

scaffolds

Update on Pest Management
and Crop Development

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

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Geneva, NY

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SAFE

MORE ON THE
COLONY
COLLAPSE
DISORDER
ISSUE
(Art Agnello,
Entomology,
Geneva)



From Dr. Gerald M. Ghidui, Specialist in
Vegetable Entomology:

“Imidacloprid, originally sold as Admire, Provado, and Gaucho, has been reported to be responsible for high losses in honeybees. High bee losses have been reported throughout Europe, Canada, and North America, with significant decline in the production of honey. Beekeepers believe that the use of imidacloprid has been responsible for some, if not all, of this decline. Many studies have been conducted beginning around 1998 to determine if imidacloprid is related to the bee population decrease and subsequent decline in honey production. However, after much testing, there is no definite data to show that this material is harmful to bees, or related to the bee loss. Tests designed to show that bees lose their orientation and cannot function normally have been inconclusive, and tests designed to test bee kill have had contradicting results. Imidacloprid is sold in nearly 70 countries, and many of these areas report no bee losses. Even in the US, the fruit growers in the

continued...

❖❖ Despite the tenacious winter weather, we are still progressing towards the pollination period for our tree fruits, and the concern over the recently documented Colony Collapse Disorder seen in the region’s beehives has increased, as answers regarding its causes and potential remedies have been very difficult to obtain. Following are some thoughts on this issue from colleagues at Rutgers University in New Jersey:

From Dr. Peter Shearer, Specialist in Tree Fruit Entomology:

“Colony Collapse Disorder (CCD) is the most recent and serious problem affecting honeybees. This disorder is characterized by a sudden collapse of apparently healthy hives. Some migratory beekeepers have lost 50–70% of their hives, while Mid-Atlantic beekeepers have reported losses of more than 50%. Other hives are so weakened they are not viable for pollination services. This may result in fewer colonies for pollinating this year’s crops in addition to increased pollination fees. The source of this disorder is unknown, and studies are currently under way to determine what is causing the problem. Some beekeepers feel that neonicotinoid insecticide use may be contributing to CCD because residues of these products have been found in nectar and pollen samples. This belief has caused some beekeepers to send out letters to orchardists asking growers to refrain from using neonicotinoid insecticides until after petal fall.”

IN THIS ISSUE...

INSECTS

- ❖ More on Colony Collapse Disorder

GENERAL INFO

- ❖ Recommends online
- ❖ NEWA and NYS IPM Web resources

HORTICULTURE

- ❖ Drainage in new orchard sites

UPCOMING PEST EVENTS

PHENOLOGIES

state of Washington rely heavily on imidacloprid, and have not had the reported bee problems. And in France, even after a 4-year ban on sunflower seed treatments with imidacloprid, a significant drop in bee populations is still observed. Some researchers believe that honeybee decline may be totally unrelated to the imidacloprid, and that something other than a pesticide is responsible for this sudden honeybee decline.”

The foregoing underscores the fact that many possible causes of Colony Collapse Disorder are being advanced and investigated, but as yet there is no definitive information on what the facts actually are. That being said, those of us working with fruit growers in NY are in agreement that it is better to err on the side of conservatism and for the time being exercise whatever protective or preventive measures are being requested by your bee suppliers, so as not to interrupt the normal hive rental agreements and pollination process this season. For most growers, this will mean avoiding the use of neo-nics until after the hives have been removed by petal fall. Fortunately, there are suitable alternative materials that can be substituted for most pest control measures during the pre-PF stages. Growers needing to control rosy apple aphid can choose Lorsban, Diazinon, pyrethroids, or Esteem. For leafminers and tarnished plant bug, the pyrethroids or (for STLM) Aza-Direct or Vydate can be considered, although be aware of the negative impact on predator species from pyrethroids or Vydate. And, naturally, observe responsible hive-handling and pesticide use practices to minimize any type of pesticide impact on your bees.

We are continuing to look for the most reliable information on CCD in the hopes that it can eventually be remedied. For those wishing to keep up on the latest progress, Pennsylvania State Univ. maintains a Mid-Atlantic Apiculture Research & Extension Consortium website with links to lots of useful information and news releases, at: <http://maarec.cas.psu.edu/ColonyCollapseDisorder.html> ❖❖

WE'RE WIRED

GUIDELINES
ONLINE
(Art Agnello,
Entomology, Geneva)

❖❖ The 2007 Pest Management Guidelines for Commercial Tree-Fruit Production is now available online, at: <http://ipmguidelines.org/TreeFruit>. There are still a few small items that need tweaking, so bear with us; otherwise, it should be a faithful web-based copy of the print version, which can incidentally be ordered from Liz Powers at the PMEP Distribution Center (phone: 607-255-7282; Fax: 607-255-7311; email: patorder@cornell.edu). ❖❖

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COMPUTER BUGS

NEWA and NYS IPM
WEB RESOURCES
(Juliet Carroll, NYS
Fruit IPM Coordinator,
Geneva)

This biofix information and NEWA weather data are used to run the apple scab Ascospore Maturity Degree Day Model graphs: <http://www.nysaes.cornell.edu/pp/extension/tfabp/ascospore.htm>.

❖❖ The practice of IPM in apples is greatly enhanced by weather monitoring and the use of degree day models and disease risk models. NEWA <http://newa.nysaes.cornell.edu/> collects weather information from weather stations located on farms across New York. There are currently 17 stations located in the apple-growing regions of Lake Ontario, Northeastern NY, and the Hudson Valley. The NEWA Apple Home Page http://newa.nysaes.cornell.edu/apple_home.htm has links to weather-based pest phenological models and other information to support IPM practice and pest monitoring for apples.

In the Apple Pest Biofix Table http://nysipm.cornell.edu/fruits/apple_biofix/2006/default.asp the pest biofix information listed in Table 1 is collected and reported for the 17 NEWA sites in the apple-growing regions of New York.

The duration of leaf wetness intervals and dry intervals is calculated along with the average temperature and posted in the Apple Leaf Wetness Periods tables: <http://newa.nysaes.cornell.edu/apples/applefor.htm>. Click on the Modified Mills Table link to determine apple scab infection periods.

For fire blight blossom blight risk, access the Cougarblight model output graphs: <http://www.nysaes.cornell.edu/pp/extension/tfabp/cougarblight.htm>

NEWA weather data is used to run the Apple Pest Degree Day Calculator <http://www.nysaes.cornell.edu/ipm/specware/newa/appledd.php> that calculates pest phenology and action thresholds for the pest models listed in Table 2.

If you have questions about NEWA, contact me at jec3@cornell.edu. ❖❖

Table 1. Apple pest biofix information

<u>Apple Pest (Diseases and Insects)</u>	<u>Abbr.</u>	<u>Pest Biofix</u>
Apple Scab	AS	50% Green Tip McIntosh
Fire Blight	FB	Full Pink 1st Blossom Open
Codling Moth	CM	First Sustained Trap Catch*
Oriental Fruit Moth	OFM	First Sustained Trap Catch*
Obliquebanded Leafroller 1st summer gen.	OBLR	First Sustained Trap Catch*
Plum Curculio	PC	90% Petal Fall McIntosh
San Jose Scale	SJS	March 1
Spotted Tentiform Leafminer 2nd gen.	STLM	First Sustained Trap Catch*
Apple Maggot	AM	January 1

*First sustained trap catch is when insects are caught on two or more subsequent days.

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Table 2. Base temperatures used in pest phenology models

Pest	Base Temp (°F)
Codling Moth	50
Oriental Fruit Moth	45
Obliquebanded Leafroller 1st summer gen.	43
Plum Curculio	50
San Jose Scale	50
Spotted Tentiform Leafminer 2nd gen.	43
Apple Maggot	50



Figure 1. Standing water can be a devastating problem for a new orchard. Be sure standing water is drained away before planting.

ROOT OF THE PROBLEM

CHECK OUT YOUR NEW ORCHARD SITES

(Steve Hoying,
Horticultural Sciences,
Highland)

❖❖ The intense rain and snows last week-end in the Hudson Valley have made an already complicated spring much more so. Spraying, planting, and general orchard operations have all become much more difficult. If there is an advantage, it is that the cool and wet weather makes it relatively easy to now assess orchard blocks for their suitability to plant or replant. It is a perfect time to examine fields that you intend to plant and to assess drainage problems. Problem orchards often have water that comes right to the surface and remains. And in established blocks, it is easy to see that weak trees are often exactly where the water sits. This is the reason for the past poor performance of these particular trees and it indicates where additional tile lines need to be installed if this block is to be replanted.

Excessive rain this time of year can be particularly useful in assessing the suitability of blocks yet to be planted. And in blocks that have had tile lines previously in-

stalled, it is easy to see if the drainage system is indeed working. Check the outflow pipes to ensure a steady and consistent stream. Check the soil surface for standing water and record how long it takes for the water to disappear after the rain ends. If you have followed the suggested procedures of establishing backhoe pits for observation of internal drainage, you can easily determine how rapidly water drains from the pit. If there is standing water in the pit within 48 inches of the surface more than 48 hours after the rain ends, additional drainage or establishment of planting berms are needed to provide sufficient well-drained soil depth for optimum orchard performance in this site.

Marginally wet sites are particularly troublesome in wet years. New plantings will often fail. And even if trees happen to survive, they often fail to thrive and never make for a productive orchard. Established trees less than 3 years old are also at risk. The culprit can be asphyxia or *Phytophthora* infection. Often the entire root system is underwater without any roots yet established near the surface which are able to acquire the oxygen needed to sustain the tree. Water logging, cool temperatures, susceptible plant tissue, and weak trees are the ideal combination to promote *Phytophthora* infection, commonly known as collar or crown rot.

continued...

Infections that result in complete tree collapse usually occur during the first season when trees are undergoing severe water stress, or later with stresses associated with the orchard's first big crop.

If your site is not very, very well drained do not waste your money establishing an orchard. Today's economics do not leave any margin for error. Everything has to be perfect for success. ❖❖

UPCOMING PEST EVENTS

	<u>43°F</u>	<u>50°F</u>
Current DD accumulations (Geneva 1/1–4/16/07):	112	41
(Geneva 1/1–4/16/2006):	200	80
(Geneva "Normal"):	149	67
(Geneva 1/1–4/23/2007, Predicted):	124	44
<u>Coming Events:</u>	<u>Ranges(Normal±StDev):</u>	
McIntosh at green tip	64–163	19–74
Red Delicious at green tip	92–173	36–78

PHENOLOGIES

Geneva:	<u>4/9</u>	<u>4/16 (Predicted)</u>
Apple(McIntosh):	silver tip	green tip
Apple(Red Delicious):	dormant	silver tip – green tip
Pear:	swollen bud	swollen bud
Sweet cherry:	dormant	swollen bud
Tart cherry:	dormant	swollen bud
Peach:	dormant	swollen bud
Highland:		
Apple (McIntosh/Ginger Gold/Empire):	green tip	
Apple (Golden Delicious, Red Delicious, Honeycrisp):	silver tip	
Pear (Bartlett/Bosc):	swollen bud	
Peach (early):	early green tip	
Peach (late):	early green tip	
Plum:	dormant	
Apricot:	dormant	

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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