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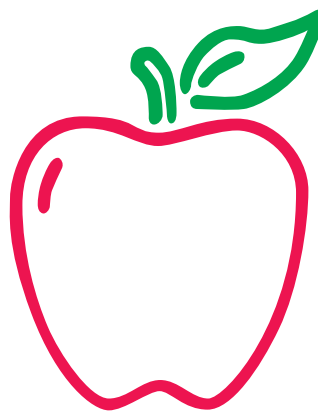
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FFF 99-09
June 30, 1999

Crop Conditions: It's officially summer now, but most of us felt like summer had started a couple of weeks ago when the very warm weather hit. We've finally seen some relief to the very high temperatures and some much needed rain has fallen across the state recently, ending the dry conditions. Be sure to keep new plantings well watered and weeded during the stressful summer months. Blueberry harvest is getting underway in central and northern areas and bramble harvest continues across the state. Strawberry harvest is essentially over. The southern plantings fared better than those central and north due to the timing of the thrips invasion and onset of high temperatures. The dry conditions have reduced disease problems for all crops, but the high temperatures are not good for fruit quality, particularly for berries. Pay attention to post harvest handling and cool the fruit immediately after harvest. Peach harvest is beginning in southern Indiana where most growers have a good crop. Summer apples should start soon.

Sooty Blotch & Flyspeck: Young developing apple fruit are already showing the dark smudges and black speckling indicative of sooty blotch and flyspeck. These diseases are best managed if fungicide applications are maintained on a regular schedule throughout the summer months. They become a problem when the time between sprays is stretched too long (4 weeks between sprays just won't cut it) and/or when spray applications are stopped too early in the season. Check harvest restriction days on the pesticide container label and MAINTAIN fungicide applications on a REGULAR SCHEDULE up to the cut-off period. See ID-168, "1999 Indiana Commercial Tree Fruit Spray Guide", for further information. Infection from sooty blotch and flyspeck can further be reduced through IPM strategies that lower humidity and promote rapid drying. Also, remember to remove

reservoir hosts, particularly brambles, from the orchard and surrounding hedgerows to help reduce the influx of inoculum. -Pecknold



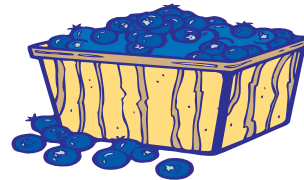
Brown Rot of Stone Fruits: As fruit softens during the ripening process, it becomes more susceptible to brown rot. Keep in mind that wet, humid weather is ideal for brown rot development. Scout orchards now for brown-rot-infected, aborted fruit. Also maintain good insect control, especially for curculio. Special attention to brown rot control is required where trees are planted closely and/or where woods surround the orchard. Such conditions reduce air movement, and dew or rain evaporates more slowly, leading to possible brown rot outbreaks. -*Pecknold*

Codling Moth: Second generation codling moth adults should be emerging any time now. To better time your insecticide applications, you should have your pheromone traps in place now. As with the first generation, start accumulating heat units when you have a sustained moth flight (3 to 5 moths per trap). At somewhere around 250 heat units (base 50) you should apply your first insecticide, with the second around 300 heat units later.

Apple Maggot: Now is the time to begin trapping for apple maggot adults. Having the traps in place will give you a better idea of when the flies are active and when control measures need to be taken. You can use yellow sticky board traps or red or green sticky spheres, but trap catches are improved considerably if you use the attractant along with the traps.

Blueberry National Research and Promotion Initiative: The North American Blueberry Council (NABC) is recommending that the industry consider adopting a national promotion program for cultivated highbush blueberries. According to materials recently distributed, "By forming the U.S.A. Blueberry Council (USABC), all domestic cultivated blueberry growers will have the ability to invest in their future and collectively generate the level of

funding which will allow for more aggressive market development efforts both here at home and abroad". A flyer is available to answer some of the most frequently asked questions surrounding the USABC program. For more information or to request a copy of the flyer, contact NABC at (916) 933-9399 or visit the website at <http://www.blueberry.org/usabc.htm> or the USDA web site at <http://www.ams.usda.gov/fv/rpb.html>



Yield Assessment and Adjustment in Grapes: Grapes require careful control of crop size to balance the amount of fruit to vegetative growth. An optimum balance leads to maximum yields of high quality fruit and adequate vine growth for consistent productivity. Excess fruit production leads to poor fruit quality and reduced vegetative growth, resulting in lower potential production in the future. Though crop control is generally accomplished through balanced pruning, many French hybrid cultivars tend to be overly productive, so balanced pruning alone will not adequately control crop size. These cultivars require careful crop load adjustment to prevent weakening of the vines.

The potential yield must be estimated to determine if crop reduction is necessary. Potential yield is determined by the number of vines per acre (based on row and vine spacing), the number of clusters per vine, and the weight of the mature clusters. At standard spacing (8' x 10') there are approximately 545 vines per acre. If each vine produced 20 lb. of fruit, the yield on a per acre basis would be 10,900 lb., or about 5 1/2 tons. To determine how much fruit a vine will yield, count the number of clusters and estimate the cluster weight based on cultivar and past performance of the vineyard. Multiply average cluster

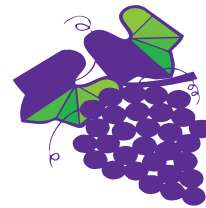
weight by number of clusters, then by number of vines to determine yields per acre. Cluster size is largely determined by genetics of the cultivar and is relatively consistent from year to year, however, factors that affect fruit set can have an effect on cluster weight. We have been taking data on yield, cluster weights, berry weights, etc. for the past three seasons and are beginning to get a good idea of performance of many grape cultivars. In our trials, large clusters average about 1/3 to 1/2 lb. but can be much larger. Large clustered cultivars include: Seyval, Vidal, Chardonnay, Cayuga White, Villard blanc, and seedless cultivars such as Reliance, Marquis, and Himrod when cluster-thinned. Medium clusters average about 1/4 lb. and occur on cultivars such as Chambourcin, Chancellor, Horizon, LaCrosse, Melody, Traminette, Concord, Niagara, and Catawba. Small clusters average about 1/5 to 1/8 lb. and occur on Cynthiana/Norton, Foch, Leon Millot, Delaware, Baco noir, Ventura, and Vignoles.

Yields from 5 to 7 tons per acre are reasonable for most wine grape cultivars in moderately vigorous vineyards, though actual yields range from less than 1 ton to well over 10 tons per acre depending on cultivar and vine vigor. Growers must know the relative vigor of their vines (pruning weights) and past performance of the vineyard to determine the maximum yield potential. A good rule of thumb is that the “crop load” (ratio of yield to pruning weight) should be in the range of 7 to 15 for French hybrid and American cultivars. It is easy to overcrop grapes if careful attention is not paid to crop load. Set a target yield based on past experience and adjust the crop to meet that target. Keep good records to determine the appropriate yields for each particular vineyard block.

To adjust the crop load first adjust shoot number. Adjust shoot density to approximately six shoots per foot of row on a single curtain system (48 shoots/vine at 8 ft. spacing). An excessive number of shoots can create a shading problem that reduces fruit quality and

bud fruitfulness for next year. Remove secondary and non-count shoots before primary shoots. After shoots are thinned to the proper density, estimate the yield by counting the clusters on the remaining shoots. To further reduce the crop, thin to one or two clusters per shoot depending on cluster size and number per shoot. Leave the basal cluster as it is usually the largest. Shoot removal should be completed relatively early in the season to reduce vine stress, but cluster thinning can continue up through veraison if necessary. -

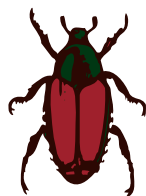
Bordelon



Late Season Grape Disease Control: The first of July signals the shift from early season to late season disease control strategy in grapes. From now until harvest the spray interval can generally be extended to 14 to 21 days (depending on rainfall) and growers must change fungicides. On most grape cultivars the last application of mancozeb is recommended two weeks post-bloom. Because of its 66 day pre harvest interval, one of the other broad spectrum fungicides must be substituted for mancozeb for the remainder of the season. The protectant should be combined with one of the sterol inhibitors (SIs) such as Nova, Bayleton, Rubigan, etc. Another option is the new strobilurin product Abound, however, it's probably a better choice for the bloom and post bloom sprays because of economics. Broad spectrum materials currently available for late season disease control are captan, ferbam, ziram, and copper. Ziram has been granted a 24c label (Special Local Needs) for Indiana that allows its use during the late season (21 day PHI).

We are approaching bunch closing so it is time to make an application for Botrytis bunch rot control on varieties that are susceptible such as tight-clustered hybrids (Vignoles,

Seyval) and most vinifera. Use either Rovral, or the newly registered fungicide Vanguard and follow the guidelines in the 1999 Indiana Commercial Small Fruit and Grape Spray Guide (ID-169). –*Bordelon*



Japanese Beetles: We have been getting lots of call about Japanese beetles for the last week, particularly on blackberries and raspberries. Japanese beetle numbers were somewhat down last year, but they seemed to have rebounded to quite high levels this year. Though they seem to eat everything, Japanese beetles are particularly fond of grape and plum foliage, and blueberry, raspberry, and peach fruit. Scout often and apply an insecticide registered for your particular crop if damage is bad enough to warrant an insecticide application (the economic threshold is reached). Beetles can cause serious losses in blueberries and raspberries by feeding on fruit. Fruit are damaged, but not completely consumed by beetles in a single feeding. The next feeding the beetles select clean, undamaged fruit, so that a single adult may damage dozens of berries in its lifetime. Multiply that by thousands of beetles and the losses can become significant. One problem with applying pesticides near harvest is the potential for visible residue on the fruit, especially with dark colored fruit such as blueberries. Growers may want to consider the XLR formulation of Sevin because it does not leave as much visible residue as wettable powder formulations. The pre harvest interval (PHI) is another consideration when applying pesticides close to harvest. For Sevin, the PHI on small fruits is 7 days. Imidan has a 3 day PHI and a SLN (Section 24) registration for blueberries in Indiana that allows up to 5 applications. Though Imidan isn't quite as effective as Sevin, it seems to persist a little longer and

some growers claim it reduces bird damage. Imidan is not labeled for use on brambles, so raspberry and blackberry growers will have to rely on Sevin or malathion. During harvest, Sevin is not a viable option because of its 7 day PHI. Malathion is less effective, but has a 1 day PHI. Some formulations of malathion may have a 3 day PHI, so be sure to check and follow the instructions on the label. Check the small fruit spray guide for a complete list of registered insecticides, their PHIs and relative effectiveness.

Azoxystrobin Found to be Phytotoxic to Certain Varieties of Apples: EPA is issuing this alert due to the Agency's concerns about the recent field observations and research, conducted by the manufacturer, which are demonstrating adverse effects to Macintosh and Macintosh-derived varieties of apples from exposure to azoxystrobin. Azoxystrobin, sold by Zeneca Ag Products under the brand names Abound, Heritage, and Quadris is a fungicide with a generally excellent human health profile and low toxicity to terrestrial animals. It also has an excellent low toxicity profile across almost all crops. Azoxystrobin was first registered by the U.S. Environmental Protection Agency (EPA) in 1997.

Field and laboratory tests conducted by Zeneca, the Pennsylvania Department of Agriculture, and agricultural extension agents are demonstrating that azoxystrobin is extremely toxic to Macintosh apples and Macintosh-derived varieties of apples. The phytotoxic symptoms include necrosis (dead tissue), leaf drop, and fruit drop. To date, the Agency is aware that field incidents have occurred in localized areas where both grapes and apples are grown in western Erie County, Pennsylvania; the southwestern Lower Peninsula of Michigan; and at one site in the State of Washington.

EPA has been made aware that certain atmospheric conditions, such as fog or temperature inversions, coupled with the use of air blast sprayers to apply azoxystrobin on grapes

have led to drift from the application site and may have caused some of these incidents. Also, it has been found that when trace amounts of azoxystrobin remain in sprayers, phytotoxicity may occur in susceptible apple varieties. Research continues on the biochemical nature of the phytotoxicity damage, the pesticide concentrations at which the symptoms are seen, and the causes of the incidents.

As more information has become available about these adverse effects, EPA has worked closely with Zeneca to add additional warnings to the product labels. The current label warns about avoidance of spray drift and prohibits the use of sprayers that are used to spray azoxystrobin for subsequent spraying of apple trees. EPA has also approved additional crop advisories for Erie County, Pennsylvania. In addition, EPA has already met with Zeneca and expects to have additional meetings with the company to resolve the issue. EPA also discussed the matter with the affected States. Since additional uses of azoxystrobin have recently been approved, as well as aerial application of this fungicide, a careful watch is being kept to see if the number of plant damage incidents increases. Depending on future events and on additional information, EPA may place additional restrictions on use of this fungicide, require additional product stewardship by the registrant, and/or require additional data to support the continued registration of azoxystrobin.

What specific apple varieties are known to be adversely affected by azoxystrobin? Akane, Asahi, Bramley, Courtland, Cox s Orange Pippin, Cox, Delbarestival, Discovery, Gala, Galaxy, Grimes, Imperial Gala Kent, Kizashi, Lurared, McCoun, Macintosh, Molly Delicious, Mondial Gala, Ontario, Queen Cox, Royal Gala, Spartan Stark Gala, Starkpur Mac, Summared, Summer Treat, Warabi Worcester, and Pearmain.

If you have questions about this issue or notice, please contact John Bazuin, Chemical Review Manager for azoxystrobin, U.S.

Environmental Protection Agency, Office of Pesticide Programs, Registration Division, Fungicide Branch (7505C), 401 M Street SW, Washington, DC 20460. John may be also be reached via telephone at (703) 305-7381 or by e-mail at bazuin.john@epa.gov.

Southeast Indiana Fruit Growers Twilight

Orchard Tour: Dearborn county will be hosting the Summer Twilight Fruit Growers Tour on Thursday July 8. The tour will begin at Chateau Pomije Vineyards and Winery, 25060 Jacob Rd, New Alsace at 6:00 PM (Fast Time) then travel to the Berry Patch at 9569 York Ridge Rd. Chateau Pomije grows over 50 acres of grapes including American, French hybrid, and the difficult-to-grow vinifera, or European varieties. The Berry Patch, operated by the Jim Phillips family, grows strawberries, blueberries and brambles. All commercial and amateur fruit growers are invited to attend. Purdue Extension Specialists will be on hand to answer questions. Contact Dan Baugh at 812-926-1189 or Karen Witt at 765-647-3511



Pesticide Container Recycling:

The Office of the Indiana State Chemist is offering pesticide container recycling at several locations across the state August 3 through September 9. Contact the OISC at 765-494-1594 for the date of a location near you.



Questions and Answers:

Growers often have questions about articles that appear in this newsletter, or topics we don't cover. If you have a question or a topic you would like to see discussed, send it to one of us by mail or e-mail and we'll be happy to do an article for the next issue of the newsletter.



Subscribing electronically: To subscribe (or unsubscribe) to Facts for Fancy Fruit, send a message to fff@lists.hort.purdue.edu with the subject or body “subscribe” (or “unsubscribe”). You can also use the form at the web site <http://www.hort.purdue.edu/fff/maillinglist.html> to submit your subscription. Electronic access is free of charge.

Coming Meetings:

July 8 – Southeast Indiana Fruit Growers Twilight Orchard Tour. Begin at Chateau Pomije Winery, New Alsace at 6:00 PM (Fast Time) then travel to the Berry Patch at 9569 York Ridge Rd. Contact Dan Baugh at 812-926-1189 or Karen Witt at 765-647-3511

July 14-17 - American Society for Enology and Viticulture/Eastern Section 24th Annual Conference and International Oak Symposium, St. Louis, MO. Contact: Ellen Harkness, Dept. of Food Science, Smith Hall, Purdue Univ. W. Lafayette, IN 47907-1160, Phone 317-494-6704, FAX 317-494-7953 Email: harkness@foodsci.purdue.edu.

Happy 4th of July



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