



INDEX

Crop Conditions
Summer Meeting Highlights
HACCP is in for Cider
Food Handler Certification
Wet Weather and Diseases
Apple Summer Diseases
Control for Sooty Blotch and Flyspeck
Strawberry Renovation
Japanese Beetles on Grapes & Berry Crops
Upcoming Meetings

FFF04-07
July 9, 2004

Crop conditions: Apple season has started with early apples such as Lodi being harvested in central and southern areas. Peach season is well underway with good crops and size being reported.

Excellent summer meeting at Anderson Orchard: Our thanks go to Paul Anderson, who along with Carolyn, Robin and Erin, were marvelous hosts for the summer meeting of the Indiana Horticultural Society last week. One of the strengths of the Society is the willingness of its members to pitch in and volunteer, even when it requires significant effort and work. Once again, the meeting benefited from meeting jointly with the Indiana Farm Marketing Association with whom the IHS has mutual interests. The Andersons not only showed us their new kitchen in their market, but also demonstrated it in a very practical way – the elephant ears, biscuits and cobbler were delicious. The orchard tours were very worthwhile, viewing not only apples, but many other fruit and nut crops also.

The tour was not only educational, but also exciting. Thanks to Dennis for demonstrating some “extreme” tractor driving! (Hirst)

HACCP is in for cider: As cider makers know, this year HACCP is mandatory for cider. HACCP includes, but is not limited to, pasteurization. Those cider producers who sell ALL their cider from their farm market can claim the **retail exemption** – warning labels are still required but not HACCP or pasteurization. Note that all means all – not one gallon sold to a supermarket or even by you at a farmers market. We encourage all cider makers, whether you are under HACCP or claiming the retail exemption, to attend a HACCP workshop. Some have already done this. For those who haven't

and would like to, another HACCP training course will be held in West Lafayette on September 27-29. Although the timing isn't the best for apple growers and cider makers, remember that HACCP is much wider than just apple cider, and this course is also for other industries such as seafood and poultry. (Hirst)

Food handler certification: Some of you have been contacted by your county health department regarding certification as a food handler. New Food Handler Certification regulations go into effect in January 2005. There are many exemptions so its not a clear black and white issue. According to rule 410 IAC 7-22-15 part (g), the following exemptions apply – the following is directly from the rule:

The certified food handler requirement does not apply to a food establishment when the food establishment's food handling activities are limited solely to one (1) or more of the following:

- (1) Heating or serving pre-cooked hot dog or sausage products, popcorn, nachos, pretzels, or frozen pizza;
- (2) Preparing or serving a continental breakfast such as rolls, coffee, juice, milk and cold cereal;

- (3) Preparing or serving nonalcoholic or alcoholic beverages or ice;
- (4) Grinding coffee beans;
- (5) Packaged foods that are not potentially hazardous foods in accordance with the rules adopted by the executive board;
- (6) Heating when it is the only step for a bakery product; or
- (7) Providing prepackaged food in its original package.

According to Shirley Vargas at the Indiana State Department of Health, if all you are doing is making cider and selling fresh fruit, then you are exempt. Therefore I expect that most orchards will be exempt.

If an operation is required to have a food handler certified, they need to pass one of the three accredited exams. It does not mean they must take the course although many would have to in order to pass the exam. You only need one certified food handler at an operation and they do not need to be present at all times. The food handler will need to be recertified once every 5 years. Some county health departments may have sent notices out to all orchards and farm

markets in their county, but this does not necessarily mean you are covered by this rule. The complete rule is on the Purdue Fruit Connection website at <http://www.hort.purdue.edu/fruitveg/> (Hirst)

Wet Weather and Diseases: With all the recent rains my thoughts go to apple scab, sooty blotch and flyspeck, black rot, bot rot, collar rot...the list never ends. Wet weather is the disease accelerator, often resulting in disease epidemics. Don't cut rates, and don't extend spray intervals and you should be okay. In many areas of the state the ground has been saturated with water over the past few weeks. This is a situation which encourages the development of crown rot and root rot on apple, peaches, cherries, brambles, blueberries, strawberries, etc.... you name it and the *Phytophthora* fungus gets it! Ridomil and Aliette are recommended to treat for *Phytophthora* diseases. Ridomil is applied as a drench, while Aliette is applied primarily as a foliar spray. Refer to ID-168, page 13, for a full discussion on crown rot (collar rot) of apple and other fruit. As always, follow all label directions. Of course the best solution is to improve drainage in wet sites.

A Banner year for Apple Summer Diseases: Black rot, white rot, bitter rot, sooty blotch & flyspeck will all be

on the increase as we progress into the summer months. With all the rain we've had it could be a banner year for apple rot and smut diseases (as we plant pathologists so affectionately call them). Since I can no longer remember which fungicides are most effective for the summer rots, I turn to page 35 of ID-168, '2004 Commercial Tree Fruit Spray Guide' to check out the table on effectiveness of fungicides against apple diseases. I first note that the SI fungicides (Nova, Rubigan, Procure and Bayleton) are pretty much worthless for control of most summer rot diseases. On the other hand, mancozeb and Polyram are excellent for control of summer diseases, however they can only be applied up to 77 days of harvest. After the 77-day to harvest restriction has passed captan and ziram remain our best options for summer cover sprays; they should be used at the full-labeled rate and on a tight schedule if wet summer weather prevails. We also suggest tank mixing with Topsin-M or Benlate if it turns into a 'sooty blotch/fly speck year'; however, Benlate and Topsin-M should be used sparingly (no more than once a month) to avoid harm to predator mites and lessen the possibility of the development of resistance. Added help in control of summer diseases is now available with the strobilurin fungicides, Flint and Sovran - See below article on Sovran & Flint for details. Infection from summer diseases, especially sooty

blotch and flyspeck, can further be reduced through IPM strategies that lower humidity and promote rapid drying. These include keeping grass mowed during summer and keeping trees well pruned. Tree spacing within and between rows should allow air movement between all trees. Removing adjacent woods or cutting breaks in hedgerows will also help improve air-flow in the orchard. Of course it goes without saying (so I'll say it) that all the above suggestions are pretty much a waste of time if **good sanitation** measures are not strictly followed.

Sovran & Flint for Control of Sooty blotch & Flyspeck: As mentioned above, we now have added help in control of sooty blotch and flyspeck and other summer diseases with the strobilurin fungicides, Sovran and Flint. In an earlier edition of this newsletter we suggested a 1st, 3rd, and 7th cover spray program using Sovran (our study included only Sovran, not Flint). The 1-3-7 programs provided excellent control of both fruit scab and sooty blotch and flyspeck under extremely high disease pressure for all diseases. The 3rd and 7th cover sprays were especially critical in control of sooty blotch and flyspeck. Just so there is no confusion, this program is IN ADDITION TO your regular summer fungicide cover sprays. We are simply suggesting you substitute Sovran (or Flint if you prefer) for those fungi-

cides you generally use in the 1st, 3rd and 7th covers. Also, a reminder...we **STRONGLY** suggest no more than three sprays of the strobilurins per year, and as the label states: “do not apply as the final spray of the season.”

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. Formula 40 [2,4-D alkanolamine salts plus 2,4-D Triisopropanolamine salt (4 lbs./gal.)] or 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. Subsoiling between rows will help break up compacted layers and provide better infiltration of water. Subsoiling 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.
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 is essentially a weed and should 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)

Japanese Beetles on Grapes and Berry Crops: The first of this year's Japanese beetles has started to emerge in the Lafayette area. 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 huge 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.

Recent research has shown that neem products are effective repellents of Japanese beetles. Extracts from neem trees contain the active ingredient azadirachtin, which is not very toxic to the beetles, but does repel them. Best results are obtained by applying the neem when beetles first become active on the plants. If you wait until the plants are infested before application, it may take 2-3 days before the beetles leave. In that time, the beetles can do a lot of

damage, so applying neem early is the best way to avoid damage. In a study on apples in 2003, a single application of neem kept beetles away for the entire season, although in 2002, several applications were necessary. Organic growers approve neem products for use. The PHI interval is 0 days, so there is little or no interference with harvest with this product. Again, remember that neem is not the right product to clean up a serious infestation, but works well for avoiding problems. Be sure to adhere to the preharvest restrictions 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. (Foster and Bordelon)

Upcoming meetings

Sept 27-29. HACCP training course, West Lafayette. More details to follow.

January 24-26, 2005. Indiana Horticultural Congress, Adams Mark Hotel, airport, Indianapolis.

Department of Horticulture &
Landscape Architecture
Purdue University
625 Agriculture Mall Drive
West Lafayette, IN 47907-1165

Bruce Bordelon
Dept. of Horticulture &
Landscape Architecture
Purdue University
625 Agriculture Mall Drive
West Lafayette, IN 47907-2010
765/494-1301
e-mail: bordelon@hort.purdue.edu

Peter Hirst
Dept. of Horticulture &
Landscape Architecture
Purdue University
625 Agriculture Mall Drive
West Lafayette, IN 47907-2010
765/494-1323
e-mail: hirst@purdue.edu

Paul Pecknold
Dept. of Botany & Plant Path.
Purdue University
915 West State Street
West Lafayette, IN 47907-1155
765/494-4628
e-mail: pecknold@purdue.edu

Rick Foster
Dept. of Entomology
Purdue University
901 W. State St.
West Lafayette, IN 47907-1158
765/494-9572
e-mail: rick_foster@entm.purdue.edu

Disclaimer: Reference to products in this publication is not an endorsement to the exclusion of others that may be similar. Any person using products listed in this newsletter assumes full responsibility for their use in accordance with current label directions of the manufacturer.

It is the policy of the Purdue University School of Agriculture that all persons shall have equal opportunity and access to the programs and facilities without regard to race, color, sex, religion, national origin, age, marital status, parental status, sexual orientation, or disability. Purdue University is an Affirmative Action employer. This material may be available in alternative formats.