

PLANT & PEST ADVISORY

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Cool and Cloudy Spring Reduces Growth of Peach Fruit, Delays Disease Development?

Norman Lalancette, Ph.D., Specialist in Tree Fruit Pathology

Air temperatures recorded at the Rutgers Agricultural Research and Extension Center in Bridgeton have averaged 1.5°F to 4.2°F below normal for the last two months. Daily mean temperatures were 50.5°F and 57.8°F for April and May while the 30-year average has been 52°F and 62°F for these two months, respectively. In contrast, last year's mean temperatures for these two months were 55.8°F and 62°F. Perhaps even more importantly, the amount of available solar radiation has been considerably less. The average daily solar radiation in May was 158 W/m², which was only 40% of the 264 W/m² recorded in May of 2002! A full day of sunshine, without any clouds, typically results in an average daily value greater than 300 W/m² for this time of year.

Lack of solar radiation and below normal temperatures has caused a considerable reduction in fruit growth. As can be seen in the graph, the rate of fruit growth this year from early shuck-off till the end of May has been considerably reduced relative to the amount of growth last season. As of the end of this May, Jerseyglo and Autumnnglo fruit were only 25% of their weight on the same date in 2002. The time of bloom this year was about 10 days later than last year, so a delay in growth would be expected. However, the cold, cloudy weather in May has certainly reduced the rate of fruit growth and development.

Peach fruit are susceptible to a number of important diseases during the period from early shuck-split through pit-hardening. A delay in fruit development, therefore, may indicate that the epidemics will also be delayed. Recent research in New Jersey has shown that this is the most critical time for development of **rusty spot** epidemics. For example, by May 31, 2002, the peach rusty spot epidemic was ending, with 89% of non-treated Autumnnglo fruit infected. This year, the epidemic just began on May 31, with less than 10% of the fruit infected. If pit-hardening occurs at its usual time (mid-June), then the epidemic will be shortened and disease development will be minimal. However, if pit-hardening is also delayed, then the epidemic that would have occurred in May will now be occurring in June. In this case, fungicide applications will need to be continued through June.

SEE FRUIT GROWTH ON PAGE 2

Caution with Captan

Dave Rosenberger, Ph.D., Specialist in Tree Fruit Plant Pathology, Cornell University, NYSAES

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

Fruit growers should be very cautious about using captan during the next 7–10 days because weather conditions over much of the state have left apples, peaches, plums, and cherries unusually susceptible to captan injury. Captan is an effective, broad-spectrum fungicide that is labeled for many fruit crops. However, when absorbed into plant tissue, captan causes phytotoxicity that appears as leaf spotting, shot-holing, and leaf yellowing. When combined with other products that enhance uptake into leaves, captan applied at this time of year can cause complete defoliation of peach and nectarine trees. To be safe, growers should avoid applying captan until trees have had several days of sunny, dry weather.

The risk of captan injury is greatest when the annual spring growth flush of fruit trees coincides with an extended period of cloudy, cool, damp weather. The growth flush on fruit trees begins when terminal shoots start growing during or shortly after bloom. The cuticle (the waxy layer on the leaf and fruit surfaces) develops in response to heat and water stress. During cloudy and damp weather, there is little danger from heat or water loss and trees therefore produce only a thin cuticle to protect the newly formed leaves and enlarging fruitlets.

Some varieties of plums and cherries almost always develop a leaf spot or shot-hole after captan is applied because, even under the best conditions, some captan enters and kills leaf cells of these varieties. For most other fruit crops, captan causes little or no injury except during unusual seasons when weather conditions inhibit cuticle development.

Even when plant tissue has only a thin cuticle, captan by itself will rarely cause phytotoxicity (except to those plum and cherry varieties that are especially susceptible to captan injury). Problems often arise, however, when captan is mixed with other agrichemical products. Spray adjuvants that enhance the transport of captan through the plant cuticle can greatly increase the phytotoxicity of captan, especially when the plant cuticle is thin at the time spray is applied. Adjuvants that enhance uptake of captan include spray oils, some spreader-stickers, and other petroleum-based carriers commonly found in products that are formulated as liquids or emulsifiable concentrates.

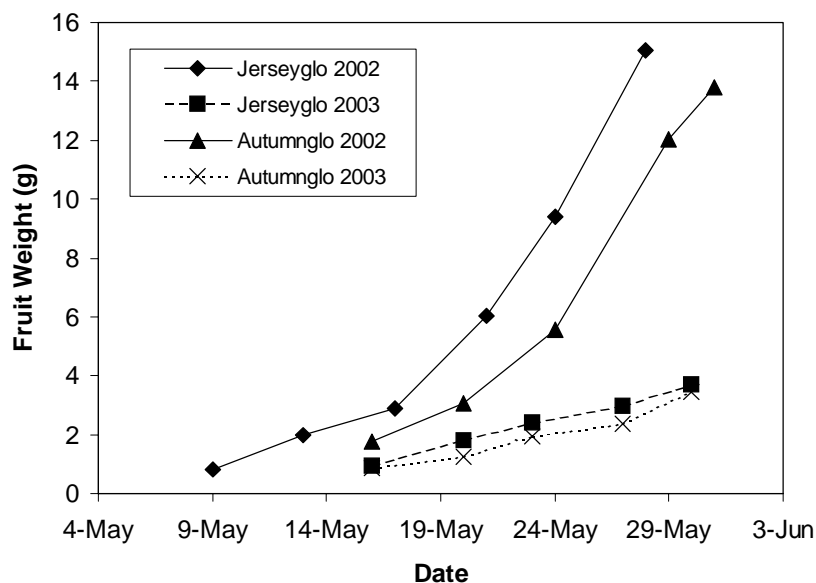
Where **apple scab** symptoms are appearing in orchards, the best option for stopping further spread of apple scab is to apply a combination of an SI fungicide along with the maximum label rate of captan. To avoid phytotoxicity problems, however, growers may need to use an SI-plus-mancozeb combination for the next week to avoid the potential phytotoxicity that could result if captan is applied at this time. This is especially true if Sevin XLR Plus will be applied for thinning or if spray oil will be applied with a miticide during the next week. Those who opt to apply captan despite the risks are advised not to use spray adjuvants that might enhance trans-cuticular movement of captan.

Submitted by win Cowgill, Agricultural Agent. □

FRUIT GROWTH FROM PAGE 1

Similar reasoning can be applied to **bacterial spot** and **brown rot** (latent) development. Young fruit prior to pit-hardening, are most susceptible to the pathogens that cause these diseases. A delay in fruit development may translate into a prolonged period of susceptibility. Typically, fungicide applied for **peach scab** also controls development of latent brown rot. However, growers will need to remain on guard for potential bacterial spot infection on fruit, not just leaves. Fortunately, this disease requires warm, moist, windy weather, which so far has been in short supply this spring; optimum growth of the pathogen occurs at 75°F to 84°F.

The take home message is to stay in tune with the development of the peach fruit. The fruit will “tell you” what to do and when to do it. Check fruit regularly for pit-hardening, since this developmental stage represents the threshold between spring and summer disease control programs.



Dogwood Borers on Apple- Lorsban 4E Supplemental Label

*Win Cowgill, Agricultural Agent and Dean Polk,
Fruit IPM Agent*

In recent years, the incidence of infestations by **dogwood borer** (DWB), *Synanthedon scitula*, has become a serious problem on many apple blocks containing dwarfing apple root stocks. Infestations of this clearwing moth in apples are almost always located in burrknots or graft unions that are planted above ground level. Burrknots are aggregations of root initials that can develop on the above-ground portion of the rootstock; all commercial dwarfing and semi-dwarfing rootstocks have a tendency to develop burrknots.

It is important that we plant dwarf apples with the graft union at least four inches out of the ground to avoid self-rooting of the scion. However the trade off is the development of burrknots, which are susceptible to the dogwood borer. Mark rootstock is known for this.

The adult dogwood borer moth seeks out these spots to lay eggs, particularly if they are surrounded by vegetation or protected by something, such as mouse guards. Moreover, mouse guards may frequently house weeds, and shield the lower trunk from incidental exposure to insecticide cover sprays. Sustained feeding by dogwood borer at the graft union may severely weaken the tree at this juncture, or girdle the trunk and cause a slow decline in tree health. Orchards in which mouse guards are emplaced should be examined for signs of damage.

All apple trees in New Jersey should be periodically checked for infestation. Apple growers in our NJ IPM program have traps placed already to monitor the adult moth. **No moths have been caught yet** so it is a bit early to treat. Generally, egg laying occurs in the months of June and July and into early August. Continue to monitor the weekly IPM update in the Plant and Pest Advisory for treatment alerts.

The best control is the dilute trunk application of an insecticide with good residual activity can provide control of established infestations. Lorsban 4E now has a supplemental label for apples and is the most effective material for control. If one application is made it should be applied during the period between July 15 and August 15, bearing in mind the specific pre-harvest intervals. Two applications are labeled and may be more effective. The first should go in over the next several weeks.

Strawberry Update

Peter R. Probasco, Agricultural Agent

Chandler strawberries have been larger this year but with more "fasciation" or multiple tips due to cold weather from last fall. These odd shaped fruits are still marketable, but are more common on the Chandler variety. The cockscomb shape berries are due to cold temperatures last fall on the fruit buds. There is not much a grower can do except plant in wind-protected areas and cover the fields with a good winter row cover. Fungicide sprays have been working well this year, considering all the rain, and a 5 day schedule will be needed until it dries out. □

The following directions and restrictions are from the label:

Mix with water and apply directly to trunk from a distance of no more than 4 ft using low volume handgun or shielded spray equipment.

Do not allow spray to contact foliage or fruit. Up to 2 applications may be made with a minimum spray interval of 14 days between applications.

Restrictions:

- Treat only the lower 4 feet of the apple tree trunk.
- Do not make more than two applications per year for borer control.
- Do not apply when wind speed is greater than 10 mph.
- Do not apply within 28 days of harvest.
- If the available residue data submitted in 2002 demonstrates the detection of chlorpyrifos at concentrations greater than 0.01 ppm, then Dow AgroSciences and EPA agree to discuss further mitigation.

White latex paint brushed on the exposed portion of the rootstock will prevent new infestations of the borers, and also protect against southwest injury to the bark.

Further Information:

Cornell has a great fact sheet on dogwood borers in fruit trees that can be found on their IPM web site at: <http://www.nysipm.cornell.edu/factsheets/treefruit/pests/dwb/dgwdborer.html>. □

Fruit IPM

Dean Polk, Fruit IPM Agent

Peach

✓ **Oriental Fruit Moth (OFM):** OFM egg hatch is now 100% complete in southern and central counties and about 90% complete in northern counties. All treatments for the first generation should have been applied statewide. For growers using mating disruption, all dispensers should have been placed in the trees last week or by the time you read this newsletter. Second generation adults may start to fly in another week to 10 days.

✓ **Tarnished Plant Bug (TPB) and Other Catfacing Insects:** The first summer generation adults were seen at RAREC in Cumberland County. This means that as the nymphs mature, more adults will become present over the next week to 10 days. Since it is the adults that move into the trees, maturation of nymphs to adults has the net effect of increasing the motile population that can be in the tree canopy and damage fruit. Adult **stink bugs** are also present and some fresh injury was seen this past week. Given the precipitation, grass is growing and mowings may become more frequent. Residual insecticides may also not be very active given frequent rains. Therefore if adult catfacing insects are present and the orchard is mowed (or cultivated), make sure these ground cover operations take place after a recent insecticide application. If you have a pure turf ground cover, then bug populations are likely lower, and these precautions do not likely apply. The exception would be if hedgerows and woods surround the orchard and provide alternate hosts and cover for catfacing insects.

✓ **Plum Curculio (PC):** Fresh injury is still being seen in commercial blocks and at research plantings (RAREC). A predictive model used in New York recommends that PC treatments are required through 340 degree days (base 50) after apple petal fall. Using the model, the last insecticide would be applied within 10 to 14 days after the target was reached. As of June 3, we have accumulated about 252 DD₅₀. With about 90 DD to go, that should take about 5 to 6 days, given current temperature predictions. The cutoff for central counties should come in about 7 to 9 days, with northern counties a few days later, more in the following newsletter.

✓ **Peach Scab:** This disease is a concern. Infections occur most easily when temperatures are between 65° to 75°F and when rainfall is abundant. While infections can occur at either lower or higher temperatures, we have had continuous ideal conditions for scab infection, and will continue to have those conditions over the next week. Infections can occur through third cover, and may occur even later if inoculum is plentiful and conditions are suitable. DO NOT stray to a sulfur only spray program on mid to late season varieties. Young blocks

being harvested for the first time should be on a Captan, Captan/Topsin, or Abound or Flint based program. As long as the orchard is mature and clean, sulfur will fill the bill for early season fruit that harvests prior to redhaven. The first scab lesions will probably be seen about the second to third week of July, so even if infected, fruit harvested prior to visible infections showing can escape most problems. USE CAUTION when using Captan in mixes. Do not add adjuvants – see accompanying article on Captan reprinted from Scaffolds.

✓ **Rusty Spot:** Rusty Spot infections may extend past pit hardening. Given our current weather pattern, sprays of Nova or Flint should be included on susceptible varieties. While susceptible varieties include Jerseyqueen, Biscoe, Loring, Early Loring, Redskin, Jerseyglo, and Garnet Beauty, the disease has been present on other varieties during years when conditions were favorable.

✓ **Tufted Apple Budmoth (TABM):** The first sprays will be due in southern counties 6/7 to 6/8 (alt middle sprays) or around 6/10-11 (full cover sprays) with standard insecticides. Standard insecticides would include carbamates and pyrethroids. OP insecticides cannot be relied upon for TABM control in problem areas. If TABM has never been a concern in your orchard, then you don't have to bother changing materials from what you normally use. If using Intrepid then plan on a treatment around 6/12-13 (full cover). Timing for northern counties will be up to a week later.

Apple

✓ **Codling Moth (CM):** We are approaching 250 DD since first catch in southern counties. Treatments are due in southern counties by 6/3-4, in central counties by 6/7, and projected in northern counties by around 6/12. A second (full cover) treatment will be due 10 to 14 days later, or 2 additional alternate middle sprays 6-7 days apart.

✓ **Green and Spirea Aphids (GAA, SA):** The GAA/SA complex has increased since last week, but populations are still below treatment levels. Aphids should be tolerated until more than 50% of terminals are infested with healthy colonies. Predators such as lacewings, syrphid fly larvae, and lady beetles can often decimate an aphid population if allowed.

✓ **Apple Scab:** This is the major pest of concern in apples. Up to 40% of southern orchards and many blocks in northern counties have scab infections. These lesions are from infections that occurred earlier in May, with lesions from the more recent infections not yet visible. Both Flint and Sovran have showed good post infection activity last season. Additional infections are predicted for 6/3, 4, 5 and again on 6/7-8. Stay away from alternate middle applications under severe disease conditions, and try to combine an SI or Flint/Sovran in the spray program.

SEE IPM ON PAGE 5

Blueberry

✓ **Redbanded Leafroller and Other Leps.:** Leafroller activity remains at similar levels as seen during the previous week, perhaps slightly less. Populations are well below treatments levels and are not a concern. The highest level seen was .2 larvae per 100 blossom clusters. About 1/5 of all samples show fruit with suspected feeding. However, the average level of feeding is extremely low at about .15%.

✓ **Cranberry Fruitworm (CBFW):** While CBFW adults continue to be captured, trap levels are extremely low. Numbers are so low that this does not appear to be a key pest this year in most areas. Growers will likely be better off to concentrate on aphids and other pests.

✓ **Aphids:** Aphid populations are doing quite well, and showed an increase in activity again this week. Aphid numbers went from being found in 30% of samples to 45% of samples. Our benchmark of 'over 10% of terminals infested' doubled from 9% to 18%. This is therefore the major pest of concern this week.

✓ **Thrips:** Thrips are showing additional activity, and are being found in just under 20% of our samples. Actual levels are still very low, with the highest levels around 10 thrips per 100 blossom clusters.

✓ **Plum Curculio (PC):** Very little new activity was seen this past week. Twelve percent of samples show PC activity, with most fruit injury below .5%.

Insect Trap Captures

Tree Fruit - Southern Counties

Week Ending	LPTB	PTB	OFM	TABM-PAM	CM	DWB	OFM-A	STLM	TABM
5/2			97				96	795	
5/9			56				129	137	
5/16			33	8			60	181	10
5/23	44		17	10	2		20	55	5
5/30	20		4	30	1		8	23	8

Northern Counties

Week Ending	LPTB	PTB	OFM	TABM-PAM	CM	DWB	OFM-A	STLM	TABM
5/23			6.3	4.1	4.6			59.3	10.6
5/30			8.3	2.6	3.7			75.0	3.2

Blueberry - Atlantic County

Week Ending	CBFW	RBLR	OBLR	SNLH	OB	BBM
5/2		89.7				
5/9		83.6				
5/16	0.2	21.2				
5/23	0.05	4.0				
5/30	0.18	0.3				

Burlington County

Week Ending	CBFW	RBLR	OBLR	SNLH	OB	BBM
5/2		28.2				
5/9		11.4				
5/16	0	6.4				
5/23	0.05	1.8				

Calendar of Events

Please note the dates for the Blueberry Twilight Meeting and the Twilight Fruit Research Meeting have been changed.

June 4, 2003 - Blueberry Field Day and Open House - 8:30 am - 3:30 pm. Marucci Center for Blueberry and Cranberry Res. & Exten., Chatsworth, NJ. Contact the Center at 609-726-1590.

June 4, 2003 – Twilight Wine Grape Meeting – 6:15 p.m. Cape May Winery, Toby Craig, 709 Town Bank Road, Cape May, NJ. Contact: Jerome L. Frecon, 856-307-6450 ext. 1 or Russ Blair at Rutgers Cooperative Extension of Cape May at 609 465-5115.

June 26, 2003 – Twilight Fruit Research Meeting – 5 p.m. Rutgers Agricultural Research and Extension Center (RAREC), 121 Northville Road, Bridgeton, NJ. Contact: Jerome L. Frecon 856-307-6450 ext 1.

September 3, 2003 – Fruit Variety Showcase, Gloucester County. Contact Jerome L. Frecon 856-307-6450 ext. 1.

NJ Pesticide Applicator Units to be provided at each of the evening and twilight tree fruit and grape meetings.

Farm Safety Briefs

Raymond J. Samulis, Agricultural Agent

Farm Safety - Money in Your Pocket!

As with many long-term programs like farm safety, it is sometimes difficult to determine exactly how much progress occurs in making farming safer. While it is easy to see the positive impact fewer accidents in your operation can have in human terms, seeing it from a financial perspective is harder to do. Cornell Cooperative Extension has just reported on a long-term training program entitled AHAT or Agricultural Hazard Abatement and Training. The program had many parts to it including farm safety audits, training meetings, and follow up evaluations. More than 575 farm employees participated in the training portion of the program and attended regularly scheduled safety sessions. When all was said and done, New York farmers averaged a 27% decrease in their workman's compensation claims as a result of this program.

The study also showed that as a result of the training program, 80% of the Power Take Off shafts were not properly fixed or contained the necessary shielding devices. Farmers who participated in the program received a 10% rebate on their workman's compensation premiums which saved the average farmer \$1,089. It's easier to see the benefits of effective farm safety when you can show dollars in the farmer's pocket. With New Jersey being the "king" of insurance premiums of all different types, a program such as New York's makes sense both figuratively and literally.

Power Take-Off Dangers

Power Take-Offs (PTO) are an important and necessary piece of equipment on modern farm machinery. Unfortunately, in many instances, the protective covering is damaged or worse yet, totally removed. Sometimes this situation is due to damage, other times it is the result of intentionally disconnecting it to allegedly save time and make the implements easier to attach. These protective devices were placed on the tractor for a definite purpose, and not simply because of some obscure law that has nothing to do with everyday farming.

On outward appearance, the shafts turn rather slowly at 540 rpm's compared to the 20,000 or more rpm's that a jet turbine or even a turbo tractor turns. But with a little calculation, even the slow 540 rpm's translates to 13.1 feet per second. Coupled with the tremendous torque behind the shaft, you can easily see why many PTO accidents cause serious injury, and oftentimes literally rip the clothes off a person. In the latter case it is actually better to have thin, flimsy clothing, rather than durable fabric like denim, which does not tear easily. I

once heard a heart-wrenching story from a farm wife in upstate New York, who had to use a butcher knife to cut her husband out he was so entangled. Since PTO's are a needed item on the farm, they are, most likely, here to stay.

Let's look at some ways we can safely use PTO equipment. Be sure to turn off PTO shafts when you dismount the tractor. This is common sense, but sometimes not followed. Make sure that all safety decals and shields are in place. Do not wear loose clothing, which can easily be entangled in the shaft. Be careful not to step over moving shafts, rather, walk around the tractor. Keep children away from PTO's and other dangerous farm equipment. Lastly, it is important to make sure that any attached equipment or irrigation pumps be properly aligned at the same angle as the PTO shaft.

Remember, hazardous equipment can be used safely when used with the proper safety precautions.

Farm Safety on RCE Web

Check out Rutgers Cooperative Extension's new Farm Safety Web Site at <http://www.rce.rutgers.edu/farmsafety/>. Available on the site is information on events and training; publications, including factsheets and newsletters; and web resources with links to other information on safety and worker protection. Some of these resources are provided in English as well as Spanish since English is a second language for such a high percentage of New Jersey's agricultural workers. □

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