

PLANT & PEST ADVISORY

FRUIT EDITION \$1.50

AUGUST 12, 2003

Fruit IPM

Dean Polk, Fruit IPM Agent



Peach

✓ **Oriental Fruit Moth (OFM):** The last of the third generation treatments should be applied at between 2500 to 2650DD. The last treatments are due in southern counties now (now at 2585DD). The last treatments are due in central counties around now and during the next several days (now at 2500DD). In northern counties the first treatments should have been recently applied (now at 2272DD), with the last treatments due around 8/21-22.

✓ **Thrips:** Recent silvering injury was noted on a block of nectarines and in an adjacent block of peaches. While this has not been a problematic year for thrips, they still deserve to be watched, especially during the last 2 weeks prior to picking.

✓ **Brown Rot and Rhizopus Rot:** Both diseases are present, although both are more common in nectarine blocks. Sulfur should not be part of the spray program in any variety at this time. If using SI materials for brown rot, you may want to consider the use of Elite, since it has rhizopus activity. Botran plus another material will give better control for rhizopus. See last newsletter for other suggestions.

✓ **Tufted Apple Budmoth (TABM):** Treatments for this pest should be ongoing in southern counties, and should have started late last week or early this week. See last newsletter and the TFGP for treatment options.

Apple

✓ **Mites:** European red mites are present in a number of blocks. In at least one case, a grower has experienced unsatisfactory control with Pyramite (25 day PHI). (See accompanying article by Peter Shearer) While increasing the use rate can be an option, switching to another material is the better solution. European red mites have a long history of being able to develop resistance to miticides. Alternating materials is one way to delay the occurrence of resistance, while preserving the efficacy of the materials we have.

✓ **Codling Moth (CM):** Degree day timed codling moth sprays are done in southern and central counties, but treatments are still due in northern counties. In southern and central counties, treatments should no longer be needed unless trap captures exceed 5 moths per trap per week, as they do in some areas.

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Calendar of Events

August 20 – August 22, 2003 – North American Strawberry Growers Association Summer Tour, Park Inn & Suites, Brandywine Valley, PA and tours S. Jersey and S. PA. Contact: NASGA Business Office at 526 Brittany Drive, State College, PA 16803, phone: 814-238-3364, fax: 814-238-7051 or email: info@NASGA.org or www.NASGA.org.

September 3, 2003 – Fruit Variety Showcase, Rutgers Cooperative Extension of Gloucester County, Clayton, NJ. Contact: Jerome L. Frecon at 856-307-6450 ext 1.

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Blueberry

✓ **Leafroller larvae:** A few farms have continued to experience larvae on the packing line. While injury is not a problem, the presence of larvae on the line is a nuisance. Since most Bluecrop have been picked this should no longer be an issue.

✓ **Aphids:** Levels have come down, with only 4% of samples showing populations that exceed 10% of terminals infested. Overall these should not be an issue for the rest of the season, with the possible exception of some Elliott fields.

✓ **Stem Blight:** Increased levels are being seen in many fields. The disease is more common and aggressive in several Duke fields.

Insect Trap Captures

Tree Fruit – Southern Counties

Week End	LPTB	PTB	OFM	TABM-PAM	CM	DWB	OFM-A	STLM	TABM	
8/8	19	8	20	17	0	3	15	20	2588	17

Tree Fruit – Northern Counties

Week End	LPTB	PTB	OFM	TABM-PAM	CM	DWB	OFM-A	STLM	TABM	
8/8	0	0	10.5	1.2	0	5.1	3.5	—	1112	0.7

Blueberry – Atlantic County

Week End	CBFW	RBLR	SNLH	OB	BBM
8/8	0	2105	0.1	158	0.1

Blueberry – Burlington County

Week End	CBFW	RBLR	SNLH	OB	BBM
8/8	0	0.2	0.1	99	0.1

Pyramite Resistance Now in NJ

Peter W. Shearer, Ph.D., Specialist in Tree Fruit Entomology

I was recently informed that a southern New Jersey grower was having problems controlling **European Red mite** (ERM) in a block of apples. I took samples of ERM from that block and from here at the Rutgers Agricultural Research and Extension Center in Upper Deerfield and compared their responses when exposed to Pyramite in the laboratory. All the mites from RAREC died when exposed to high rates of Pyramite while most of the ERM from the suspect orchard survived. My test did not provide a value to determine just how much more resistant these mites were but this value will be forthcoming. However, I am confident that ERM from that apple block are now very resistant to Pyramite.

During our winter meetings, I presented information that ERM had developed resistance to Pyramite in Pennsylvania and Virginia during the 2002 growing season. In order to minimize the likelihood of resistance occurring here, I encouraged growers not to use this miticide or other miticides in back-to-back applications. The intent was to stall the onset of resistance by rotating products with different modes-of-action. Hopefully, those of you reading this are following this advice.

This notice of ERM resistance to Pyramite should alarm you. We want to keep products around as long as possible. Apple growers still have other miticides to use when the long growing season is considered. However, as harvest approaches, some products cannot be used because of timing issues (AgriMek needs to be applied before the leaves harden) or because the Pre-Harvest Interval (PHI) is too long (Apollo 45 days, Savey 28 days). That leaves Vendex (14 days) or Acramite (7 days).

Growers with ERM problems this year should plan an oil application next spring to minimize the abundance of overwintering ERM. You will hear more about this next winter. In the meantime, rotate those products. Also, check the label for further information. A lot of new products provide Resistance Management Guidelines on the label. □

Starch Iodine for Painless and Efficient Apple Maturity Testing

Win Cowgill, Agricultural Agent and Jon Clements, Fruit Specialist, University of Massachusetts

It is not too early to begin thinking about testing for apple maturity. We picked Pristine, the excellent quality disease resistant apple cultivar last week at the Rutgers Snyder Farm.

Maturity testing must begin before it is time to harvest. Starch Iodine testing is the best and easiest indicator of apple maturity that a grower can use to plan their harvest and storage regimes. More and more growers are using the starch iodine system as it measures the starch to sugar ratio in the apple.

Why is it important to perform SI testing? First, the SI method is probably the best way to judge fruit maturity without expensive equipment. The SI technique is correlated with ethylene evolution. Ethylene synthesis occurs as fruit ripens. Therefore, the SI index is an inexpensive way to assess the degree to which fruit has converted starch to sugar, and is indicative of the onset and progress of ethylene production.

Secondly, since SI is a reliable indicator of relative fruit maturity, SI testing can help you determine if harvested fruit should be placed in early CA, late CA, or regular cold storage. Remember that as a rule fruit with SI readings of 3-4 are suitable for late CA, apples measuring 4-6 on the SI scale are best for early CA, and any fruit reading 6 or above should be placed in regular cold storage or marketed immediately. Of course, reliability in using the SI method for determining apple maturity is predicated on good sampling techniques, i.e.; looking at fruit that has sufficient size and color. Or, in other words, sample apples that you expect are approaching harvest readiness.

Note: Apples going into late CA (available in April-June, etc.) should not average less than 15 IBS. Firmness

Dr. George Green, Penn State University, Professor Emeritus, has more details on harvest maturity in the 2002-2003 Pennsylvania Tree Fruit Production Guide (page 221). The can be found online at: <http://tftp.cas.psu.edu/part6/part61a.htm>.

He also offers the following, "Over the years charts have been developed for many varieties but some charts went from 1 to 5 while others went from 1 to 7." There was much confusion so the postharvest physiologists at Cornell University have developed a more universally accepted chart that is useful for all varieties. It is being used by researchers in over 20 states in the national apple cultivar-testing program.

Cornell has an excellent publication available to help you use the starch-iodine test and to develop an apple maturity program. I strongly suggest that anyone seriously interested in harvesting high quality apples with good storage potential buy a copy of this publication, "Predicting Harvest Date Windows for Apples (1992)" Information Bulletin 221. Full-color plates show how to use and interpret the starch-iodine test for determining maturity and the best harvest dates for quality, especially important for apples going into storage. It covers McIntosh, Cortland, Empire, Delicious, Mutsu/Crispin, and Idared; dates for other varieties can be interpreted from the information presented. 20 pages. Cost \$5.50. This publication can be ordered directly from Cornell University by calling 607-255-2080 and using a Master Card or VISA credit card. Win Cowgill also maintains a supply at Rutgers Cooperative Extension of Hunterdon County at 908-788-1339 or Cowgill@aesop.rutgers.edu.

Specific starch charts have also been developed for Gala, Empire, and Liberty. On the West Coast they have also been developed for Fuji. We have posted these charts on the web that can be downloaded and printed for your use at: <http://www.umass.edu/fruitadvisor/clements/articles/sitest.htm/>

Wilson Irrigation also has Maturity Photo Charts for sale for Gala, Fuji, Braeburn, golden and red delicious, Granny Smith, and D'Anjou pear. Wilson Irrigation, located in Washington State at 1-800-232-1174 or order at their web site at: <http://www.wilsonirr.com/store/store2.cfm?categoryid=107>

Sampling Procedure for SI

Having tested tens of thousands of apples over the years, per numerous experimental protocols, we can now suggest a simple, quick and efficient method for evaluating orchard-by-orchard or block-by-block SI apple samples. Here is our quick and simple testing technique:

Equipment consists of a one quart hand-operated spray bottle filled with SI solution, a pocketknife, and a Starch Index chart. The most important thing is to just use the chart and begin sampling and testing the fruit two weeks before anticipated harvest to get a baseline on the maturity. A fruit maturity kit with the Iodine solution can also be purchased from Wilson Irrigation: <http://www.wilsonirr.com/>

The procedure is simple. Begin sampling at least two to three weeks before anticipated harvest to track maturity changes. Pick a sample of 6-10 apples from multiple trees of the same age and condition based on size, color, days after full bloom, and taste. Spray the SI solution on longitudinally halved fruit, wait one to one and one-half minute and make your readings based on the SI chart. The whole process is portable, quick, simple, and saves SI solution compared to dipping individual apple in a solution filled pan.

SEE SI PROCEDURE ON PAGE 4

How to Make Starch Iodine Solution

*Win Cowgill, Agricultural Agent and
George Green, Ph.D., Professor Emeritus,
Penn State University*

A solution of iodine and potassium iodide is used to make the starch turn black and this pattern is the basis for the test.

Dr. George Chu, of the University of Guelph, Dept. of Plant Agriculture in Ontario has developed a publication on this test entitled: Evaluating Maturity of Empire, Idared and Spartan Apples (Factsheet No. 00-027.). It is available on the Web at:

<http://www.gov.on.ca:80/OMAFRA/english/crops/facts/00-027.htm>

Preparing the Test Solution

For those wanting to make their own solution, Dr. Chu gives these instructions:

Always use a freshly prepared solution at the beginning of every season. This solution is sensitive to light and should be stored in a dark container. A dark-coloured bottle or a glass jar wrapped in aluminum foil will serve the purpose. Chemicals needed for this test are potassium iodide and iodine crystals. A pharmacist or a chemist can use the following recipe to make up the iodine solution.

Recipe

1. Dissolve 8.8 grams of potassium iodide in about 30 ml of warm water. Gently stir the solution until potassium iodide is properly dissolved.
2. Add 2.2 grams of iodine crystals. Shake the mixture until the crystals are thoroughly dissolved.
3. Dilute this mixture with water to make 1.0 litre of test solution. Mix them well.

Warning

Iodine is a very poisonous chemical. The iodine solution should be properly labeled and kept away from children and pets. Apples used in the test should not be fed to any animals or used in composting. In case of ingestion of either iodine, or iodine treated apples, induce vomiting and consult a physician immediately.

Starch iodine can be purchased from Wilson Irrigation in Washington State at: <http://www.wilsonirr.com/> or call them at 1-800-232-1174. Wilson Irrigation also has maturity charts for Gala, Fuji, Braeburn, golden and red delicious, Granny Smith, and D'Anjou pear. □

Fruit Variety Showcase

A display of over 100 varieties, mostly peaches and nectarines, will be held at the Gloucester County Office of Government Service, Auditorium in Clayton, NJ on September 3rd, 2003 from 4 p.m. to 8 p. Discussions by agricultural agents and specialists, as well as some leading nurserymen, will highlight an evening of many tastes and shapes of fruit.

Dr. Robert Belding, Specialist in Pomology with Rutgers Cooperative Extension, will discuss and exhibit some of his post harvest research on peaches, specifically delaying fruit maturity with Retain. Mr. Win Cowgill, Agricultural Agent with Rutgers Cooperative Extension of Hunterdon County will exhibit and discuss peach and apple selections from his program at the Rutgers Snyder Research and Extension Center in Pittstown, N.J. Jerome L. Frecon, Agricultural Agent with Rutgers Cooperative Extension of Gloucester County will exhibit and discuss a unique collection of white and yellow fleshed, flat, fuzzless, stony-hard and regular peach varieties. Taste tests will be run on some of the freshest selections. Dr. Joe Goffreda, fruit breeder with the New Jersey Agricultural Experiment Station, will discuss new cultivars from the breeding program.

The showcase is sponsored by the Gloucester County Board of Agriculture and the New Jersey Peach Council. A light supper will be provided to all attendees of the showcase. Pre- registration is required by calling Rutgers Cooperative Extension of Gloucester County at 856 307-6450 ext. 1.

Submitted by Jerome L. Frecon, Agricultural Agent. □

SI PROCEDURE FROM PAGE 3

It is important to keep good records on your maturity determinations by cultivar and block. You will start to build a good database of harvest maturity information for your orchard.

Cultivars that do not Respond to SI

Although the SI is a reliable gauge of many cultivars, such as McIntosh, Empire, Jonathan, Golden Delicious and Macoun, some cultivars do not respond as well to the SI test, and should be monitored using other methods.

Cultivars such as Ginger gold, Fuji and Honeycrisp do not respond well to the SI rating, and should be gauged in manners such as background color; soluble solids content (SS) and flesh firmness. While Gala follows the Gala SI chart nicely it should be picked on background color.

Background color is a very good maturity indicator and will provide the grower with an accurate maturity gauge. Red over-color, flesh firmness and SS content are not as reliable indicators as background color on this cultivar. Fruit should be harvested for optimum long-term storage quality when the background color of the fruit is changing from a green to yellow color. After that, the background color changes from yellow to cream. It is at this stage that the fruit is ready for immediate sales or short-term storage. Galas will require multiple pickings for optimum fruit quality. Background color is also the best indicator of maturity for Fuji cultivars.

For more information how to mix the Starch Iodine solution see the accompanying article by Win Cowgill and George Green. □

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