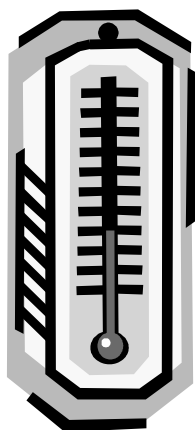


# PLANT & PEST ADVISORY

FRUIT EDITION \$1.50

MAY 4, 2004



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## Issues and Innovations in Temperature Control

*Louis Cooperhouse, Director, NJAES Food Innovation Research & Extension Center, Rutgers University*

Temperature is the most important and most obvious criterion for maximizing the shelf life of fresh-cut produce products, and all refrigerated value-added prepared foods for that matter, yet it is frequently misunderstood and overlooked. The temperatures encountered at each link of the chain have a direct bearing on the shelf life, quality, and potential safety of fresh-cut products.

### The Cold Chain: From Field to Fork

The cold chain for fresh cut produce truly begins in the field, and does not conclude until the product has been consumed. The importance and dramatic benefits of utilizing rapid cooling techniques immediately after harvest to retard microbial growth and enzymatic activity have been well documented. These include hydrocooling, in which product is sprayed with water that should be chilled and may be chlorinated, and vacuum cooling, in which air is evacuated from an enclosed area to remove moisture and heat. Other techniques include forced-air cooling, in which refrigerated air is moved rapidly over fruits and vegetables, and package icing, where an ice slurry is placed into vegetable containers. Following this first link in the chain, product temperature must be maintained in raw product storage, in the trim/core and washing operation, during packaging, in finished product storage, and during the many points that occur during distribution.

It is generally accepted that the temperature of the water used for hydrocooling is the same as the recommended storage temperature for the produce being cooled. Lower water temperature will result in faster cooling, however, this may result in chilling stress and visual damage.

### Temperature Abuse in Distribution

Distribution, including practices that occur at retail, has frequently been regarded as the "Achilles heel" in cold chain management, and has been attributed by many to be a major impediment limiting the potential growth of the fresh-cut category. Despite the standards and information provided by federal, state, and county agencies, minimal education initiatives are in place and various surveys have shown that temperatures of foods in U.S. chilled food distribution channels are frequently in the range of 45°F–55°F. This is simply unacceptable.

*SEE TEMPERATURE CONTROL ON PAGE 2*

### TEMPERATURE CONTROL FROM PAGE 1

Temperature abuse can, and does, occur too frequently during distribution and during the retail sale of fresh-cut produce products. Truckloads of perishable items are occasionally shipped above 50°F because of ignorance, negligence, or mechanical breakdowns en route. Abuse can also occur at the loading docks of the processor, during transportation to a regional distribution center, at the loading dock of a regional distribution center, in the cooler of the regional distribution center or warehouse, during transportation in refrigerated trucks to the retailer or foodservice operator, at the loading dock of the individual retail store or foodservice operator, etc. It is also becoming increasingly difficult to schedule supermarket delivery times, and as a result trucks may shut off their refrigeration units during the period prior to offloading. In addition, pallets of perishable goods occasionally may sit on the receiving floor of a supermarket for up to several hours during a mid-summer day until they have been properly placed into refrigerated storage.

### Temperature Abuse at Store Level

Although a great deal of temperature abuse can occur at many points during distribution *prior* to the placement of product in the store's retail case, a significant amount of abuse occurs *after* product has been displayed for sale. Many fresh-cut products spend a great deal of their shelf life sitting in a display case at retail. The design and functionality of the retail case itself has a major impact on product shelf life. Most supermarkets and grocery stores have trouble keeping their produce cabinets below 45°F, and studies have shown that the refrigerated cabinets in the produce section of the store maintain some of the warmest temperatures in the entire supermarket...even though products sold there are among the most susceptible to spoilage.

By design, most retail cabinets, especially open cabinets, were developed for the merchandising of fast turnover products, not the effective long-term storage of products. Built into most systems are defrost cycles, lights, ballast, etc. that impair their effectiveness, and air curtains that are easily disturbed during normal operation. Proper circulation of cooling air is essential if temperature control is to be maintained. Unfortunately, overstocking, promotional materials, etc. often impair this circulation. In addition to light-induced temperature changes that can occur, placement of products near lights and ballast can increase product temperature by as much as 10°F. Products located at the bottom of horizontal display cases or the back of vertical display cases are generally the coldest products in the case. This is due to the circulation of colder air, greater distance from store ambient temperatures, and the near absence of radiant heat from lights.

Standard equipment in most refrigerated display cabinets is the display case thermometer, a potential source of both information and deception. These ther-

момeters, usually required by local or state laws, have sensing elements that are frequently situated directly in front of incoming blower air and are therefore, even if calibrated, more indicative of the blower temperature than the actual product temperature. Studies have shown that the average actual temperature of refrigerated product can be as much as 10 degrees warmer than the temperature indicated on a thermometer next to the blower. Similarly, defrost cycles in a refrigerated case have been shown to result in a short-term spike in which product internal temperature briefly reaches 60°F, and this may happen twice a day every day.

### Temperature Abuse at Home

Temperature abuse certainly also occurs during the trip from the supermarket to the home, due to outside temperatures and/or lengthened times until products are properly stored. In addition, the home refrigerator is frequently a location for temperature abuse. An Audits International Home Food Safety Study found that lack of education and lack of motivation were typical reasons why refrigerator temperatures are set too high in many homes. Many consumers simply *do not know* at what temperature a refrigerator should hold product. In addition, many refrigerators are set too warm simply because many refrigerators lack a thermometer.

### What Can We Do Now?

Temperature recording devices are valuable tools, and should be incorporated in each stage of the cold chain as part of an overall HACCP plan. Many such indicators exist. New systems are now available for distribution that utilize wireless sensors and sophisticated web-based tracking capabilities, and provide a quicker ability for monitoring and alerting should a problem occur.

Other options now available include "Intelligent packaging" systems, which consist of sensors that provide information about the product to the consumer, foodservice operator, or other user. The most widely known intelligent packaging system is the time temperature indicator (TTI's). These indicators track the relationship between time and temperature and their impact on spoilage or some other end-point to product acceptability. They must be individually developed for specific products. The degree of color change will reflect any temperature abuse encountered, integrating time and temperature in an exponential, irreversible relationship.

For any further questions, or to find out additional information about grants for feasibility studies and working capital that are available from USDA Rural Development, please contact the office of the Food Innovation Research and Extension Center at 856-459-1125, or email Lou Cooperhouse at Cooperhouse@aesop.rutgers.edu or Julie Elmer, Food Technology Specialist at Elmer@aesop.rutgers.edu. □

# The New Jersey Farm to School Initiative

Claire Homitzky, Community Food Projects  
Director, New Jersey Urban Ecology Program,  
Rutgers University

In September 2000 the New Jersey Urban Ecology Program (NJUEP) at Rutgers University, as well as several other partners throughout the country, received a grant from the United States Department of Agriculture's Initiative for Future Agriculture and Food Systems (IFAFS) to participate in a project called *From Farm to School: Improving School Meals and Small Farm Viability* (the "Farm to School Project").

The primary goals of the Farm to School Project are to increase access to fresh, locally grown fruits and vegetables in school lunch programs and to improve small farm viability through increased access to institutional markets. We believe such an effort can help provide the highest quality produce (that is, with the greatest freshness, taste, nutrition, and safety) to school children, support New Jersey's agricultural landscapes and livelihoods, and contribute to local economic development.

A key element of this project is the formation of links between New Jersey's farmers and school food service personnel. One type of link is a direct market relationship between a local farmer and one or more schools. While the requirements for participation in this kind of relationship are high on both the supply and demand sides, it is a model upon which many successful farm-to-cafeteria projects have been predicated. Farmers can also be linked to schools through produce distributors that supply locally grown produce to schools when it's seasonally available. Finally, farmers can be linked to schools through state-run food distribution programs.

Most of our work in New Jersey has promoted this last strategy through participation in the Department of Defense (DOD) Fresh Fruit and Vegetable Program. Several years ago, a partnership was forged between the USDA and the DOD that permits the latter to procure fresh fruits and vegetables for several kinds of institutions, including schools participating in the National School Lunch Program. At the state level, this partnership is coordinated by the New Jersey Department of Agriculture's Division of Food and Nutrition. In concert with a produce buyer located at the Defense Supply Center in Philadelphia, the Division annually procures *several hundred thousand pounds of locally grown fruits and vegetables* for schools throughout the state of New Jersey. These products are purchased from a combination of sources, including the Philadelphia Regional Produce Market, New Jersey food processors and *directly from New Jersey fruit and vegetable growers*.

Well-organized grower cooperatives that have the capacity to meet the demands of an institutional market are also needed to participate in the DOD Fresh Program. Those that can develop value-added products such as juices and ciders, fruit cups, and minimally-processed, single-serving sized packaged foods such as sliced apples and baby carrots would be particularly well-positioned to access this market. These products reflect the trend in school food service and the food industry as a whole towards convenience foods. They also increase shelf-stability, a critical issue in a state where the harvest season and the academic year barely coincide.

While the primary focus of the Farm to School Project is on K-12 schools, we have also been working with institutions of higher education. In particular, we have forged a partnership with the Division of Dining Services at Rutgers University that is extremely promising. This division commands an impressive budget for food purchases. Leveraging just a portion of that buying power for local producers could have a significant impact on the viability of agricultural operations throughout the state.

Soon, funding for this project will expire. It's time to parlay the experience we've gained and the momentum we've created to institutionalize this initiative. Fortunately, the time is right. Both locally and nationally, there is ever-increasing awareness of and attention to the issues of obesity and diet-related diseases in school-aged youth. This, coupled with dedicated leadership in the New Jersey Department of Agriculture, has created a climate that encourages efforts of this kind. NJUEP is currently seeking farmers, agricultural professionals, food service personnel, students, parents, school teachers, administrators and other interested stakeholders to participate in the New Jersey Farm to School Working Group. The purpose of this group is to consider multiple strategies to overcome the challenges and recognize the opportunities we encounter as we strive to achieve the Project's goals. We welcome your contribution to this important effort.

To learn more about the project contact Claire Homitzky, Community Food Projects Director, the New Jersey Urban Ecology Program, Rutgers University at (732) 932-1688 or homitzky@aesop.rutgers.edu. Your comments and suggestions regarding this project are also welcome and will be gratefully received.

NJUEP works to foster the health of people and landscapes and the diverse economies that nurture them using food- and agriculture-based community development strategies. □

## Marketing Matters

Rick VanVranken, Atlantic  
County Agricultural Agent

Making your product stand out from the crowd often takes some creative artwork to develop a package design and logo that depicts you, your business and/or your product. Logos should be colorful, eye-catching and unique; so unique others might be tempted to copy or use your logo on their product.

Protecting the reputation of your business from misuse of your logo is important, and it could be financially significant to the success or failure of your operation. Logos and other creative works, as well as new products, can be protected under United States trademark, copyright or patent law. Copyrights have been called the 'poor man's patent' because obtaining a copyright is a much less expensive process. However, business logos will afford much greater protection under trademark law. To learn more about obtaining a trademark, copyright or patent, visit the US Patent and Trademark website and look at the page titled 'Basic Facts About Trademarks' at:  
<http://www.uspto.gov/web/offices/tac/doc/basic/>. □

## 2nd North Jersey Twilight Fruit & Marketing Meeting

Thursday, May 20, 2004

6-8:30 pm

Wightman Farms

1111 Mt. Kemble Ave.

Morristown, NJ

Pesticide Credits will be awarded. Contact Win Cowgill at RCE of Hunterdon County at 908-788-1339 or Bill Tietjen at RCE of Warren County at 908-475-6505. □

## Stinger Labeled for Stone Fruits

Bradley A. Majek, Ph.D., Specialist in Weed Science

Stinger has been labeled for weed control in stone fruit orchards, including peaches, nectarines, apricots, plums, and cherries. The weeds controlled fall into two botanical plant families, composites and legumes. Common composite weeds found in our orchards include **Canada thistle** and other **thistles**, **goldenrod** species, **aster** species, **common dandelion**, **mugwort** (wild chrysanthemum), **horseweed** (marestail or stickweed), and **ragweed** species. Legume weeds include **vetch** species and **clover** species.

The maximum labeled rate of Stinger is two-thirds of a pint per acre (0.125 to 0.25 lb ai/A) per year, but the rate needed varies, depending on the target species. Tank-mixing with one to two pints per acre 2,4-D will improve control and increase the species of weeds controlled. Two fluid ounces per acre (0.047 lb ai/A) will control seedling annual weeds such as **common ragweed**, **annual vetch**, and **galinsoga**. Three to four fluid ounces per acre (0.070 to 0.094 lb ai/A) are needed to control perennial **clover** species. Most other susceptible perennial weeds require the full rate of two-thirds of a pint per acre (0.25 lb ai/A).

Optimum results controlling deep rooted and hard to control perennial weeds, including **Canada thistle**, **perennial asters**, **goldenrod** species, and **mugwort** (wild chrysanthemum) will be obtained if the Stinger application is split. Apply one third of a pint per acre Stinger in late April or early May when the weeds emerge in the spring. Tank-mix with one to two pints of 2,4-D to increase the spectrum of weeds controlled and kill existing foliage of **perennial asters**, **goldenrod** species and **mugwort**. Some weeds, especially mugwort, can "survive" for months on established existing foliage even though Stinger suppresses all new growth. Be sure to spray adjacent sod row middles as well as the weed free strip under the trees. Mark the treated rows.

The application of Stinger timed to match the emergence of the perennial weed in the spring coincides with the time of year when the carbohydrate food reserves in the plant are at the lowest point. Treatment at this time reduces the weed's chance of recovery and survival.

Apply another one-third pint of Stinger to the marked rows, or sections of rows, about sixty to ninety days after the first application. No growth of the target weed should be observed at the time of the second application. Spray the second application even though no growth of the target weed is evident. The second application is essential to the elimination of the hard to kill established perennial weeds. If the second application is skipped, expect to see the weed re-emerge in late August or September. Time both applications to maintain a 30-day PHI (PreHarvest Interval).

Stinger is both a postemergence foliar absorbed herbicide and a residual herbicide. The initial twisting and curling observed after application to susceptible species is due to the foliar absorption. Control of established perennials is due to residual Stinger in the soil, which prevents regrowth from the roots. In certain species such as **mugwort**, Stinger prevents regrowth but does not kill the mature leaves. The plant will survive unless another herbicide such as 2,4-D is used to defoliate the plant.

Do **NOT** apply Stinger in a hand held sprayer used to "spray until wet". Stinger is a residual herbicide that must be applied on a rate per acre basis. When treating "patches" of perennial weeds, apply the recommended rate per acre with a calibrated sprayer. Treat ten to fifteen feet beyond the weed "patch" on all sides. Spray the sod adjacent to the weed "patch" in the tree row. □

# MaxCel™, New Apple Thinner Labeled in NJ

Win Cowgill, Agricultural Agent

The apple thinner MaxCel has received a national label for use and New Jersey approval as well. MaxCel is the new thinner from Valent BioSciences with the active ingredient 6BA. The active ingredient 6-benzyladenine is a potent plant growth regulator belonging to the group of regulators known as cytokinins.

6BA has been thoroughly studied since the mid 1980's by fruit scientists around the world. Valent's 6BA product was first released as Accel. MaxCel™ is the second generation of 6BA thinner to be released from Valent and is able to be used at much higher concentrations.

Last year in New Jersey we used MaxCel™ in 5 orchards all over the state under an experimental use permit. The blocks treated have enhanced return bloom this spring.

Our New Jersey experience is that MaxCel™ works best when applied between 8-15 MM at 70°F during a warming trend for the 3 days following application. The rate varies depending on the cultivar but somewhere between 100-150PPM is about right for most cultivars. MaxCel can be used in combination with Sevin for difficult to thin varieties like Fuji.

Contact me for specific recommendations. Refer to the label for additional specific cultivar recommendations.

## General Use Instructions

- Apply in the morning or evening when conditions are best for slow drying (cooler temperatures and higher humidity), in order to ensure adequate absorption of the product. If applied in the morning, assure that the leaves are not too wet from dew.
- To minimize foaming of spray solution, reduce agitation and add the product to the tank after filling to 1/2 capacity with water.
- Product performs best at water pH between 5 and 7; do not exceed pH of 8.5.
- No surfactant is required.
- Apply in a sufficient amount of water to ensure thorough coverage without excessive run-off. Use calibrated spray equipment to ensure uniform coverage of leaves and fruit. Adjust water volumes based on tree size and spacing. In many cases, spray volumes of approximately 100 gallons per acre have been shown to be adequate.
- For apples, do not exceed a total of 308 fluid ounces (182 grams of 6BA) per acre per season for all uses.

## Additional Instructions

- Direct 80% of the spray into the upper 2/3rds of the tree canopy.
- Applications will be most effective when the maximum temperature is above 65°F on the day of application, and the following 2-3 days.
- Use higher rates in orchards that have a history of being difficult to thin, in varieties known to be difficult to thin, and in cool weather situations.
- Do not exceed a total of 308 fluid ounces (182 grams of 6BA) per acre per season for all uses.
- Do not apply within 86 days of harvest.

**NOTE:** Generally, only one application is sufficient for fruit thinning. If a second application is desired to obtain additional thinning:

1. Allow 7-10 days to observe the effect of the first application.
2. Spray the second application before the average diameter of king fruitlets exceeds 20 mm diameter. □

# Strawberry Update

Pete Probasco, Agricultural Agent

Handlers are blooming now and need to be sprayed for **gray mold**. The vegetable recommendation book has a list of fungicides to use, but a new one, CaptEstate is out now that combines Captan and Elevate. Spray every 10 days unless the rains increase and then spray every 5 days. Plugs that were produced outside in a screenhouse did better than plugs from the greenhouse this year. They get more air ventilation and stayed dryer with less **Phytophthora** disease. The mix also plays a part in this disease and should be at least 50% vermiculite for better drainage. This disease is not the same species that attacks peppers and squash. □

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## Calendar of Events

**June 3, 2004, 6:00 p.m. -** Wine Grape Twilight Meeting, Heritage Vineyards of Richwood, 480 Mullica Hill Road, Richwood, NJ. Contact: Jerry Frecon at Rutgers Cooperative Extension of Gloucester County at 856 307 6450 Ext 1.

**June 30, 2004, 5:00 p.m. -** Fruit Research Twilight Meeting, Rutgers Agricultural Research and Extension Center, 121 Northville Rd., Bridgeton, NJ. Contact: Jerry Frecon at Rutgers Cooperative Extension of Gloucester County at 856 307-6450 Ext 1.

# Fruit IPM

Dean Polk, Fruit IPM Agent

## Peach

Most of the following pertains to shuck split to shuck off timing in southern counties.

✓ **Oriental Fruit Moth (OFM):** A biofix point was just seen in Hunterdon County, making the moth flight in that area of the state about 11 days behind Gloucester and Cumberland Counties. The 1<sup>st</sup> generation spray dates for the southern, central, and northern counties are as follows:

County / Region	1 <sup>st</sup> Spray Date	2 <sup>nd</sup> Spray Date
Gloucester – Southern	4/28-29	5/9-10
Monmouth – Central	4/29-30	5/9-11
Hunterdon - Northern	5/10	5/19-21

✓ **Green Peach Aphids (GPA):** Aphids are starting to appear. At this time of year, growers should not tolerate more than 2 colonies per tree on peach or 1 colony per tree on nectarines. While this is a very conservative estimate for peaches, aphid populations should definitely not be tolerated on nectarines, since they will directly damage and deform the fruit. Lannate, Thiodan, and Provado/Actara (neonicotines) are labeled for control, with Provado and Actara giving the best (and most expensive) control. Keep in mind that of all the spray targets at this time of the season, Provado only controls aphids and tarnished plant bug, and suppresses stink bugs and plum curculio. Actara will control plum curculio, tarnished plant bug, and stink bugs (at a higher rate of 4.5 to 5.5 oz/A as opposed to 3-4 oz/A for aphids). Neither of these two products will control OFM. The OP's, Lannate, and the pyrethroids will control OFM. In order to minimize costs, growers may wish to delay aphid treatments if possible, use a pyrethroid only, or if needed, use a pyrethroid plus a low rate of a neonicotine compound.

✓ **Tarnished Plant Bugs and Stink Bugs (TPB and SB):** This is the time of the season when treatments are also targeted to these two pests. Growers who have experienced past problems have either had weedy ground covers and/or had plantings with considerable woods borders. Our early sampling has shown that the first stinkbugs seen were in border rows next to woody areas. Where hedgerows, weeds, and woods are near peach trees, growers should be particularly mindful of catfacing insect control.

✓ **Blossom Blight:** Brown rot blossom blight has been seen in a few locations. Infections have been very light. While sporulation may be difficult to see, an oozing blossom that sticks to the wood is a pretty sure sign of blossom blight. If blossom blight is present, then growers should maintain a Captan based program for the next several sprays, and not switch off to a sulfur only program. This practice would not have to apply if growers are including a material for rusty spot.

## Apple

✓ **European Red Mite (ERM):** Mite levels have increased slightly since last week. Some blocks have from .5 to 1 mite per leaf. By late May to early June we generally don't like to see more than 2 motile forms per leaf. Cornell suggests a limit of 2.5 motile forms per leaf in New York during June.

The following is from Scaffolds Vol. 13 No.7 by Art Agnello: "If mites normally need attention in a given block, and you haven't elected (or been able to achieve) a delayed-dormant oil application as a part of your early season mite management program, you'll be needing to rely on either: one of the ovicidal acaricides (Apollo, Savey) available for use, whether before or after bloom; a rescue-type product (Nexter, Acramite, Kelthane, Carzol) that can reduce motile numbers later on if they should begin to lap at the threshold; or Agri-Mek, which falls somewhere between these two strategies. Like the true ovicides, Agri-Mek should also be considered a preventive spray, since it needs to be applied early (before there are very many motiles) to be most effective, generally within the first 2 weeks after petal fall. Also, as a reminder, Carzol is restricted to no later than petal fall, so it will probably be of limited use in most programs. For any of the rescue products, the operational threshold in June is an *average* of 2.5 motiles per leaf (see the chart on p. 69 of the Recommends)."

✓ **Plum Curculio (PC):** PC adults are active. Recent damage has been seen on pears, and activity has been seen in peaches and blueberries. This is a key insect target during at least the next 2 to 3 weeks. Any applications made on apples should include control for PC.

## Blueberry

✓ **Cranberry Weevil (CBW):** As flowers continue to open, levels of weevil decline. About 47% of our samples were positive for weevil, with the highest level at 6 weevils/bush. With both a decline in pest incidence, and advancing phenology, CBW should not be a threat for the remainder of the season.

✓ **Plum Curculio (PC):** One adult was seen among 60 tray samples. This pest is more likely to be seen at petal fall and slightly later since they seek to oviposit on recently set fruit. PC adults are active in all major fruit crops, but are usually a concern in blueberries only on early maturing varieties, especially if those plantings have significant woods borders. More on this next week.

✓ **Leafrollers /Worms:** Tray samples show about 30% of samples with low levels of worms. These are being seen more frequently but the average level when seen at all is about 1 or 2 worms per 1000 blossom clusters. We would need 5 times this amount in order to reach a threshold. One location was seen with 7 per 1000 clusters, which was unusually high. See last newsletter and production recommendations for treatment suggestions.

SEE IPM ON PAGE 7

**IPM FROM PAGE 6**

✓ **Thrips:** About 20% of our samples have been positive but levels are only being seen as high as 2/100 flower clusters. Leaf crinkle has been seen at several farms on Duke, and although thrips have been associated with this in the past, we have not been able to isolate any thrips from malformed leaves. At one location injured flowers were seen and were associated with leaf crinkle. If populations increase, then growers will more easily find thrips in the fields. If growers do suspect a thrips problem, the quickest way to diagnose a thrips population is to knock flower clusters on a small (8x10" boxtop) type of beating tray, and look for small yellowish insects that might be knocked from the cluster. If thrips are present, and flowers appear brownish, shriveled or injured, then Spintor may be justified. The following is from the Blueberry Bulletin, May 1, 2003 issue:

In blueberries, Spintor is primarily registered for the suppression of leafrollers, spanworms, cutworms, cranberry fruitworm, blueberry maggot, and thrips. This may be the only insecticide option if you want to manage thrips populations during bloom. The use rate is 4-6 fl oz per acre. Spintor 2SC is highly toxic to honeybees if bees are exposed directly to spray droplets or exposed to

treated surfaces within 3 hours following treatment. Do not apply this product to blooming, pollen-shedding or nectar-producing parts of plants if bees may forage on the plants within the 3 hour period following treatment. If applications of Spintor 2SC are desired during bloom, it is recommended that applications be made late in the evening when most honeybees and other pollinators are not foraging.

✓ **Mummy Berry:** As of April 30, very few shoot strikes had been seen. Searching for these can assist in the decision to spray for secondary infection, however flowers can only be protected before they have been pollinated. If you estimate that your crop is 75% pollinated then the most protection you can get out of a mummy berry treatment is 25%. Most growers who treat for mummy berry are targeting the primary phase which is now behind us.

✓ **Phomopsis:** Low levels have been seen at 3 locations. The highest levels were seen at a Weymouth block. Growers can spot this by looking for flagging of shoots where the flower bud has been attacked, and the infection is moving into the wood. The canker will choke off any growth above it.

### **Insect Trap Captures**

#### **South Jersey Tree Fruit for Week Ending**

Insect	AM	CM	LPTB	OFM	OFM-A	PTB	STLM	TABM-A	TABM-P
4/16				1					
4/23				39	6		167		
4/30		0		45	96		101	0	0

#### **Blueberry Insects - Burlington County - for Week Ending**

Insect	RBLR	OBLR
4/16		
4/23	40	
4/30	113.5	

#### **Blueberry Insects – Atlantic County - for Week Ending**

Insect	RBLR	OBLR
4/16		
4/23	95.2	
4/30	203.9	

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## PLANT & PEST ADVISORY FRUIT EDITION - CONTRIBUTORS

### Rutgers Cooperative Extension Specialists

Robert Belding, Ph.D., Pomology  
George Hamilton, Ph.D., Pest Management  
Norman Lalancette, Ph.D., Plant Pathology  
Sridhar Polavarapu, Ph.D., Entomology  
Peter W. Shearer, Ph.D., Entomology

### NJAES/Cook College

Joseph Goffreda, Ph.D., Breeding  
Rutgers Cooperative Extension 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)  
Warren County, William H. Tietjen (908-475-6505)  
Fruit IPM, Dean Polk (609-758-7311)

Meredith Compton, Program Associate (908-788-1338)

Gene Rizio, Program Associate (856-566-2900)

David Schmitt, Program Associate (856-307-6450)

### NJAES Sustainable Agriculture Coordinator

Olga Wickerhauser

### Newsletter Production

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

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Rutgers Cooperative Extension - NJAES  
U.S. DEPARTMENT OF AGRICULTURE  
Rutgers - The State University of New Jersey  
Plant & Pest Advisory  
18 College Farm Road  
Cook College  
New Brunswick, N.J. 08901-8551

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