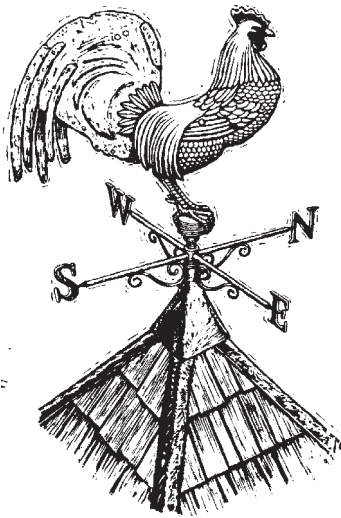


PLANT & PEST ADVISORY

FRUIT EDITION \$1.50

JANUARY 9, 2007



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Mild Winter Weather and Tree Fruit Crop Development

Jerome Frecon, Agricultural Agent

Some growers have inquired about the mild winter weather and the affect it is having on our tree fruit crops. It is difficult to say what affect it will have on our fruit crops, but it is safe to say that it has had no positive effect. The only exception would be fall planted trees that may be making some good root development.

The reason for the mild temperatures has been documented on various weather sites. The Georgia Peach site is: <http://commodities.caes.uga.edu/fieldcrops/gapeach/>. It has some good information on chilling and the climate in Georgia where peaches are produced. As of Monday, January 8, they had only 450 hours in the major peach county near Byron, Georgia.

In the 24 years I have been working in Gloucester County, I do not recall a milder November, December and January like this to date. I do not normally count chilling hours because we always have plenty by this date and probably are close on most varieties. I do see low chill varieties and species developing but most of our higher chill fruit is still quite dormant. A few of these low chill plums and flowering cherries are starting to bloom in Gloucester County.

Calculating chilling hours is complex and not always easy to estimate from base temperatures of 45°F. More accurately a range of temperatures may play into the equation for chilling requirement as well as moisture and humidity.

It is safe to say that if temperatures were to drop suddenly into the tens or single digits we would have bud injury and even tissue injury in wine grapes, and tree fruit.

Pruning at this time activates the plant and increases sensitivity to lower temperatures. Bloom management practices offset this.

We cannot do much else at this time to delay development other than hope and pray that it stays constantly cold and below 40°F for the next 60-90 days. If it does we will have a reasonably normal bloom on our fruit crops. □

To Prune or Not to Prune – Abnormal Warm Weather

Win Cowgill, Agricultural Agent, Jon Clements, UMASS Fruit Specialist, and Wes Autio, Ph.D., UMASS Pomologist

Growers have been calling us since Christmas asking if they can begin pruning apples. My rule of thumb is always wait until at least January 1 or until the trees have hardened off. Numerous research and observations by pomologists for the past 70 years have shown that orchards and trees pruned between September 1 and January 1 begin a steady decline in vigor, health and productivity. And if we get a test winter with a rapid drop in temperature before the trees have hardened off and gone fully dormant, tree death and damage will occur.

I first observed this on an orchard tour in the summer of 1999 in Ohio. Mature trees (30 years old) and young trees (3 years old) were observed. Some blocks were pruned in mid December, others in mid January and the last ones after February 1. The area had an abnormal winter, much as we are having now, with the trees not hardening off due to warm weather until the end of January. We observed that the trees pruned in December were mostly dead, the trees in mid January were 50% dead and any trees pruned after Feb. 1 that year were fine.

While some growers in New Jersey and New England prune apples as early as November, they are at risk, especially this year! Bill Lord, retired Extension Fruit Specialist in Massachusetts, and a great observer, noted that winter damage that occurred throughout New England (particularly northern New England) in the 1930's through the 1950's was due to pruning before the trees were hardened off. The idea is that it takes several days of cold to adequately harden apple trees. If you prune before they are adequately hardened, then they will de-harden further, making them more sensitive to winter injury. If it doesn't get cold from now on, then it doesn't make much difference. Bill Lord promoted that to be perfectly safe, then we should have had average daily temperatures below 25°F. for 25 days before you start dormant pruning apples. In the 1970's and 80's this was probably reached by mid-January in Massachusetts. This year, we have yet to have one day with an average temperature below 25°F. Such cold is necessary for apple trees to become fully hardened and able to withstand temperatures well below zero, up to -25°F. Pruning can assist in de-hardening. If we de-harden trees by pruning the result can be winter damage to the trees if the temperature suddenly drops 40-50 degrees to 10°F or colder.

What does this mean for us in New Jersey? I am cautioning growers to hold off on dormant pruning. We still have green grass growing that has not hardened off and gone dormant. *Until the grass goes dormant I would not prune any tree fruit. We will get winter!*

Recommendations:

1.) Wait to prune apples until the weather pattern seems to become a little more settled (winter arrives) and average (daytime high + nighttime low divided by 2) temperatures drop below freezing.

2.) Wait until the grass goes dormant to give you an indication that trees are hardened off.

3.) Watch the forecast for precipitous temperature drops (below zero) and DO NOT prune the week before.

4.) Prune Apples First- oldest trees, younger trees not until March. Followed by oldest pears, peaches plums, then the younger trees of each. For cytospora canker prevention it is best to prune peaches at bloom. Cherries are best pruned right after harvest only.

5.) I would rather you leave some older apples unpruned than prune now. If you MUST prune now – i.e., it becomes a risk-benefit kind of thing – start with larger trees (that you would not be afraid to lose.)

6.) Avoid making big cuts and heavy pruning until the trees are fully hardened off. This may be a good year to give the trees a light once-over, to be followed up by summer growing season pruning. (Jon feels we over-prune and reduce yields too much as a rule, anyway.) □

Apple Replant Disease

Dave Rosenberger, Ph.D., Professor of Plant Pathology, Cornell University's Hudson Valley Lab, NYAES

Reprinted from the AppleCrop List Sevr E-Mail Discussion Group. <http://www.virtualorchard.net/applecrop.html>

Technical Editor's Note- Many growers in Northern NJ have SARD (apple replant disease). It is an issue all over the world when apples are planted back to apples. Recently we had a good discussion on apple-crop. Dr. Rosenberger posted the following summary which I have reprinted in the Plant and Pest Advisory-WC.

I'm not an expert on replant disease, but I'm not certain that the world really has any experts on this subject because the causes and responses to treatments are so variable both among and within specific geographic locations. No one knows for certain what causes replant disease, but it seems likely that replant disease is a complex syndrome with "contributing factors" that vary with geography and soil type. All of the following have been identified as contributing factors at one time/place or another:

1. High nematode populations, especially *Pratylenchus penetrans*. Nematodes are more likely to be a contributing factor in sandy soils, and therefore may be more important on cherry than on apple.
2. Arsenic toxicity, as already mentioned in earlier posts, is a problem in the arid production regions of Northwestern US but has never (so far as I can recall) been identified as a problem in the Northeastern United States.
3. Herbicide residues: Dr. Ian Merwin at Cornell has shown that even very small residues from residual herbicides such as simazine can stunt new trees. Generally, I would suggest that growers planning to replant old orchards without fallowing the land for several years should stop all use of residual herbicides at least 2 years before they remove the orchard and put in new nursery stock.
4. Actinomycetes in growing in old orchard soil have been implicated as a potential component of replant disease, as have other "root nibbling" fungi.
5. Rhizosphere (root surface) bacteria that suppress growth of new trees may survive from old root systems and rapidly colonize newly planted trees.
6. Add anything else here that you might wish to target as a research project or list any organisms against which you wish to establish a personal vendetta :). Actually, there has been pretty conclusive research demonstrating that a living organism is involved in at least some cases of replant disease, but we just don't know which of the multitude of soil organisms is/are the culprit(s).

Suggestions for working around replant disease are as varied as the list of potential causes.

1. Fumigation is the most widely recommended "cure". However, it is not practical in many sites, especially if you have large rocks in your soils that will bounce the injectors out of the soil every few feet down the row. Also, getting the perfect soil conditions that will allow a good fumigation job is not as easy as it sounds. Too dry and the fumigant will come right back up through the air spaces in the soil before it can do the job. Too wet and the fumigant will not distribute evenly. Too shallow and the replant organism(s) may be surviving lower in the soil profile. Using methyl-bromide with poly tarping to keep the fumigant in place was almost foolproof if you could afford it, but methyl bromide is on its way out.
2. Fallowing land between planting has merit, but I believe that early work in Holland showed that effects could still be detected when orchard land was replanted after 8 to 10 years of alternate cropping. That may not apply to all geographic locations, but it suggests that fallowing alone may not be the complete answer.
3. Placing soil in the planting hole can work on a small scale, but probably not for 10-acre plantings at tree densities of 500 trees/A.
4. In acid soils, adding lime may help to reduce effects of replant disease. Getting pH adjusted prior to planting may alter the "balance of power" in soil microbial communities so that replant disease organisms cannot dominate. I suspect that adding organic matter can also help, but I'm not certain that I've seen studies where that has been documented because it is difficult to alter organic matter content without also altering fertility.
5. Getting newly planted trees watered immediately after planting and at regular intervals thereafter often promotes rapid establishment of trees. Again I have no evidence, but I've wondered if rapid growth during the first 3 months after transplanting allows trees to "outgrow" replant disease, perhaps by promoting colonization of growth-promoting soil bacteria instead of the growth-inhibiting organisms associated with replant disease. In eastern US where we traditionally depended on rain to do our watering, I suspect that we too often allowed newly planted trees to go into water stress during the critical period of root development immediately after planting. The soil may look and feel wet, but the very limited root surface areas of new transplants may mean that trees cannot access adequate water unless soils are close to field capacity for a while after transplanting. Observation would suggest that adding irrigation in late June for trees planted in April is of little value. Instead, I see now see successful growers applying irrigation within 24-

SEE REPLANT DISEASE ON PAGE 4

REPLANT DISEASE FROM PAGE 3

72 hr after planting and then supplementing rainfall regularly thereafter until trees have several feet of new growth.

6. At the Hudson Valley Lab (New York), we've found that replant disease can often be circumvented just by planting new trees in what were formerly row middles of the old planting. In my experience, this works even if the new trees are only about 2-ft off-set from the driplines of the trees that were removed. Where we've used this approach, we have not tilled the entire field. We simply ripped the new tree rows with a chisel plow (working in lime and fertilizer), and then rototilled the tree rows to get a good planting bed while leaving the rest of the land untilled except as needed to level old tree holes. I'm not certain if tilling (especially if one tilled crosswise to the old row direction) would distribute the replant problem into the former row middles and therefore reduce the effectiveness of this approach. One encounters difficulties, however, when the new planting involves a different row spacing than the old planting.

So to summarize this long message, the following are my "top 4" recommendations for avoiding apple replant disease in northeastern United States:

1. Do not use any residual herbicides for at least two years before planting new trees.
2. Fallow land (or grow other crops, but no herbicides!) for at least one year (2-3 years is better), OR offset rows in the new planting compared to the old planting.
3. Adjust soil pH at least six months before planting, and work lime down at least 12-16 inches if possible.
4. Water trees immediately after planting and keep watering them for several months after planting unless rains keep soil moisture near field capacity.

Those wanting more detailed info on extensive field trials related to apple replant disease in NY may want to check the following web site <http://www.nysaes.cornell.edu/hort/fq/spring01/FQSpring01.pdf>

and read the article titled as follows: "Developing An Integrated Program for Diagnosis and Control of Replant Problems In New York Apple Orchards", Ian A. Merwin, Rachel Byard, Terence L. Robinson, Stephen Carpenter, Stephen A. Hoying, Kevin A. Lungerman, and Michael Fargione.

Soil bioassays and fumigation were not particularly effective in New York.

Submitted by Win Cowgill, Agricultural Agent. □

Mid Atlantic Fruit & Vegetable Convention

Hershey Lodge & Convention Center
"The Family Farm –
Competing in the World Marketplace"
Wine Grape Session

- Pre register early by going to the web site at <http://gloucester.rce.rutgers.edu>. If you want to pay a higher fee you can register at the door. You can get more information about the Mid-Atlantic Fruit and Vegetable Convention by going to our web site listed or by calling Jerry Frecon at 856 307-6450 ext. 1 or e-mail gloucester@aesop.rutgers.edu.
- Directions and lodging information for the Hershey Lodge and Convention Center can be found at http://www.hersheypa.com/accommodations/hershey_lodge/
- We have had a few changes in our program as advertised previously. See the full program below.
- Grape berry moth continues to be a major problem in most Eastern vineyards. Damage from GRB leads to late season rot complexes and reduces yield and quality. Andy Muza has been implementing a GRB scouting program in Erie to help determine spray schedules. This is very valuable information for all types of grapes.
- Insecticides are the most toxic pesticides used in vineyards so all growers should use them responsibly and safely. Every attempt should be made to use them minimally and the "softest" materials possible to get the job done. Doug Pfeiffer will talk about new materials and "softer" insecticide choices for use in vineyards. He also has information about JB's and GRB.
- One of the greatest strengths of our wine community is that we are comprised almost wholly of family owned and operated businesses. It has been amazing to see the younger generation come back to the farm in recent years. The plenary session is about family businesses, something that applies to all of the wineries in Pennsylvania and most around the region.
- Most of our small vineyards use backpack sprayers. Dr. John Grande will cover the many choices and a proper way to use and calibrate this essential equipment.
- Birds are getting smarter and appearing in greater numbers each year. On Long Island they have become a major late season pest. Why work your buns off for nine months only to lose the crop at the last moment before harvest? They also cause lots of secondary damage like bunch rots. Alice Wise and Libby Tarleton have results from the first year of an extensive bird netting trial to share.

SEE WINE GRAPE SESSION ON PAGE 5

WINE GRAPE SESSION FROM PAGE 4

- Japanese Beetles were killer in vineyards in 2006. Every year for the past three it seems their season extends for another week. JB's were seen crawling in October. We didn't have such a bad yellow jacket year this year but they can cause serious damage to fruit and hand harvesters. Dr. Peter Shearer will offer control strategies for both of these pests.
- According to Marty Keen, weak and sporadic shoot growth on old Chambourcin and Vidal vines was caused by Grape Root Borer. He didn't stand around and watch his vines wither. Instead, he got smart, using NE SARE grant funds to study GRB and used the results to bring the vines back into good health and production. Marty may know more about GRB than anyone in the U.S. right now. He'll talk about his control methods that he has learned during the past five years.
- We use pesticide in vineyards and we need to protect ourselves. This seems like common sense and easy but so few growers give it the consideration it deserves. Ray Samulis will talk about the do's and don'ts of protecting during pesticide application.

**TUESDAY morning, January 30, 2007 (Empire Room CD)
WINEGRAPE SESSION**

Moderator: TBA

- 8:00 Registration with the New Jersey State Horticultural Society
- 9:00 *Grape Berry Moth - Andrew Muza and Micheal Saunders, Penn State Cooperative Extension
- 9:45 *Organic Insect Control – IPM(soft) Insect Control Programs for Grapes – Dr Doug Pfeiffer, Virginia Tech
- 10:30 Move to Aztec & Nigerian Rooms
- 10:45 Legislative Affairs update for the Mid Atlantic Region – Gary Swan, Pennsylvania Farm Bureau

12:00-1:30 Lunch - Great Lobby and Confection Lobby
Visit Exhibitors

KEYNOTE PRESENTATION

- 1:00 Family Relationships in the Family Business and Bringing the Next Generation.
Dr. Ann Dugan, Director of the Katz School of Business, University of Pittsburgh

**Tuesday Afternoon, January 30, 2007 Empire Room CD
WINEGRAPE SESSION**

Moderator – TBA

- 1:15 * Backpack Sprayer Technology, Dr John Grande, Rutgers Snyder Research and Extension Farm
- 1:45 Controlling Birds in Vineyards: New Netting Technologies Libby Tarleton, Cornell Cooperative Extension
- 2:30 *Japanese Beetle and Yellow Jacket Control – Dr. Peter Shearer, Rutgers Cooperative Extension
- 2:50 Industry Show and Tell
- 3:00 *Grape Root Borer Control – Martin Keen, Landey Vineyards
- 3:15 *Protecting Yourself from Pesticide Application – Ray Samulis, Rutgers Cooperative Extension
- 4:00 Adjourn
- 4:15 Board of Directors of New Jersey State Horticultural Society – John Hauser, Presiding
- 6:00 Fruit & Vegetable Grower Reception – Chocolate Lobby
- 7:00 Annual Fruit & Vegetable Growers Dinner Aztec & Nigerian Rooms – Buffet, Recognition, Awards, (Tickets must be purchased)

* NJ PESTICIDE APPLICATION UNITS WILL BE GIVEN AT THE CONCLUSION OF ALL TREE FRUIT, WINEGRAPE AND SMALL FRUIT SESSIONS. Core 2 units
Category 1A, PP2 3 units, 10 2 units

See registration form for cost information. ☐

Calendar of Events

January 31, February 1,2, 2007 - Mid Atlantic Fruit and Vegetable Convention and Trade Show. Tree Fruit, Small Fruit, and Wine Grape Sessions. Hershey Lodge and Convention Center, Hershey, PA. Preregistration preferred. Contact Jerome L. Frecon 856 307-6450 Ext 1 gloucester@aesop.rutgers.edu <http://gloucester.rce.rutgers.edu>

February 24, 2007 - Grape Expectations – A Viticultural and Enological Symposium, Forsgate Country Club, Jamesburg, NJ. Contact: Dr. Gary C. Pavlis, Rutgers Fruit Research & Extension Center, 609-758-7311, X10, creamridge@aesop.rutgers.edu

February 27, 2007 - South Jersey Fruit Meeting and Trade Show, Gloucester County Office of Government Services – Auditorium, 1200 North Delsea Drive Clayton, N.J. Preregistration required. Contact Jerome L. Frecon 856 307-6450 Ext 1 gloucester@aesop.rutgers.edu <http://gloucester.rce.rutgers.edu>

Ag Innovations Research Part of South Jersey Fruit Meeting

Jerome L. Frecon, Agricultural Agent

Fruit production is very labor intensive. As mentioned at the Peach Marketing Summit II in December, labor costs can be up to 60% of the cost of producing and marketing a crop of fruit. With the increases in minimum wage at both the state and federal level these costs are going to continue to increase.

Also pointed out at the summit are our relatively low yields in New Jersey peach orchards. We need to have systems of intensive tree management to increase these yields without increasing labor costs.

I recently visited an in-depth Fruit School in Adams County Pennsylvania on Intensive Fruit Production – Planning for Automation. I was so impressed by their work on retrofitting automation in their retooled fruit plantings that I have invited Katty Lesser and Ben Wenk, two researchers from Penn State University Cooperative Extension to present some of their findings on improving labor efficiency by 40-60%. Much of their research is focusing on mechanical platforms to prune, thin and harvest peaches and nectarines. I will present an up-to-date review on intensive peach plantings. Ben and Katie will then present their research on agricultural innovations and automation.

We also hope to have Dr. Jim Shupp of Penn State present some of his research results on chemical thinning of peach and apples. Of course all of our specialists from Rutgers will bring you up to date on their research work and updates on new products for 2007.

Mark your calendar as we hope to have a great program for you at the Gloucester County Office of Government Services. The program and more details will follow. Call me at 856 307-6450 Ext 1 for more information. □



Tim Werner with GVM, Inc. Pruning and Thinning Platform in Biglerville, PA.

What's the Plant & Pest Advisory worth to your operation?

Here's what readers have to say:

(responses from 2006 Plant & Pest Advisory Reader Survey)

"This advisory with weekly IPM scouting has saved us thousands of dollars."

"It often helps lick the problem on the onset, making a much more marketable product."

"IPM practices have reduced pesticide costs 20 – 25%."

"We use a lot more horticultural oils vs. higher costing insecticides."

"Saving of time spent researching pest and application needed or not."

"We're saving customer's plants from destruction thus saving them replacement costs and saving our reputation."

"Through suggested timing of insect and fungus monitoring we are able to better manage our nursery."

"Less spraying and timely spraying equals thousands of dollars saved."

"Knowing what varieties to use and what varieties to stay away from."

"Reduced usage by \$3000, Increased crop production \$8000, Reduced fertilizer input \$1000."

"By getting timely information I knew early what to look for. When it's easier and cheaper to control – this could add up to over \$100,000 in lower costs and crops saved."

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www.rcre.rutgers.edu/pubs/plantandpestadvisory.

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Rutgers' Cook College
18 College Farm Road
New Brunswick, N.J. 08901-8551



PLANT & PEST ADVISORY

FRUIT EDITION - CONTRIBUTORS

RCRE Specialists and Program Associate

George Hamilton, Ph.D., Pest Management
Norman Lalancette, Ph.D., Plant Pathology
Bradley A. Majek, Ph.D., Weed Science
Peter Oudemans, Ph.D., Small Fruit Plant Pathology
Cesar Rodriguez-Saona, Ph.D., Cranberry/Blueberry Entomology
Peter W. Shearer, Ph.D., Entomology
Daniel Ward, Ph.D., Pomology
Gail Lokaj, Program Associate in Pomology

NJAES/Cook College

Joseph Goffreda, Ph.D., Breeding

RCRE Agricultural Agents and Program Associates

Atlantic County, Gary C. Pavlis, Ph.D. (609-625-0056)
Gloucester County, Jerome L. Frecon (856-307-6450)
Hunterdon County, Winfred P. Cowgill, Jr. (908-788-1338)
Morris County, Peter J. Nitzsche (973-285-8300)
Passaic, Elaine F. Barbour, Agric. Assistant (973-305-5740)
Warren County, William H. Tietjen (908-475-6505)
Fruit IPM, Dean Polk (609-758-7311)
Atanas Atanassov, Ph.D., Program Associate (908-788-1338)
Gene Rizio, Program Associate (856-566-2900)
David Schmitt, Program Associate (856-307-6450)

Newsletter Production

Jack Rabin, Associate Director for Farm Services, NJAES
Cindy Rovins, Agricultural Communications Editor

For back issues, visit our web site at: www.rce.rutgers.edu/pubs/plantandpestadvisory.

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