INDEX

FFF06-06
July 18, 2006

Crop Conditions:
Peaches are being harvested with good crops being reported. Harvest of early apple varieties, such as Lodi, has begun. Again, crops are looking good. Early grapes are at or just starting "veraison," or the ripening stage. Harvest is usually about 35-45 days from the beginning of veraison. Harvest appears to be on a normal schedule this year with early varieties ripening in mid August in southern Indiana to early September in northern areas. Blackberries in the Lafayette area are just coming on and fruit size and quality are excellent. Blueberry harvest in Northern Indiana is still going strong. Raspberry harvest is underway.

IHS Summer Meeting Successful: Over 70 growers from Indiana, Illinois and Ohio enjoyed the 2006 Indiana Hort. Society's summer meeting. Our thanks and appreciation go to our hosts: Garwood Orchards, Coloma Frozen Foods and Tree-Mendus Fruit Farm. At Garwood Orchards we saw why the Garwood's are known among the best fruit growers in the state. I received many very positive comments from folks who were impressed with not only the vast array of crops and activities the Garwood's are involved in, but also how well each of those crops was managed. Many were also impressed with the food, and again we thank all the Garwood's for their hospitality. The tour of the plant at Coloma Frozen Foods was interesting and educational. We were fortunate to have both the company president (Brad Wendzel) and wholesale sales manager (Ed Sill) lead our tour of their facilities. At Tree-Mendus Fruit Farm, Herb Teichman regaled us with tales of the orchard and amazed us with his enthusiasm and excitement about growing fruit and selling the experience to his customers. He reinforced the importance of engaging customers and making a visit to the farm a customer-friendly experience. Thanks again to all our hosts. (Hirst)

Apple Diseases: The serious wetting events that occurred in mid to late June not only set a stage for fire blight, but may trigger the development of flyspeck, sooty blotch, and fruit rot in Indiana apple orchards. Last week's rains have only contributed to this problem, as bitter, black, and white rot infections that began on green apples will not develop symptoms or become obvious until fruit ripens. They

are there, waiting, and lurking…and in some instances, infections may not even appear until after harvest.

Until this last week, weather conditions were favoring the development of flyspeck and sooty blotch. In fact, a recent trip to the old Hort Farm resulted in the discovery of both diseases (Remember: these diseases are caused by at least a dozen different fungi—Will the wonders of DNA technology ever cease?). However, lack of spraying at the old Hort Farm means that ascospore infection (which, in managed orchards, is controlled by sprays to manage scab, powdery mildew, and rust) started the ball rolling. What the infections managed orchards need to fear NOW are the conidia flying in from wild bramble, crabapple, and many native tree species that are hosts of these diseases.

No matter the host, the disease complex is favored by temperatures between 65 and 80 F and by high humidity (greater than 90% relative humidity). These conditions occur when nighttime temperatures remain above 65 to 70 F during the summer, or during extended warm, rainy periods during the day. Symptoms of sooty blotch and flyspeck develop within 14 days from infection under ideal conditions; however, symptom development may become arrested by high temperatures and low relative humidity. So, with all but our earliest apples, like Lodi, or William's Pride, the period between infection and symptom development is occurring now, and will most likely continue through harvest. If this wasn't bad enough, sooty blotch and flyspeck infections not yet visible at harvest can develop during cold storage.

What to do? The fungicides that have provided consistent protection against sooty blotch and flyspeck are the strobilurins (Flint, Sovran, Pristine), and Topsin M, Captan or ziram at a full rate provide excellent protection for up to 14 days or 2 inches of rain, while reduced rate captan or ziram (i.e. 1 pound captan 50 WP per 100 gallons dilute) are reliable for up to 10 days or 1.5 inches rain. In field studies, Sovran performed better than Pristine or Flint for suppressing infections but it is not better than Topsin-M + Captan, in most studies that included these fungicides, assuming resistance to Topsin M is not an issue. Pristine provides the best residual protection, but Sovran and Topsin M provide the best post-infection activity. Application of one of these materials with good coverage can be relied on for protection for up to 21 days or 2 inches of rain. Keep in mind that it takes about 3 hours for systemic fungicides to actually become systemic and the deposit to dry under ideal conditions. The strobilurins that are used in orchards aren't systemic, but translaminar. This means that they adhere to the waxy leaf and fruit cuticle and spread throughout the leaf and fruit tissue, but do not translocate, or spread throughout the plant via the xylem, like Topsin-M, which also gives you a little bit of post-infection kickback. Topsin M doesn't have everything: an advantage of the strobilurins is that additional absorption into the leaf or fruit occurs with every re-wetting event, providing some additional protection (but definitely not enough to extend spray intervals or risk resistance)!

Maintain regular spray intervals especially during wet weather: Fungicides are only effective under appropriate timing preferably before infection, with the correct concentration of material reaching the fruit or leaf, and with appropriate coverage. Remember that late summer sprays for flyspeck, sooty blotch, and the rots can be rendered ineffective by incomplete coverage of fruit surfaces. The use of the appropriate spreader-sticker may help, as long as excessive run-off does not result. Alternatively improve coverage of summer sprays by reducing tractor speed and increase the volume of water applied per acre. (Beckerman)

Correction to Spray Guide: The rate of Topsin-M given on page 10 of the 2006 Commercial Tree Fruit Spray Guide should be 4-6 oz/100 gal or **1-1.5 lb/acre** (not 1-1.5 oz/acre). The rate is correct on other pages of the spray guide. (Hirst)

Strawberry Renovation: Matted row strawberry plantings must be renovated after harvest to establish new crowns for next year's crop. For best results, renovation should be started immediately after the harvest is completed to promote early runner formation. The earlier a runner gets set, the higher its yield potential. Renovation should be completed by the end of July in normal years. Harvest is winding down across the state so growers should begin renovation as soon as the last marketable berries are harvested. The following steps describe renovation of commercial strawberry fields.

1. Weed control: Annual broadleaf weeds can be controlled with 2,4-D amine formulations. Check the label as only a few products are labeled for use on strawberries. (e.g. Amine 4 [Dimethylamine salt of 2,4-D (3.74 lb./gal.)] at 2 to 3 pts./acre in 25-50 gallons of water applied immediately after final harvest. Be extremely careful to avoid drift when applying 2,4-D. Even though the amine formulation is not highly volatile, it can volatilize under hot, humid conditions and can cause damage to desirable plants a considerable distance from the site of application. Some damage to strawberries is also possible. Read and understand the label completely before applying 2,4-D amine. If grasses are a problem, sethoxydim (Poast 1.5 EC) or clethodim (Select 2 EC) will control annual and some perennial grasses. However, do not tank mix these materials and 2,4-D. See ID 169 and the product label for rates and especially for precautions.

2. Mow the old leaves off just above the crowns 3-5 days after herbicide application. Do not mow so low as to damage the crowns.

3. Fertilize the planting. A soil test will help determine phosphorus and potassium needs, but foliar analysis is a more reliable measure of plant nutrition. For foliar analysis, sample the first fully expanded leaves following renovation. Generally, nitrogen should be applied at 25-60 lbs/acre, depending on vigor. It is more efficient to split nitrogen applications into two or three applications at regular intervals, rather than apply it all at once. A good plan is to apply about half at renovation and half again in late August when flower bud development is occurring.

4. Subsoil: Where picker traffic has been heavy on wet soils, compaction may be severe. Sub-soiling between rows will help break up compacted layers and provide better infiltration of water. Sub-soiling may be done later in the sequence if crop residue is a problem or if soils are too wet at this time.

5. Narrow rows: Reduce the width of rows to a manageable width based on your row spacing, the aisle width desired, and the earliness of renovation. A desirable final row width to attain at the end of the season is 12-18 inches. Wider rows lead to low productivity and increased disease pressure. This means that rows can be narrowed to as little as 6 inches during renovation. Use a tiller or cultivator to achieve the reduction. Since more berries are produced at row edges than in the middle, narrow rows are superior to wide rows. Narrow rows will give better sunlight penetration, better disease control, and better fruit quality.

6. Cultivate: Incorporate the straw and other plant material between rows and throw a small amount of soil over the row by cultivation. Strawberry crowns continue development at the top, and new roots are initiated above old roots on the crown, so 1/2 - 1 inch of soil on the crowns will facilitate rooting. This also helps cover straw in the row and provides a good rooting medium for the new runner plants.

7. Weed control: Pre-emergence weed control should begin immediately. Dacthal, Sinbar or Devrinol are suggested materials. See ID-169 and check the product labels carefully. Devrinol must be incorporated by irrigation, rainfall, or cultivation to be effective. Rate and timing of Sinbar application is critical. If re-growth has started at all, significant damage may result. Some varieties are more sensitive to Sinbar than others. If unsure, make a test application to a small area before treating the entire planting. Use 2 to 6 oz/acre/application and no more than 8 oz/acre/year total. Sinbar should not be used on soils with low organic matter, or on sensitive varieties like Guardian, Darrow, Tribute, Tristar and possibly Honeoye. If Sinbar gets onto strawberry leaves, irrigate to wash it off. See the Midwest Small Fruit Pest Management Handbook for a table showing variety sensitivity to Sinbar.

8. Irrigate: Water is needed for both activation of herbicides and for plant growth. Don't let the plants go into stress. Ideally the planting should receive 1 to 1-1/2 inches of water per week from either rain or irrigation.

9. Cultivate to sweep runners into the row until plant stand is sufficient. Thereafter, or in any case after early September, any runner plant not yet rooted is not likely to produce fruit next year and can be removed. Coulter wheels and/or cultivators will help remove these excess plants in the aisles.

10. Adequate moisture and fertility during August and September will increase fruit bud formation and improve fruit yield for the coming year. Continue irrigation through this time period and fertilize if necessary. An additional 20-30 pounds of N per acre is suggested, depending on the vigor. (Bordelon)

Grape Harvest: Grape harvest is growing near in the southern part of the state. As harvest nears, it is very important to monitor grape chemistry. Sampling should occur weekly leading up to harvest. Fruit quality is comprised of several factors of which the most important are sugars, acids, and pH. Other important factors are phenolics and anthocyanins, volatile terpenes, and other flavor and aroma compounds. Freedom from rots is also an important consideration. Unlike some other fruits, grapes do not continue to ripen after harvest. Consequently, it is extremely important to harvest grapes at the peak of quality and with the desired parameters for the intended use. Fruit quality is the most important factor determining the quality of wine.

Winegrape growers should have the ability to monitor sugars (refractometer), titratable acidity and pH (pH meter and burette). Each of these factors is important in determining the proper harvest time, but not one alone can accurately estimate overall fruit quality. It is the balance of sugars, acids and juice pH that is important to the wine maker. Equipment and supplies for a small lab can be purchased for about $250.

With wine-grapes, all fruit of a given cultivar is usually harvested from the vineyard or block at a single time to coordinate winery activity and to reduce costs. The fruit is bulked together for processing and eventually all the juice may be blended into a single tank. It is important to carefully plan the harvest date to coincide with the optimum fruit quality from the entire vineyard.

Most vineyards have some degree of variability in aspects such as soil type, drainage, sunlight exposure, wind, insect and disease pest, nutritional status, etc. These variations can have a significant effect on fruit ripeness on specific vines. In addition to variations between different parts of the vineyard, fruit from adjacent vines as well as from different parts of the same vine can vary. These differences are caused by differences in crop load (pounds of fruit/vine size), cluster position, degree of sun exposure, vine vigor, and so on. Much of the variability can be reduced with proper vineyard management.

In order to estimate the juice parameters on the entire crop after harvest and processing, growers must accurately sample the vineyard. On a small, well-managed vineyard block with minimal variability, a sample of 100-200 berries might give a good estimation. However, on a larger vineyard with considerable variability in fruit maturity, it may take a much larger sample to accurately estimate the final juice chemistry. Growers should make every effort to accurately estimate fruit maturity before harvest begins. This topic will be discussed at our annual Fall Grape and Wine Workshop, which is planned for September 11 (see notice below). (Bordelon)

Multicolored Asian Lady Beetle, Grapes, and Wine: The Multicolored Asian Lady Beetles or "Lady Bugs" as most of us know them have become an indirect pest of grapes. Armed with a smelly defense chemical, these beetles have the capability of ruining vast amounts of wine. In the past few years, we have found them congregating on certain grapes at or near harvest. They tend to stay in the clusters through the crush and pressing operation, depositing their defense chemical (methoxypyrazine) into the juice, leading to a distinctive "LB" odor and flavor to the wine. Most people consider this herbaceous odor and flavor a serious wine flaw. The problem exists across the wine regions of the eastern US and seems to be mostly a problem where grape harvest occurs in late August and September. The problem seems to be worse in central and northern Indiana, the Great Lakes region, etc. It has not been a serious problem along the Ohio River Valley. However, we need growers and winemakers to help us monitor this pest. We would like to know when you notice significant numbers of Asian Lady Beetles showing up in your vineyards, what varieties they seem most attracted to, and at harvest, if they are present in harvested clusters. (Bordelon)

Japanese Beetles on Grapes and Berry Crops: The first of this year's Japanese beetles started to emerge in the Lafayette area last week. Growers familiar with this pest know that they have a voracious appetite for leaves of a number of crops and non-crops plants, and the fruit of some crops such as blueberries and brambles. Control of adult beetles is relatively easy with insecticide applications. However, due to the continual emergence of adults over a several week period, re-application may be necessary several times during the season. Sevin is the most effective material labeled for use on most fruit crops. The preharvest interval (PHI) on small fruits is 7 days, which can present a problem during harvest. Imidan is moderately effective and has a 3-day PHI, which may help somewhat. Malathion has a 1-day PHI on blueberries and brambles, although it is not the most effective insecticide. Insecticides containing pyrethrum can be used up to the day of harvest, but provide only very short-term control. Insecticides that contain Neem extract appear to have some repellency against Japanese beetle. Be sure to adhere to the preharvest restriction and Restricted Entry Intervals for whatever pesticide you choose to use. Traps are generally not recommended as they likely attract more beetles to the crop area. In recent years research has found that use of soil-applied insecticide, imadicloprid (Admire) at egg laying will significantly reduce the number of larvae in the soil. However, it is unclear whether reduction of larvae in and around a planting

will significantly reduce the number of adults feeding in a planting since they can travel quite a distance to feed. (Foster and Bordelon)

Keep Your Website Updated: Many orchards and farm markets have websites to both advertise operations and keep customers informed of what's happening on the farm. Many websites have a page with something like "What's ripe right now". With peaches and early apples coming on, it's important to update the information. Although this is a busy time of the year with plenty of other tasks demanding attention, this is one that can be delegated to whoever you have managing your website. Even basic information telling your customers when you expect the various crops and varieties to be ripe is useful. (Hirst)

New Employment Rule: Those who attended the IHS Summer Meeting heard John Wargowsky (Mid America Ag and Hort Services) give an excellent update on new employment rules from the Dept. of Homeland Security. We have now posted the rule at our website (www.hort.purdue.edu/fruitveg/). The new proposed interim Safe Harbor Rule applies to employers who receive no-match letters and was effective June 14, 2006. Note that this is an interim rule that is subject to change after public comments are considered.

In this new rule, DHS clearly states that the receipt of a no-match letter from the Social Security Administration or the DHS is considered "constructive knowledge" that an employer is employing an unauthorized alien.

The proposed interim rule clarifies the definition of constructive knowledge as follows: "The term knowing includes having actual or constructive knowledge. Constructive knowledge is knowledge which may fairly be inferred through notice of certain facts and circumstances that would lead a person, through the exercise of reasonable care, to know about a certain condition."

This rule provides "reasonable steps" to a "safe-harbor" for employers who receive a no-match letter. The safe-harbor does not apply to actual knowledge.
(Hirst, with information from MAAHS)

CA Clinic at Michigan State: The Department of Horticulture at Michigan State University is holding the Controlled Atmosphere (CA) Clinic on July 21, 2006 at the Clarksville Horticulture Experiment Station, Clarksville, MI. This one-day clinic will feature updates on optimum apple storage techniques including using 1-MCP (Smartfresh) on small quantities of fruit. Conducting the clinic will be some of the leading university and industry fruit storage experts in North America. Topics and demonstrations will include:

- Recommended storage regimens for Eastern apple varieties.
- Storage potential for apple fruit gathered from the wilds of Kazakhstan, the origin of the domesticated apple.
- Advantages in the use of plastic bins for bulk fruit storage and handling.
- Thermo fogging technology for application of DPA and fungicides.
- Industry offerings for postharvest fungicides, cleaners and waxes.
- Use of 'Propods' for administering 1-MCP to small quantities of apple fruit.
- Recent progress in the non-destructive quality assessment program of the USDA at MSU; prototype evaluation.
- Update on 1-MCP recommendations and use of AgroFresh.
- Reducing refrigeration costs through computerization.

For more information, refer to http://www.hrt.msu.edu/caclinic or contact Sandy Allen at Michigan State University, email allens@msu.edu, phone 517-355-5191 ext 1339 or ext 1303. (Hirst)

Can You Take The Heat? At this time of the year, there's a lot of work to be done on the farm under hot, humid conditions. When exposed to very hot temperatures, your body may lose its ability to regulate body temperature properly, resulting in heat-related illnesses. Infants, young children and those over 65 are most vulnerable. Watch for these signs:

- Heat cramps – symptoms are muscle pains or spasms, usually in abdominal area or legs.
- Heat exhaustion – symptoms are cool, moist, pale skin; headache; dizziness; weakness; exhaustion; nausea.
- Heat stroke – symptoms include vomiting; loss of alertness or consciousness; high body temperature; rapid, weak pulse; shallow breathing; red, hot, dry skin; sweating has stopped.

OK, so what should you do if you notice symptoms? For heat cramps and heat exhaustion, seek shade, cool down promptly and take fluids. If symptoms continue beyond one hour, seek medical care promptly. For heat stroke, which is life threatening, call 911 immediately, move out of the sun and cool down promptly – a cold, wet cloth may help. Do not take fluids.

Follow these tips to prevent heat illness:

- Drink 2-4 glasses of water each hour. Avoid alcohol and carbonated drinks.
- Take regular breaks to rest in the shade or air-conditioning.
- Wear lightweight, light-colored, loose-fitting clothing.
- Wear a hat to keep a cool head.
- Avoid heavy meals, which may increase metabolic heat.
- Schedule strenuous tasks early in the morning or later in the afternoon and so avoid these during the hottest time of the day.
- Don't leave children or pets in a parked car.
- Keep a bowl of water in shaded areas for pets.

(Hirst, from Working Well Newsletter)

Discounts from Gemplers: Gemplers is offering all MAAHS members (and by association all IHS members) 20% off items in their catalog for the month of August, 2006 (www.gemplers.com/). (Hirst, with information from MAAHS)

Upcoming Meetings:

July 21. CA Clinic, Michigan State University. See article in this issue for more information.

Aug. 30-Sept.1 North American Fruit Explorers (NAFEX) annual meeting. Holiday Inn North, Lexington, KY. For more details contact John Strang, Univ. KY, jstrang@uky.edu

September 11 Fall Grape and Wine Workshop. Purdue West Lafayette campus. Watch for more details in the future. Contact Jill Blume 765-494-1749 or blume@purdue.edu

Dec. 5-7. Great lakes Fruit and Vegetable expo, Grand Rapids, MI.

Jan. 29-31. Indiana Horticultural Congress and Trade Show, Indianapolis.

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