

PLANT & PEST ADVISORY

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Early Peach Season Problems

Jerome L. Frecon, Agricultural Agent

We continued to have freezing temperatures the past 2 weeks which injured some fruit and reduced the crop. The injury seems to be confined to lower sites with less air movement. The frosts have been the typical radiation type frosts. Wind machines and overhead irrigation reduced the problem on some sites.

It will take a few weeks to assess the extent of the injury. Some small fruit will not grow and eventually drop if it hasn't already. Injured fruit have darkened pits (see photo). Fruit may continue to drop throughout the season. Some fruit may exhibit catfacing, gumming and other superficial blemishes.

Another problem is the presence of fruit doubles. Some varieties are more prone to produce doubles. Jerseyqueen and Cresthaven are two examples. Just as the heavy bud density was due to the drought, moisture stress is also the primary cause of doubles. During the time when flower buds are differentiated from leaf buds in late July and August, moisture stress causes the doubling or tripling to occur. We had moisture stress during and after harvest last August.

We have also seen quite a few blocks with gummosis on the trunks and scaffold branches. This gumming is associated with stress either due to drought or low temperature. We have difficulty relating it to low temperature, but temperature injury can occur more readily if trees are already stressed by drought or dehardened by warm temperatures.

Small spots or areas of oozing resin appeared on small scaffold branches on 4 and 5 year old trees. Injury of this type frequently occurs in the southeast by a fungal disease caused *Botryosphaeria dothidea* or "bot rot". This enters from other diseased wood and frequently infects stressed trees or pruning wounds. Oozing of gum is seen in early spring. Because of our mild winter we may see more of this disease. To date we have been unsuccessful in isolating this fungus so I have sent samples to the USDA Southeastern Fruit Station in Byron to see if it can be identified. Regardless of the identification, there are few good controls other than removing and burning the inoculum and keeping trees in a high state of vigor. Trees stressed by this disease or abiotic disorders like drought and winter injury are also more prone to Perennial cankers like *Leucostoma/Cystopora sp.* and subsequent infections of lesser and regular peach tree borers. □

Fruit IPM

Dean Polk, Fruit IPM Agent

Peach

✓ **Oriental Fruit Moth (OFM):** Trap captures are bottomed out in southern counties. This indicates that the first adult flight is over. Any grower using mating disruption for oriental fruit moth should have the pheromone dispensers applied as soon as possible this week. These growers should also remember that mating disruption dispensers placed at this time are for control of OFM generations 2, 3 and 4. The degree timed insecticide sprays were for the first generation, and require 2 complete sprays, or 4 middles of insecticides. Therefore, 4 alternate row middle applications (including petal fall) should have been applied by this week. The second of 2 full sprays was due in central counties on May 5-6. The second of 2 sprays is due in northern counties on about May 12. Mating disruption dispensers used for OFM should be placed in the trees by the end of next week or early the following week in northern counties.

✓ **Green Peach Aphid (GPA):** Several locations were seen where aphid populations increased since last week. In some cases this was about a week after an initial Provado application. Experience has shown that 1 alternate middle application (1 side) at 4 oz/A may not do a complete job of control, and that repeated applications at 1 week to 10 day intervals may reduce, but "move" the population from one side of the tree to the other. A complete spray application is best. If you are using 'one sided' sprays then 6 oz/A instead of 4 oz/A will work better.

✓ **Peach Scab:** It appears that overwintering scab lesions are fully expanded. These lesions will continue to serve as inoculum sources for scab infection over the next several weeks. Make sure to include materials that are effective for scab control, especially on young trees and/or blocks that have a history of scab problems. If you are electing to have a minimal spray program on blocks without marketable fruit, scab still needs to be controlled. If Bravo, Captan or Abound have already been applied since petal fall, then sulfur only (10 lb/A) can serve as a minimal program to reduce scab for next year's crop.

✓ **Tarnished Plant Bugs (TPB):** As clover and other legumes and broad leaf weeds start to grow, catfacing insects will become more active. The first TPB activity was seen this past week. Now that 1st generation OFM has been treated, and hopefully most of the green peach aphids, TPB will be the main insect pest target during the next couple of weeks, that is unless you have a clean turf ground cover. In that case there should be no insect pest targets over the next couple of weeks.

Apple

✓ **Fire Blight:** Strikes were seen on Monday in golden delicious trees. Additional infection periods are predicted for this week 5/7 through 5/10. Streptomycin or coppers should be applied within 24 hours of the predicted rain. If protective applications are missed, then make sure to apply within 24 hours after the infection period.

✓ **European Red Mite (ERM):** Mites are present, but at low levels. *Stethorus punctum*, the small black lady beetle mite predator, is present and suppressing mite populations.

Blueberry

✓ **Leafrollers and Other Worms:** Leafroller larvae are present in almost half of our samples. Scouting indicates that levels do not exceed .5 larvae per 100 blossom clusters, or about 50% below treatment level. In some cases, gypsy moth larvae are also mixed in, but do not exceed .1 larvae per 100 clusters.

✓ **Aphids:** Although rare, some aphids are present as single insects. Colonies have not yet started to build.

✓ **Thrips:** Thrips increased slightly during the past week, with 42% of samples showing low levels of thrips at 1 - 2 thrips per 100 blossom clusters. About 3% of samples showed levels up to 10-12 thrips per 100 clusters. On Monday sampling showed levels jumping to 25 to 30 thrips per 100 clusters in a couple of fields. If we are using a provisional threshold level of one thrip per cluster, then beating tray samples need to show close to 100 thrips per 100 clusters before spraying.

✓ **Mummy Berry:** Strikes were seen this past week in only 3 sites. Where present, the levels are low, at no more than .6 strikes per bush. □

Apple Thinning a Challenge in 2002

Win Cowgill, Agricultural Agent

This season's erratic weather continues to make apple thinning a challenge. Several days of 90°F plus temperatures in April shifted our bloom date at least two weeks earlier in Northern New Jersey. In Hunterdon County and north, early blooming cultivars like Gala and McIntosh bloomed in those 90-degree days and for the most part received adequate pollination. Then the temperatures dropped quickly for 2 1/2 weeks with temperatures rarely getting above 57°F until this past weekend. For us, middle and late blooming cultivars had long dragged out bloom periods with poor pollination weather, i.e. honey bees have very little activity below 57°F.

In addition, many growers had at least two frost or cold injury events with temperatures ranging in the twenties to low thirties. In some blocks direct cold injury occurred and king blooms were killed. In others cold and poor pollination has caused poor fruit set.

Assess Pollination and Fruit Set

Growers should assess fruit set block by block, cultivar by cultivar, in making thinning decisions. In most cases thinning must still be done to ensure good fruit size and return bloom.

Good record keeping from last season will assist in making decisions now. While visiting with a grower yesterday in Hunterdon County, we reviewed past thinning records and then walked the blocks. This grower had excellent records, recording the date of applications, the thinning windows and fruit size by cultivar, and most important - the results, how good a job was done. The only additional piece of information I would have liked to have seen was a record of how good return bloom was this spring. Not all thinning materials and timings assist with return bloom, some are better than others.

Why Use Plant Growth Regulator to Thin

Thinning apples for enhanced size and stimulation of return bloom is the most important cultural practice growers do. Thinning must work! Inadequate thinning will result in significant losses of crop value due to small fruit and the induction of bi-annual bearing in some cultivars. Chemical thinning stabilizes annual crop production and improves size, color and quality of fruit. Research has shown that fruit size is directly related to how early fruits are thinned. Thinning that reduces the clustering of fruit will improve fruit color and quality. Adequate chemical thinning will promote or guarantee return bloom, and promote consistent annual production of crops.

Cool weather can adversely impact the efficacy of our thinning materials. Most PGR materials are more active if a warming trend follows application. Many of our new cultivars are difficult to thin and require multiple applications to get the job done.

We must take advantage of every opportunity possible to thin fruit chemically because we cannot count on the weather during our thinning windows. We have encouraged growers to experiment with bloom thinning and certainly to begin thinning at petal fall on most cultivars in order to have later opportunities at the traditional timing of 8-10 MM and again at 15-20MM.

As an example of this I will use our NC140 Gala Block at the Rutgers Snyder Farm. This block of Galas has been traditionally hard to thin. Our Galas bloomed early in the 90°F days. We used 5ppm of NAA at bloom and came back at petal fall with 7.5ppm NAA plus 1 Quart of Sevin XLR per 10 gallons. Both of these failed to take off adequate bloom. Yesterday the kings were approaching 7MM on the two-year wood (remember on Galas our goal is to remove all flowers and fruit on one-year wood). We made another aggressive application of thinner today on these Galas with Sevin XLR and Ethrel. We added a non-ionic surfactant and 1/2 quart of oil per 100 gallons. I would consider this a very aggressive treatment, but based on 6 years of history of this block we know how it responds. There is no market for small Galas. We still will have the opportunity to come back one more time at 15-20MM if needed as a rescue-type treatment with Ethrel.

Climatic conditions cannot be controlled but can greatly affect the strength of fruit set and the effectiveness of chemical thinning materials. Dr. Rich Marini, VPI, reports that a combination of temperature, humidity, wind and elevation will all effect chemical activity. Thinners, when applied during poor drying conditions, will generally increase activity. Dew or light rain following treatment may re-suspend the chemical and cause additional uptake.

Cloudy conditions cause shading and reduce the carbohydrate levels in young fruits, causing poor fruit retention. Marini reports applying thinners just before, during, or just after a three-day cloudy period, especially when temperatures are above 65°F would likely increase the thinning response.

Michigan information indicates that thinning activity is related to temperature with more activity when materials are applied in a warming trend.

What does the above mean to you the grower? It means that good records and daily observation are essential when working with chemical thinners. Rates, materials and timing must be adjusted based on the season's current weather conditions.

SEE THINNING CHALLENGE ON PAGE 5

Chemical Thinning and Return Bloom on 'Fuji' Apple

Win Cowgill, Agricultural Agent

Fuji apple is one of the most widely planted new apple cultivars in New Jersey. It is estimated that by the year 2005 it will capture 10-11% of the world apple market. It is also notoriously hard to thin and has a tendency to be biennial. An article in the *Journal of American Pomological Society* by Dr. David Ferree, Ohio State University, summarized six years of thinning and return bloom experiments with Fuji apple. Ohio has very similar (humid) growing conditions to New Jersey.

A summary of results is as follows:

- Neither NAA nor NAD alone should be used. They did not adequately thin and they did increase the number of pygmy fruit on Fuji.
- Sevin or Accel alone will not generally thin adequately.
- The combination of Sevin and Accel at 10-12MM fruit size gave the most consistent thinning program.
- The combination of Sevin and Accel was also one of the most successful treatments in breaking the biennial tendency of Fuji.
- Multiple sprays of ethephon and scoring did increase return bloom.
- Endothall (Thinrite) shows promise as a bloom thinner for Fuji (note that a label for Thinrite on apple has been put off for several years and will not be available in the near future).

Ethephon can still be applied to assist with return bloom of Fuji and thin in the last thinning window if needed 15-25 MM. See the article "Techniques to Enhance Return Bloom" in the next issue of the Plant and Pest Advisory Fruit edition. □

Weather Conditions and Rainfastness of Thinners

Win Cowgill, Agricultural Agent

Dr. Duane Green, UMASS, in his fact sheet on apple thinning, says, "The effectiveness of chemical thinners is influenced by the weather in several ways. All chemical thinners, to be effective, must diffuse across the cuticle, which covers all aerial portions of the plant, including leaves, flowers, and young fruit. Waxes on the cuticle provide a major barrier to penetration. When the weather is cold and cloudy, little wax is secreted on the leaf surface, thus permitting greater penetration of the chemical. Conversely, when the weather is sunny and dry, wax is secreted and deposited at an accelerated rate, thus restricting penetration of thinning chemicals. Therefore, chemical thinners generally are less effective after warm, dry periods and more effective after moist periods. Regardless of the mode of action of each thinning chemical, all require some type of stress."

How quickly is the thinning chemical absorbed? We have always made the recommendation that thinners be applied in the evening in order to have slow drying conditions. It is during drying that the chemical is absorbed. Green reports "NAA penetration is linear as long as the droplet does not dry. During the drying process, NAA penetration accelerates. Little absorption occurs after droplet drying. My rule of thumb is that you can expect an 80% response if drying occurs. With NAA that is probably conservative. I did an experiment a number of years ago where NAA was washed off leaves immediately following droplet drying (about 10 minutes). A near 100% response was observed."

The question of how rainfast or how much drying time do I need following an application of Sevin and NAA prompted this discussion. A grower received 1/2 inch of rain 3 hours after an evening application at 8-12MM stage on multiple cultivars.

Dr. Ross Byers, VPI, indicated, "The major absorption of NAA and Sevin is during drying. Once dried they both may be rewetted and absorption may occur again. NAA is destroyed by light over time and after 2-4 days what is on the surface may not be important. Sevin is not destroyed by light. It could last a week on the surface without entry unless re-wetted."

If Sevin is rewetted by rainfall it is then reactivated, and more thinning can occur. Heavy dews can also reactivate Sevin. Mark Longstroth, MSU, reported a year ago on the Apple-Crop E-mail list that after a 1/2 inch of rain, more than one half of the Sevin should still remain on the leaf.

Dr. Byers also indicated the following observation, "even if it rained and the tractor driver quit - right where he quit it should have about the same effect as if it had dried, in our experience. As long as it is not a drenching rain. Most of the absorption is on the underside of the leaf. Usually a rain is on the topside."

If you have additional questions on late chemical thinning of apples contact your area fruit agent for specific recommendations. □

Calendar of Events

May 8, 2002, Wednesday – Twilight Fruit Meeting - 6:30 p.m. - Mt Pleasant Orchards/Summit City Farms off of Ellis Mill Road in Elk Township. Contact: Jerry Frecon, RCE of Gloucester County at 856 307-6450.

May 30, 2002, Thursday – Blueberry Twilight Meeting – 6:30 p.m. at Atlantic Blueberry Company, 7201 Weymouth Road, Hammonton, NJ

June 26, 2002, Wednesday – Twilight Tree Fruit Meeting - 5:00 p.m. at Rutgers Agriculture Research and Extension Center, Upper Deerfield, NJ.

July 25, 26, 27, 28, 2002, Thursday-Sunday– Gloucester County Peach Festival and 4-H Fair will be held at the 4-H Fairgrounds, Rte 77, Mullica Hill, NJ.

Important Grape Meetings

May 29, 2002 -Twilight Wine Grape Meeting at 6:15 P.M. - Bellview Vineyard, 150 Atlantic Avenue, Landisville, N.J. Focus of meeting will be on disease, nutritional, weed, and insect management of grapes in southern New Jersey. Will also hold discussions and demonstrations on composting, low water use irrigation, and designated agricultural viticultural areas. Directions are available at <http://www.bellviewwinery.com/> and details and a program at <http://gloucester.rce.rutgers.edu/>. Contact: Jerome L. Frecon at Rutgers Cooperative Extension of Gloucester County at (856) 307-6450.

June 11, 2002 - New Grower Workshop: Farm and Home Center, Lancaster, PA. An intensive one-day session covering economics, vineyard development, rootstocks, varieties, equipment and much more. Taught by Dr. Joe Fiola (Univ. MD Coop. Ext.), Dr. Tony Wolf (VA Tech U) and Mark Chien (Penn State). Information and registration can be obtained at http://winegrape.cas.psu.edu/calendar/calendar_pa.html.

July 10-12, 2002 - Eastern Section American Society for Enology and Viticulture (ASEV) 2002 Conference, Baltimore, MD. Conference focus: Red wine varieties for the east: Merlot, Cabernet Franc, Syrah, and Chambourcin - viticultural and enological aspects of four red varieties that have become the backbone of the East. Featuring presentations by international experts and commercial and academic specialists from the US; and tasting of representative wines. The conference will be held at the Sheraton Baltimore North, 903 Dulaney Valley Road, Towson, MD. Reservations: (410) 321-7400 or visit the hotel website at <http://www.sheraton.com/baltimore>. For conference registration and information visit the ASEV Eastern Section website at <http://www.nysaes.cornell.edu/fst/asev> or contact: Ellen Harkness, 1160 Food Science Building, Purdue University, West Lafayette, IN 47907, ph: (765) 494-6704. E-mail: harkness@foodsci.purdue.edu.

THINNING CHALLENGE FROM PAGE 3

Early Fruit Set Window (8mm up to 12mm)

This is the traditional time for chemically thinning apples. All labeled thinning materials are effective at this time including NAA, NAD, ACCELL, Vydate, Sevin, and Ethephon. Slightly higher rates are needed on some materials; combination treatments have generally been more effective than single materials.

Late Fruit Set Window (15-20MM)

Both grower and research experience has shown that on most cultivars Ethrel or Ethephon 2 is our best choice at this late date. We would consider this timing a rescue treatment, meaning earlier applications have not worked or weather conditions have prevented application or limited effectiveness of the materials.

Closing Window (20MM+)

During this time of thinning the receptivity and response to thinners is declining. Ethephon 2 or Ethrel have been effective on some varieties at this timing.

Two companies manufacture Ethephon, Aventis has Ethrel brand Ethephon, and Microflow supplies Ethephon 2. □

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