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Crop Conditions

FFF 96-10
July 17, 1996

Crop Conditions: Fruit crops are still about one week behind normal in development. Strawberry harvest is complete and crop reports varied from good to terrible. Fruit rots were a major problem in some plantings and high temperatures and frequent rains during harvest created more problems for pickers. Blueberry harvest is well underway in the south, and has just begun in central and northern areas. Black raspberry and summer red raspberry harvest continues. Apples and peaches are sizing up very well with the ample moisture. Harvest of early peaches began last week, a little earlier than normal because of the light crop. Red Haven harvest should begin soon in southern areas. Summer apples are being harvested in southern and central areas. Hail damage has been extensive in several orchards this year.

Weather: (From Purdue Crop and Weather meeting Minutes, June 28) Ken Scheeringa recapped the weather of the month of June as follows. Over the last two weeks (June 15-28) we have continued to experience above normal precipitation statewide with warmer temperatures than earlier in the month. The north and central portions of the state continued to receive above normal precipitation while the southern portion received some relief. Temperatures during this same two week period averaged 2-3 degrees above normal statewide. For the month of June overall the state averaged 1 1/2 times normal precipitation amounts with the northeast, west central, east central and south central being the heaviest hit. Temperatures for the month will average near normal thanks in large part to the warmer days toward the end of the month.

Weather Outlook: The 6 to 10 day outlook for Indiana for July 18 to 22 calls for near normal temperature and near normal precipitation. The 30 day outlook for July calls for near normal temperature and near normal precipitation. The 90 day outlook for July, August, and September calls for above normal temperature and near normal precipitation.

Apple Check-Off Program: Don't forget about the voluntary apple check-off program to be initiated this year. See the letter from Randy Woodson later in this issue for more information.

Pomology Specialist Position Update: The search committee for the Pomology Extension and Research position will be meeting in late

July for an initial evaluation of candidates. We have received 32 applications so far. We hope to begin the interview process in the near future. We'll keep you posted.

Herbicide Injury to Grapes: We have received several reports of 2,4-D type injury to grapes over the past few weeks. 2,4-D and similar herbicides are commonly used on row crops for pre-plant burndown of weeds. Application of these volatile herbicides after grapes have begun to grow can lead to serious herbicide injury from drift or re-volatilization. Symptoms of 2,4-D type herbicide injury are easily distinguished. The youngest terminal growth at the time of exposure will be stunted, misshapen, and have thick veins that tend to run parallel to each other rather than branching as in normal leaves. Growth will be stunted for several weeks following injury. Symptoms can vary on different cultivars, with some being relatively insensitive and others being highly sensitive. Degree of exposure and time of exposure also effects symptoms. Exposure to volatile herbicides during the first few weeks of growth can cause serious injury that may last for years, while exposure later in the season tends to cause less damage. Direct drift onto grapevines will cause severe damage and plant death, but even re-volatilization after application can also cause severe injury. In some cases vines never fully recover and must be removed. We have severe 2,4-D injury to grape research plots near West Lafayette, but only minor damage at SWPAC near Vincennes and SEPAC near North Vernon. Grape growers that have experienced 2,4-D damage should contact the Office of the Indiana State Chemist and request a site evaluation. Reports are not taken over the phone and all cases must be verified by OISC personnel. If you have questions about herbicide drift, state laws governing injury to crops, or other pesticide related issues, contact the Office of the Indiana State Chemist (317-494-1594) or Purdue Pesticides Program (317-494-4566).

Harvest Restrictions: Remember to check the harvest restrictions on all pesticides used. The season appears to be later than normal so average harvest dates should be useful as guidelines for spraying cutoff. All growers need to be aware of restrictions on the product labels and adhere to them closely.

Bunch Rot of Grapes: Bunch rot caused by *Botrytis cinerea* is a serious disease most commonly found on tight-clustered French hybrid and vinifera cultivars. Considering the amount of rain this spring and the amount of Gray mold on strawberries, we can be sure that there is plenty of inoculum for an epidemic this year if weather conditions are favorable. A good fungicide program is important for bunch rot control. However, canopy management is a key factor in bunch rot control. Leaf removal, shoot positioning, weed control, and proper fertilizer rates all lead to open canopies with well exposed clusters and good air movement. This creates an environment that is not conducive to fungal infection, thereby reducing the incidence and severity of disease. Open canopies also allow better spray penetration and coverage. The fungicide Rovral 50 WP applied at .75 to 1 lb per 100 gallons is recommended for disease control. Thorough coverage and proper timing are essential for good control. Direct the spray at the cluster zone and use a minimum of 100 gallons per acre. Include a spreader-sticker. Make two applications: (1) when the disease is first observed OR when the first berries reach 5° Brix, whichever comes first, and (2) 14 days after the first application. A third application may be necessary on late ripening cultivars if the interval between the second spray and harvest is greater than 4 weeks. The most susceptible varieties grown in Indiana include Vignoles, Seyval, Chardonnay and Pinot noir. Do not make more than three applications of Rovral per season because of the possibility of the development of fungicide resistance in the pathogen population. See ID-169 for a complete discussion of Bunch Rot control.

New Bee Specialist Hired: We would like to welcome aboard Greg Hunt who will now be the extension bee specialist at Purdue University. Greg has an MS degree in plant pathology from Penn State and a PhD in Entomology from University of California-Davis. His past research has focused on honey bee behavior, molecular genetics and breeding. The extension goals of his position will involve management of pests of honey bees, particularly parasitic Varroa mites and tracheal mites. His current research interests include the management of parasitic mites of honey bees through breeding for resistance, as well as cultural and chemical controls. He also has a program supported by an NIH grant to develop diagnostic genetic markers for genes that influence stinging behavior in bees. Greg's e-mail address and phone number is:
Greg_Hunt@entm.purdue.edu
Phone: (317) 494-4605.

Japanese Beetles: Japanese beetle adults have emerged in most areas of the state. All indications are that it is going to be another serious year for this pest. As most of you know, the larval stage is a grub that feeds on the roots of turfgrass. I am frequently asked if growers and homeowners can reduce or eliminate their Japanese beetle problems by controlling the grubs in the turfgrass. The problem with that solution is that the beetles are very strong fliers, and all grub infested areas cannot be treated, thus, the beetles would still find your plants.

Many people also ask about using Japanese beetle traps. For a number of years, we at Purdue have suggested that these traps will most likely attract more beetles than they catch, with the result being that more damage is caused than if the traps were not used. Some growers have indicated that they have used the traps effectively if they place them away from the plants they are trying to protect. I must admit that I am skeptical of the benefits of using the traps that way, but if it has worked for you, then continue doing it.

Entomologists pride themselves on finding solutions to insect pest problems that do not rely solely on pesticides. Unfortunately, repeated applications of insecticides are the only reliable solution that we have for Japanese beetles in most situations. It may not seem like it, but Japanese beetles are easy to kill. The problem is that more beetles will continually reinfest your plants. Therefore, you should continue to monitor after you spray and make another application when the insecticide is no longer effective. My personal experience has been that Sevin provides somewhat better control than Imidan. Sevin usually provides 3-5 days of residual control. Be sure to observe re-entry and pre-harvest intervals.

Leafhoppers: Populations of leafhoppers, especially potato leafhoppers, continue to be extremely high around the state. Potato leafhoppers can be distinguished from other species such as the white apple leafhopper because potato leafhopper nymphs walk sideways, rather than forward. Potato leafhoppers are relatively easy to kill with most insecticides.

Mites: There have been a few reports of mite problems around the state. If the weather stays hot and dry, the problems may increase. Since we no longer have Omite, our choices for miticides are somewhat limited. Potential choices would include the summer oils, dicofol, Kelthane, and Agrimek. The new material, Agrimek, is most effective if applied within 6 weeks of petal fall, because it is taken up by younger leaves better than after the leaves become older. However, Agrimek applied later in the season can still provide about 2 weeks of control. Remember to monitor mite populations and conserve the predator mites.

Brown Rot Of Stone Fruits: As peach harvest approaches be aware of the need for sprays to control brown rot. Warm, wet, humid weather is particularly favorable for

brown rot. Pre-harvest sprays for brown rot should be started no later than 3 weeks before harvest or when fruit begins to color. Indar and Orbit are two relatively new sterol inhibitor fungicides that give excellent control of brown rot. Orbit is labeled for two preharvest sprays starting 10 to 14 days before harvest with a 0-day PHI. Indar is labeled at 7 to 10 day intervals beginning 2 to 3 weeks before harvest, with a 0-day PHI. For further information on fungicides and timing of spray applications see ID-168, "1996 Indiana Commercial Tree Fruit Spray Guide". In addition to maintaining sprays for brown rot, also maintain sprays for insect pests that may injure fruit and allow brown rot to gain a foothold. Use care in the picking and handling of fruit to avoid punctures and skin abrasions. Any break in the skin of the fruit enables brown rot to more easily cause infection.

Nectria Twig Blight: A few weeks ago I mistook *Nectria* twig blight on 'Rome Beauty' for fire blight; don't laugh, it's easy to do. Both diseases show a shepherd's crook at the terminal end along with browning and wilting of leaves. A primary difference between the two, in the early stages of disease development, is that outer and inner bark discoloration is most evident at the base of the twig if *Nectria* is the problem, while with fire blight, the discoloration is most evident at the terminal twig end. Also, with *Nectria* there is no bacterial ooze, instead, bright pinkish-orange spore producing structures will form within the cankered areas at the base of the stem. *Nectria* is a "stress pathogen" that should not be of major concern; it has been reported to occur where trees are too vigorous in fall and fail to harden adequately before winter. While Romes are where you most often find *Nectria* canker, it has also been reported on Fuji and Granny Smith.

Necrotic Leaf Blotch On Goldens: Generally we first start noticing necrotic leaf blotch (NLB) on Golden Delicious in late June or

July, when the weather becomes hot and sticky. Symptoms of NLB are leaf yellowing and drop; often patches of brown blotches develop along with leaf yellowing. Symptoms develop suddenly, almost overnight, and in waves, generally from June through August. The cause of NLB is not known; however, the disorder is thought to be related to air temperature, light intensity and soil moisture. It is most severe when a cool, rainy period of 4 - 5 days precedes several hot, sunny days. Although it appears NLB is not fungal caused, the disease is reduced when ziram is included in the cover sprays beginning one month after petal fall.

Summer Pruning and Training: Summer pruning and training of tree fruits should continue through the next month or six weeks as time permits. Sucker and sprout removal will always improve spray efficiency and provide light and air to the interior of the tree. This will assist in insect and disease control and will also result in better spur quality in that interior part of the tree. Sucker and water sprout removal in late July and August will not usually result in regrowth.

Continue singling out of terminal shoots on young apple trees and spreading and tying of branches as needed. Make time for this in your busy schedule, since training young apple trees is of almost the highest priority.

Tipping of vertical peach shoots in the centers of young trees being trained to the vase shape will help to direct growth into the desired scaffold limbs. Do not tip those shoots destined to become scaffolds. Where trees are to be trained to the flat fan system, continued tipping of shoots growing into the row middles will help to develop better fan shape. Control Oriental fruit moth to minimize undesired "tipping" by that insect.

Calcium Sprays: The weather has turned dry in many parts of the state. Calcium should not be applied unless the previous application has

been washed off by rain. Excess accumulations of calcium chloride can cause leaf burn and possibly fruit russetting.

Reminder About Public Meetings on WPS:

EPA is conducting public meetings across the U.S. to assess the first full year of implementation of the Worker Protection Standards (WPS). The public meetings are designed to provide an opportunity for workers and employers to relay actual experiences and lessons learned in the course of WPS implementation. The information will be used by EPA and cooperating state officials and organizations to improve WPS administration. Several meetings are being held at various locations around the country. We are fortunate to have one meeting in Indiana. It will be held on August 21 in Tipton, Ind. Contact Don Baumgartner (312) 886-7835 for more information. Persons who wish to speak at the meetings may register on site beginning at 5:00 p.m. EPA will open the meetings at 7:00 p.m. Persons who cannot attend the public meeting but wish to comment may do so by submitting written comments to: Jeanne Heying, Office of Pesticide Programs (75067C), U.S. EPA, 401 M Street, SW, Washington, D.C. 20460. Telephone: 703-305-7164; fax 703-308-2962.

Facts for Fancy Fruit Available Electronically:

All 1996 issues of Facts for Fancy Fruit issues are available through the Horticulture and Plant & Pest Diagnostic Clinic worldwide web homepages. To locate the newsletters on the web, go to the Horticulture home page at: <http://www.hort.purdue.edu/hort/hort.html>, select Extension/Outreach, then Extension Bulletins and Newsletters. Or you can go directly to the Facts for Fancy Fruit Index at <http://www.hort.purdue.edu/fff/fff.html>. To access the newsletters from the Virtual Plant Disease Diagnostic Lab homepage at <http://www.aes.purdue.edu/ppdl/p&pdlwww.html>, select Newsletters, then Facts for Fancy Fruit.

In addition, a listserv is set up so you can subscribe and unsubscribe to the email

version. To subscribe send a message to "almanac@ecn.purdue.edu". Your message should consist of this single one-line message: "subscribe FFF_L <your name>" without the quote marks. To unsubscribe follow the same procedure: "unsubscribe FFF_L <your name>". Do not include anything else in the message. Note that the address to subscribe and unsubscribe is not the same as the return address for FFF_L. If you have any problems contact me at bb@hort.purdue and I'll try to help.

Dear Fruit Grower,

As many of you are aware, the Indiana Hort. Society agreed to support tree fruit research and extension at Purdue by a one cent per bushel check-off program. The support generated will go a long way towards insuring continued productivity and responsiveness to industry needs by Pomology Specialists at Purdue University. This program is completely voluntary and is not related in any way to the statistical reporting service. In other words, we are not in the accounting business. The Department of Horticulture at Purdue has established an account and will administer this fund. The monies generated will be used to support the tree fruit research and extension programs in Horticulture, Plant Pathology, Weed Science, and Entomology. Certainly with support comes accountability. Each contributor will receive information on an annual basis concerning the fund and how the money was used to support tree fruit research and extension.

Now, down to business. Contributions to the Tree Fruit Research/Extension Fund are deductible as charitable contributions within the limits of the IRS. Of course, as Indiana taxpayers, you are eligible for a 50% state income tax credit for contributions up to \$400 on joint returns or \$200 on individual returns. Again, while your contribution should reflect production as a check-off, there is no need to relate it directly to production statistics. This is voluntary and our intent is not to monitor yield but to support the University's efforts to provide technical information to help insure your continued success. We hope you will agree to support our efforts by contributing to this fund.

To contribute, please make your check payable to Purdue University and indicate that it is to support tree fruit research and extension. Send your check-off contribution to:

Tree Fruit Research/Extension Fund
Department of Horticulture
Purdue University
1165 Horticulture Building
West Lafayette, IN 47907-1165

We appreciate support from the industry and look forward to providing quality research and extension programs for years to come.

Sincerely,

William R. Woodson
Head, Department of Horticulture

Coming Meetings/Events:

July 18 — UKREC Extension & Research Field Day, Research and Education Center, Princeton, KY
Contact Don Hershman (502-365-7541 ext. 215)

July 31 — Viticulture Field Day, Southwest Michigan Research and Extension Center, Benton Harbor, Mich. Contact Tom Zabadal (616-944-1477)

September 15, 1996 — Ohio Valley Harvest Festival. Louisville, KY.
Contact Roy Ballard (812-948-5470).

October 6-10, 1996 — American Society for Horticultural Science Annual Conference. Lexington, KY.
Contact Department of Horticulture, Purdue University (317-494-1301)

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