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and summer fruit rots. Sulfur and LLS can be used to control most other diseases, although, as noted before, using these fungicides at the rates and intervals needed to control apple scab will cause yield reductions. To date, all of the organic fungicides promoted as alternatives to sulfur are more expensive and less effective than sulfur.

Controlling scab with sulfur and LLS will not be discussed here because, as indicated earlier, scab susceptible cultivars should not be included in organic orchards. Fire blight is another potential problem with many cultivars, but streptomycin is currently acceptable within organic programs so long as it is used only on an as-needed basis. Strategies for fire blight control are therefore similar in organic and conventional orchards.

Cedar apple rust and quince rust are very difficult to control with sulfur. Therefore, organic plantings that include rust-susceptible cultivars should be located at least 300 ft away from the nearest cedar trees. Powdery mildew can become a problem on some cultivars, but three or four applications of sulfur at 5 to 8 lb/A beginning at petal fall may suffice to keep mildew in check. Where mildew becomes established, however, the sulfur program should be initiated no later than pink.

Sooty blotch and flyspeck can be controlled by using low rates of LLS during summer. In trials in the Hudson Valley, we found that LLS applied at 1 qt/100 gal of dilute spray was very effective when applied on a 10-day schedule during July and August, whereas 2 qt/100 gal were required for good control on a 20-day schedule. In regions where conditions favor development of flyspeck and sooty blotch, sprays with LLS must be continued into late September to prevent disease on late-maturing cultivars.

Unfortunately, LLS does not control summer fruit rots such as black rot, white rot, and bitter rot. Low rates of copper fungicide can be tank-mixed with LLS during late July and August LLS to increase activity of these sprays against summer

fruit rots. However, organic apple growers may need to resort to sanitation measures to control summer fruit decays as plantings mature. In the northeast, much of the inoculum for summer fruit decays comes from fruitlet mummies that are retained after fruit set and that remain on the trees over winter. Manually removing all of these fruitlet mummies during winter pruning should significantly reduce problems with summer fruit rots. However, as is the case with many other aspects of organic production, that hypothesis has not yet been tested.

**Insect control:** (see the next issue of Scaffolds Fruit Journal).

**Acknowledgements:** Most of the ideas and information presented in this article were derived from recent conversations with or presentations by Jim Travis at Penn State, Lorraine Berkett at University of Vermont, and Ian Merwin and Greg Peck at Cornell University in Ithaca, NY. ❖❖

## PHENOLOGIES

Geneva, Highland: All dormant

### UPCOMING PEST EVENTS

	<u>43°F</u>	<u>50°F</u>
Current DD accumulations (Geneva 1/1–3/24/08):	43.3	16.0
(Geneva 1/1–3/24/2007):	65.5	24.3
(Geneva "Normal"):	44	16
<u>Coming Events:</u>	<u>Ranges (Normal ±StDev):</u>	
Green fruitworm 1st catch	52–124	13–55
Pear psylla adults active	31–99	8–34
Pear psylla 1st oviposition	40–126	11–53
McIntosh at silver tip	55–111	17–43

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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