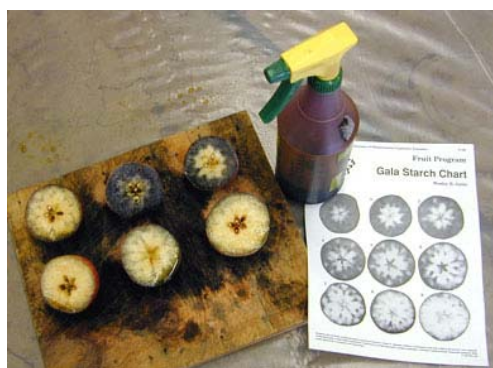


PLANT & PEST ADVISORY

FRUIT EDITION \$1.50

AUGUST 15, 2006



How to Make Starch Iodine Solution

Win Cowgill, Agricultural Agent and George Green, 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.omafra.gov.on.ca/english/crops/facts/00-027.htm>

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

Preparing the Test Solution

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. □

INSIDE

How to Make Starch Iodine Solution 1

Sooty Blotch and Flyspeck 2

Peach Season 2006 3

Notes on Multicolored Asian Lady Beetle in Grapes 4

Wine Grape Information for the Region 5

Fruit IPM 6

Sooty Blotch and Flyspeck

Bill Turechek, Ph.D., and Dave Rosenberger, Ph.D., Plant Pathology, NYAES, Geneva and Highland NY

Reprinted from *SCAFFOLDS Fruit Journal*, Volume 13, No. 15, Cornell University – New York Agricultural Experiment Station.

Sooty blotch and **flyspeck** (SBFS) are two of the most important summer diseases of apple in New York. The diseases do not result in direct losses in yield, but rather they cause a reduction in fruit quality, which can lead to economic loss due to downgrading in fresh market fruit. Losses can exceed 25%, especially in warm humid climates such as those experienced in southeastern New York, southern New England, and the mid-Atlantic and southern states. Until recently, sooty blotch was thought to be caused by the fungus *Gloeodes pomigena*. However, recent studies have shown that sooty blotch is a disease complex caused by at least 3 different fungi: *Peltaster fruticola*, *Leptodontium elatius*, and *Geastrumia polystigmatis*. All three fungi are not necessarily present in all sooty blotch lesions. Flyspeck is caused by the fungus *Schizothyrium pomi* (= *Zygophiala jamaicensis*).

Symptoms

Sooty blotch appears as various shades of olive-green on the surface of the fruit. Colonies range in shape from nearly circular with distinct margins to rather large, amorphous blotches with diffuse margins. The variation in shapes and color can be attributed to the differences among the three fungi causing the disease and environmental conditions, specifically temperature and relative humidity. Fruit infection typically occurs in June and the first symptoms are generally apparent 20 to 25 days after infection, but can be visible as soon as 8 to 12 days after infection if conditions are warm and wet.

Flyspeck appears as distinct groupings of shiny, black fungal bodies (called thyriothecia) on the surface of the fruit. The number of thyriothecia associated with a single infection ranges from a few to over fifty. Although flyspeck thyriothecia appear to exist individually, close examination reveals mycelium connecting the individual structures. The primary spores are discharged starting around 2 weeks after petal fall and symptoms may be visible 10-12 days after infection under optimal conditions, but may not be visible for 1 month under less than ideal conditions. These primary infections will give rise to conidia, which initiate secondary cycles of infection throughout the remainder of the season. Numerous observations in the field have shown that warm and wet or humid conditions are needed for the development of disease. For both flyspeck and sooty blotch, the causal fungi grow only within the wax cuticle of the fruit and are quite superficial. Rubbing the fruit with

a cloth will often be enough to “clean-up” an apple that is only lightly affected.

Disease Management

◆ Proper pruning and fruit thinning can have a huge impact on the effectiveness of fungicides used to control SBFS. In a 2-year study conducted in Massachusetts, Cooley et al. (1997) showed that summer pruning could reduce the incidence of flyspeck by nearly 50% in an unsprayed orchard. In the same study, they showed that the number of fruit downgraded from USDA Extra Fancy was reduced when summer pruning was done in commercial orchards. They concluded that summer pruning helped to decrease the incidence of flyspeck by reducing the number of hours of relative humidity >95% and allowing increased penetration of pesticides to the upper two-thirds of the canopy when applications were made with an airblast sprayer. Effective fruit thinning is also important for effective control of SBFS. When fruit are clustered together in groups of three or more, fruit surfaces in the middle of the cluster are slow to dry and become almost inaccessible to spray droplets as the fruit increase in size. Where necessary, hand thinning to break up fruit clusters will help to reduce the incidence of sooty blotch and flyspeck at harvest.

◆ The primary means of managing sooty blotch and flyspeck is via fungicide applications during July and August. Four or five summer fungicide applications may be needed to control these diseases in wet years, whereas only two or three well-timed applications are needed in dry years. Fungicides applied to control scab and mildew at petal fall and first cover are usually adequate for protecting apples from flyspeck ascospores. In the northeast, the fungi causing sooty blotch are generally more sensitive to fungicides than is the flyspeck fungus, so flyspeck almost always appears first in orchards with marginal fungicide protection. Summer fungicides timed to control flyspeck will almost always provide adequate control of sooty blotch.

◆ Following discharge of flyspeck ascospores during the 2-3 weeks after petal fall, the risk of flyspeck infection is relatively low until the time when ascospore-initiated infections in hedgerows and woodlots begin producing conidia for secondary spread of the flyspeck fungus. This seems to occur after about 250-280 hr of accumulated wetting after petal fall (AW-PF) on apples. During this interval from 3 weeks after PF until 250 hr AW-PF, the risk of SBFS infection on apples is relatively low and fungicide coverage can usually be relaxed (provided, of course, that primary scab has been completely controlled). Beginning at 250 hr AW-PF, however, the risk of secondary flyspeck infections gradually increases until harvest.

◆ Research has shown that Topsin M, Sovran, and Flint provide post-infection activity against sooty blotch and flyspeck. Their post-infection activity decreases as the time between infection and fungicide application increases. Although there are still some data gaps with Sovran and Flint, tests completed to date suggest that all three of these fungicides have reasonable activity against flyspeck infections if the fungicides are applied before

SEE SOOTY BLOTCH ON PAGE 3

infections are exposed to 100 hr of accumulated wetting. Working in North Carolina, Brown and Sutton (1995) showed that sooty blotch and flyspeck appear on fruit only after fruit are exposed to 275-300 hours of accumulated wetting following infection. Thus, it appears that Topsin M, Sovran, or Flint will provide post-infection control of flyspeck and sooty blotch so long as the infections are less than one-third of the way through the incubation period.

◆ When Topsin M, Sovran, or Flint are used for July-August sprays, the period of relaxed fungicide coverage in June and early July can probably be extended until 350 hr AW-PF (250 hr for development of flyspeck conidia plus 100 hr of post-infection activity). Even in dry years, however, trees should probably be protected with fungicides during the latter half of July because fungicide spray coverage later in the season may be compromised as apple size increases (thereby increasing contact surface areas between adjoining fruit) and as limbs bend down under crop load. Should a dry summer suddenly turn wet in August, SBFS could cause huge losses in orchards that were not protected prior to the rains.

◆ Pre-determining the timing for the last SBFS spray in August or September is impossible because the need for additional sprays during that period is based on the weather. In 2003 at the Hudson Valley Lab, we recorded nearly 3.5 inches of rain in the first two days of September and then accumulated 270 hr of wetting by 30 Sept. Growers who did not re-apply a fungicide after the rains of 1-2 September noted that flyspeck seemed to appear overnight at the end of September on fruit that were not yet harvested. The trick to correctly timing the last fungicide spray in 2003 was to correctly guess how many hours of wetting would accumulate after the rains of 1-2 September and before fruit would be harvested. (Remember that 270 hr of wetting are required to complete the incubation period.) Growers who gambled on a dry or even a "normal" September lost that bet in 2003. Those who applied fungicide during the first week of September (on the assumption that September would be wet) were the winners in 2003.

◆ Although an early September spray may be needed in exceptionally wet years, sprays applied during late August and September will not compensate for coverage gaps during July and August because none of our fungicides can completely eradicate SBFS after infections on fruit are older than 100 hr of accumulated wetting. Therefore, sprays between early July and mid-August remain the most critical timing for controlling SBFS under New York conditions in most years. Earlier and later sprays are needed in wet years, but two or 3 applications between 15 July and 15 Aug are almost always essential.

Submitted by Win Cowgill, Agricultural Agent. □

Peach Season 2006

Jerome L. Frecon, Agricultural Agent

Our season has been running about 10 days early all year, but has recently tightened up with the lower evening temperatures. This can be substantiated by the degree day advancement being reported each week in this newsletter. Fruit size has been good all season with the exception of some of the very first peaches. There may have been a few more 2½ inch peaches in Redhaven season, but we used to feel those were good size for that season of ripening. Fruit soluble solids concentration (SSC) was between 7.5 and 9.5 on most early season peaches in my variety blocks at optimum maturity. Fruit SSC has now gone up as the season progressed and continues to climb with the dry weather and clear sunny days. Many varieties are now 11.5 to 13%.

Early in the season we saw some **rusty spot**. **Bacterial spot** has been visible on just about every variety in my test blocks either on the leaves and where it is bad on the fruit.

Most of you who report peach prices know that Lynn Coffin is no longer collecting this out of the Bridgeton office. Peach prices are being taken and recorded out of the Inwood, West Virginia Office in Baltimore. When you go to this report, via the Fruit and Vegetable and Specialty Crop Reports, on the USDA Market News web site at <http://www.ams.usda.gov/marketnews.html> you will see this listed as such on the site to get Bridgeton FOB prices. Peach prices have been higher in 2006 than 2005 and expenses have also been higher.

Peach movement in 2006 has been less advanced in the US or about 5,648 units (10,000 lb units) behind the 2005 movement. We have seen an opposite trend in New Jersey in 2006, as we are moving peaches significantly earlier. Last year on August 6 we had moved only 698 units. This year we have moved 1,391 units by August 5. Based on last year's volume we had moved about 49% of our crop that is recorded. South Carolina is ahead of last year's movement while Georgia is just about the same. Georgia appears to have shipped about 98% of its crop while South Carolina has about 80% of its crop shipped based on 2005 volume recorded. There were early reports of bad hail damage in South Carolina.

California is still a big factor in 2006. They are 6,522 units behind the 2005 movement. Based on last year's volume they have only shipped 53.6% of their volume by August 6. Since I read reports that they were early in maturity, I am surprised and maybe the volume will not be as high in 2006. □

Notes on Multicolored Asian Lady Beetle in Grapes

Rick Weinzierl, University of Illinois Extension and the College of Agricultural, Consumer, and Environmental Sciences

Reprinted from *Illinois Fruit and Vegetable News*, August 4, 2006

In preparation for the late August and September time period during which **multicolored Asian lady beetle** (MALB), *Harmonia axyridis*, congregates on grapes and poses a threat as a contaminant in clusters at harvest, now is a good time to review recent findings that may help in understanding and managing this pest. Dr. Bill Hutchison and the graduate students and research associates in his program in the Department of Entomology at the University of Minnesota have conducted research on this insect over the past few years, and their results include several useful findings.

Before summarizing results of the research done in recent years in Minnesota, a quick overview of the biology and pest status of the MALB may be useful. This insect, native to Asia as its common name implies, is a predator of **aphids**, and as such, it was a candidate for importation to the U.S. to control aphid pests that had been introduced accidentally on imported plant materials. Efforts to release the MALB and establish populations in North America for biological control of aphids date back to 1916. The first detection of an established population in North America dates back to the late 1980s, and since then the species has spread rapidly across the continent. It is one of approximately 475 species of lady beetles in North America north of Mexico. Larvae and adults feed on aphids, and fall population densities in at least some portions of Illinois seem to be related to summer densities of the soybean aphid; when soybean aphid infestations are heavy in mid summer, they provide abundant food for the MALB, and consequently MALB populations increase. Adults are the overwintering stage, and two behaviors common among the adult beetles cause them to be viewed as pests: (1) they aggregate and feed on certain fruits, including grapes, raspberries, and apples, and (2) they invade homes in large numbers in search of overwintering sites. Their direct feeding damage to grapes is usually not cause for concern, as they infest clusters already damaged by fungal diseases or other insects. Instead, they pose a problem to wine makers when they remain in fruit clusters at harvest and are crushed with the berries; alkaloids in their body fluids taint the wine, giving it an "off" flavor and smell. For more details on the background information presented here, see the paper referenced below by Koch (2003) (available at: http://insectscience.org/3.32/Koch_JIS_3_32_2003.pdf).

Grape growers in Illinois annually face questions about whether or not MALB populations in a given vineyard warrant control and what to do or what to spray to try to achieve control. Researchers in Minnesota have reported the following findings and recommendations:

- MALB infestations are highly correlated with previous damage - splitting, fungal disease, or grape berry moth feeding damage. Preventing these problems reduces the attractiveness and suitability of grape clusters to MALB.
- Early detection of movement of populations into vineyards can be accomplished by using 6-inch by 6-inch square yellow sticky traps, beginning about 4 weeks before harvest is anticipated. A new University of Minnesota fact sheet recommends using 2 to 6 cards per acre (and placing some cards near the edges of vineyards is a good idea). Sticky cards catch beetles before visual inspection of clusters provides evidence of their presence. Yellow sticky cards are available from Great Lakes IPM, Vestaburg, MI (<http://www.greatlakesipm.com/>), or from Olsen Products, Medina, OH (<http://www.olsonproducts.com/index2.html>).
- To determine the need for insecticide application, examining 25-30 clusters per block or variety is recommended. Early assessments of research data from Minnesota suggest that control clearly is warranted if 2 to 5 percent of the clusters are infested with 1 or more beetles per cluster.
- Insecticides that provide some degree of effective control of MALB include Danitol, Sevin, Baythroid, Malathion, and Provado. Danitol, a pyrethroid, may be used until 21 days before harvest, but not later, so its role is limited to early reductions in beetle numbers. Sevin may be used until 7 days before harvest, and Minnesota researchers have found it to be effective as well. Baythroid, also a pyrethroid, recently was labeled for use in grapes with a 3-day pre-harvest interval (PHI), and although data on its performance are sparse so far, related data suggest that it will work very well. Baythroid is a Restricted-Use pesticide; a Pesticide Applicator's license is required for its purchase and use. Malathion also has a 3-day PHI in grapes, but it provides less residual effectiveness. Provado may be used on grapes up to the day of harvest (but with a 12-hour re-entry interval for pickers); it "knocks down" MALB, resulting in the beetles dropping from the clusters. Many may recover and not die, but it effectively reduces contamination of clusters at harvest. None of these insecticides is labeled specifically for control of multicolored Asian lady beetle, but their labels for use on grapes allow application against this insect in Illinois (though not in all states). For growers who do not possess a Pesticide Applicator's license, using Sevin at 7 days before

SEE MALB ON PAGE 5

Wine Grape Information for the Region

Mark Chien, Wine Grape Agent, Penn State
Cooperative Extension

Wine Microbiology Workshop with Lisa van de Water

Lisa van de Water has been chasing microbes around cellars for almost 30 years. She founded The Wine Lab and now has her own consulting company called Vinotecnapa and gives her advice around the globe. Lisa was here a few years ago and now is back again to talk about the problems that she most often encounters in wineries in her 3 decades of experience. This will be a very practical workshop with ideas about winery sanitation, detection, analysis and response to microbial problems. Lisa doesn't just do bugs. She has a wide range of experience about all matters of cellar practices and problems. Please plan to come to this workshop on Wednesday, August 30 from 1 p.m. to 5 p.m. at the Farm and Home Center in Lancaster, PA. The registration fee is \$25 for the workshop which you can pay at the door. You can bring any problem wines to share with the class so it can be used as a learning tool. This is part of the wine maker technical meetings that are held regularly in Pennsylvania. It is open to all wine makers. As is our tradition, we will get together for dinner after the workshop at a local restaurant with Lisa and you are welcome to join us. Bring wine (good wine) if you plan to attend. Please call me if you have any questions.

In the Vineyard

When I was a grower, this is just the time of the growing season when I would start getting very nervous. After veraison the weather really matters. Vine vigor is probably the biggest issue right now. As we head into veraison we are certainly wishing that the shoot tips would shut down and shoots would begin to lignify. We need the vines to start focusing on ripening fruit. I have heard some corn growers complaining about the lack of water recently and that's always a good sign for us. Let's hope the dry weather continues for another couple of months.

Canopy management is still very critical and anything you can do to open up the fruit zone to air and light will be helpful at this point. Hedging and leaf pulling are probably your best tactics for keeping a large canopy under control. It will encourage lateral growth but those leaves, once mature, will contribute to the ripening of your fruit.

We got hit by mid season **powdery mildew**, especially in Chardonnay with the problem being more on berries than leaves. As a consequence, quite a bit of it has hit the ground. From some of the reports I am

receiving I have a fear that we are seeing resistance to some of the fungicides being used in vineyards. I hope we can have a serious discussion about this with Jim Travis and Bryan Hed at the walk around. Berries should be resistant now but the powdery mildew infections seemed to linger this year. Leaves still need to be protected, especially those tender laterals on top to go the distance. Again, keeping shade out of the canopy will help enormously. **Black rot** was also very present this year. If you had problems with any of these diseases there may be holes in your spray program. It might be what you are spraying but also how and when. All of these should be considered. I hope we can display some sample spray programs from Penn State Fruit Research and Extension Center and experienced growers at the walk around.

I am a bit concerned about the harvest season in 2006. If it is dry, we should be okay. But if it is wet and certainly if we have a major event like a hurricane deep into the season, there is considerable danger lurking in the clusters. With the powdery problems we have had there may be diffuse powdery mildew on berries that can create openings for ripe and bitter rots. Tight cluster varieties are especially susceptible. Now is the time when those bloom and bunch close sprays may begin to pay off. Monitor crop loads as carefully as possible and adjust according to wine and economic needs but I would encourage growers to move to the lower end of the yield equation. Getting fruit off the vine mature and early this season may be a big advantage.

I'm always interested in your view from the vineyard. If you have observations to share, please write or call me. See you next week at the walk around. We have a lot to talk about.

Submitted by Jerome L. Frecon, Agricultural Agent. □

MALB FROM PAGE 4

harvest and Provado 1 day before harvest is a good management plan. For growers who are licensed to apply Restricted-Use pesticides, applying Baythroid 3 days before harvest should be effective.

Much of the information for this article was provided by Dr. Bill Hutchison and his students and research associates in the Department of Entomology at the University of Minnesota.

Submitted by Peter Shearer, Ph.D., Specialist in Entomology. □

Fruit IPM

Dean Polk, Fruit IPM Agent and David Schmitt, Eugene Rizio, and Atanas Atanassov, Ph.D., Program Associates, Tree Fruit IPM

Peach

✓ **Tufted Apple Budmoth (TABM):** Timings are updated in the following table:

County Area	TABM Timings - Application and Insecticide Type – Brood 2		
	OP's, Carbamates, Spintor, Pyrethroids (Conv.)		Intrepid
	4 alt mid sprays	2 complete sprays	2 complete sprays
Southern	4 th – 8/16-17	2 nd –8/11-14	2 nd – 8/11-14
Central	4 th – 8/14-16	2 nd –8/10-13	2 nd –8/10-13
Northern	2 nd –8/12-14, 3 rd –8/18-20, 4 th about 8/26-28	1 st done, 2 nd – about 8/22-24	1 st done, 2 nd about 8/22-24

✓ **Fruit Rots:** Brown rot is showing up on green fruit in late varieties. Rot is beginning on injured or deformed fruit. Little spread to healthy fruit has been seen but humidity is low at present and there have been few rain events. In southern counties fruit ripening has been 7-10 days ahead of normal. Varieties such as Lauro, Encore and Snow Giant should all be under a pre-harvest brown rot control program using the SI's (Bumper, Elite, Indar) or another chemistry such as Pristine.

✓ **Stink Bugs:** Stink bug populations have been increasing as they normally do this time of year. This is of particular concern for orchards located near grain crops, hayfields or woodlines. Imidan at the high rate, Asana, and Lannate are all effective for stink bugs. Imidan and Asana have a 14 day PHI. Lannate has a 4 day PHI.

Apple

✓ **Tufted Apple Budmoth (TABM):** See Peach section above.

✓ **Codling Moth (CM):** CM populations as measured by trap counts exceed 5 males per trap in numerous locations in both northern and southern orchards. Even though timed sprays are through, please be aware of the insect pressure on your own farm. Additional treatments may be required so “wormy” fruit doesn’t sneak up on us late in the season.

✓ **Stink Bugs:** Stink bug damage has become more prevalent in apples over the past few years, particular on late maturing varieties. Like peaches, stink bug is of particular concern if the orchard is located near grain crops, hayfields, or woodlines. Peter Shearer reports that Danitol is very effective for stink bug control. Even though Danitol is both a pyrethroid and a miticide, mite flare ups have been reported following its use. Intrepid or Spintor used for TABM control will not control stink bugs. Add an effective material for stink bug control if using either of these products.

Note: Blueberry information is not available this week.

Insect Trap Counts

Tree Fruit Trap Counts – Southern Counties

Week Ending	STLM	TABM-A	CM	AM	OFM-A	DWB	OFM-P	TABM-P	LPTB	PTB
8/5/06	930	4	2		7	17	10	6	77	3
8/12/06	822	3	8		7	22	18	7	67	6

Tree Fruit Trap Counts – Northern Counties

Week Ending	STLM	TABM-A	CM	AM	OFM-A	DWB	OFM-P	TABM-P	LPTB	PTB
8/5	658	0.6	2.4	N/A	N/A	0.2	12.9	1.5	10.0	5.8
8/12	565	3.2	4.2	N/A	N/A	1.0	14.2	4.8	12.5	8.7

Blueberry Trap Counts – Atlantic County

Week Ending	CBFW	RBLR	OBLR	SNLH	OB	BBM
8/5				0.1		0.07


Blueberry Trap Counts – Burlington County

Week Ending	CBFW	RBLR	OBLR	SNLH	OB	BBM
8/5				6.42		0.11

Key: CBFW = Cranberry Fruitworm, RBLR = Redbanded Leafroller, OBLR = Obliquebanded Leafroller, SNLH = Sharpnosed Leafhopper, OB = Oriental Beetle, BBM = Blueberry Maggot

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