Inside

FFF 98-07
June 3, 1998

Crop Conditions

Grapes are in full bloom at our plots in West Lafayette. Leaf Phylloxera is showing up early, attacking the youngest grape leaves now. The usual 2,4-D injury is beginning to show up on grapes, and there have been reports of herbicide drift damage on blueberries and strawberries in the state. Strawberry harvest is well underway and fruit quality has been excellent due to the warm, sunny weather. Tarnished plant bug damage is severe in some areas and gray mold is common in areas where rain fell during bloom. Peach thinning is underway, and apple thinning is completed. Hail damage to various fruit crops has been reported in several areas from recent storms.

Weather Notes: Temperatures over the last two weeks have averaged from 3 to 5 degrees above normal over all of the state while precipitation amounts have been varied. The northern 1/3 of the state averaged from 42% to 67% of normal, the central 1/3 averaged normal precipitation amounts while the southern 1/3 averaged one and one-half times the normal amounts. For the month of May temperatures have averaged 3-5 degrees above normal. Rainfall has varied with portions of the northern 1/3 receiving 70% to 120% of normal while the central 1/3 received 10%-40% above normal amount, and the southern 1/3 received 20%-30% above normal rainfall amounts. It appears this pattern continues to hold. The 6- to 10-day outlook for Indiana for June 7-11 calls for much below normal temperature and above normal precipitation. The 30 day outlook for June calls for normal temperature and above normal precipitation. The 90 day outlook for June through August calls for above normal temperature and precipitation. *-From the Purdue Crop & Weather Notes, May 29.*

Apple Diseases: What To Do?: Now is the time growers need to be walking their orchards looking for symptoms of apple scab, fire blight, powdery mildew, and rust. When looking for diseases select those blocks which are most disease prone. Ida red, Jonathan, and Romes are "good" trees to inspect for disease doings; they are all highly susceptible to scab, blight, mildew and rust. If you do see symptoms of any of the above mentioned diseases we suggest the following: a) **apple scab** - If scab is detected, the safest bet is to apply Rubigan or Nova in combination with a FULL rate of captan to provide optimum protection of the developing fruitlets; b) **fire**

blight - immediately cut out blighted twigs 10 to 12 inches below any sign of infection, being sure to sterilize pruning tools between each cut; maintain good control of sucking insects which are primary carriers for secondary spread of blight; and apply streptomycin within 24 hours following injury from hail storms. Special attention should be given to young trees and trees on M9 and M26 rootstocks or interstems; c) **powdery mildew** - maintain mildewcide sprays until terminal growth stops; d) **Rust** - relax and enjoy the colorful display of orange spots on leaves and/or green depressions on fruit— no further infection from rust will occur this year, therefore rust is one disease you don't have to worry about any longer. -*Pecknold*

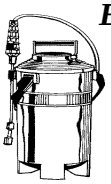
Mites: Populations of European red mites are variable around the state. In some locations, populations are really starting to take off. Some growers have already put on rescue treatments of Pyramite. In other areas, mite populations are extremely low, even if neither Apollo or Savey were used earlier in the season. Considering the variability of the populations and the cost of miticides, one of the best uses of your limited time is to assess the level of mites in your orchard. A timely application of a miticide now may head off serious problems later. Saving a spray by recognizing that populations are low can save you a lot of money. During June, we recommend treating when populations exceed an average of about 2.5 mites per leaf. If the hot, dry weather in many areas continues, we will likely see more mite problems. Therefore, it becomes even more important that you know what your mite population is and that you conserve the predator mites that help to keep the mites under control. -*Foster*

Spotted Tentiform Leafminers: Leafminers seem to be abundant in many areas of the state. Substantial numbers of mines from the first generation are present in many orchards where no treatments were applied. It would be a good idea to have pheromone traps in place now for the second generation adults. You could use the information derived from the traps to treat for the adults with Thiodan or to better time treatment of the larvae with Provado. There are other products that will control leafminers, but they tend to flare mite problems by killing the predators. You should consider the potential mite problems you may create before using these other products. At this time, two mines per leaf is the treatment threshold for leafminers. Later in the summer, the threshold increases to three mines per leaf. -*Foster*

Aphids: Several species of aphids have been showing up in orchards in the last couple of weeks. Rosy apple aphids are the most serious because of the damage they can cause to developing fruit. However, most species of aphids can cause problems if their numbers are high enough. Growers should be looking for aphids and aphid injury now. If an infestation is found, mark it and come back in 5-7 days to see if the natural enemies are keeping the population under control or if the infested area is expanding. If it is expanding, then you should consider treating with Dimethoate, Lorsban 50W, Thiodan, or Provado. -*Foster*

Japanese Beetles: Like many insect species, Japanese beetles are about two weeks ahead of normal in their development. Around Lafayette, we would normally expect to see them start emerging around June 23, but this year it will likely be around June 10. As most of you know, Japanese beetles can cause real problems if you don't catch them early. Don't be caught off guard by expecting them to arrive when they usually do. Be watching for them so that you can get them under control early. My experience has been that Sevin provides somewhat better control than Imidan. Small fruit growers should be careful to check the labels for Sevin. The preharvest intervals

were changed last year, so be sure you adhere to the intervals listed on the label of the product you are using. *-Foster*



Educating Your Neighbors About Herbicide Drift: Spring and early summer are the times to educate your neighbors about herbicides that may injure your fruit and vegetable crops. A lot of spraying will be occurring during the next couple of weeks as farmers finish planting corn and soybeans. There may also be some early postemergence corn herbicide applications to eliminate emerged weeds that preemergence herbicides would normally have controlled. In June there is likely to be a lot of postemergence Roundup applied to Roundup Ready corn and soybeans. Each one of these applications can result in fruit and vegetable crop injury.

The herbicides used prior to planting corn or soybeans can be classified based on their potential for injuring fruit and vegetable crops. Herbicides with high risk include 2,4-D (especially 2,4-D ester forms) and dicamba (including Marksman, Clarity, or Banvel). Herbicides with moderate risk include glyphosate (Roundup Ultra, Touchdown, or Bronco), imazethapyr (Contour or Pursuit), imazaquin (Scepter), clomazone (Command), chlorimuron (Canopy), and flumetsulam (Broadstrike). Minimal risk herbicides include paraquat (Gramoxone Extra), atrazine (AAtrex), cyanazine (Bladex or Cy-Pro), alachlor (Lasso, Micro-Tech), acetochlor (Harness or Surpass), metolachlor (Dual and Bicep), dimethenamid (Frontier), trifluralin (Treflan or Trific), pendimethalin (Pentagon or Prowl), and metribuzin (Lexone or Sencor). Some minimal risk herbicides can still injure susceptible crops if the concentration of herbicide they receive is very high. For example, Gramoxone Extra will cause spotting on the plant foliage it contacts. The minimal risk herbicides will cause only contact injury and do not translocate, or do not effect emerged plants, or are registered for use on many fruit and vegetable crops.

Your goal when educating your neighbors should be to make them aware of how sensitive your crops are, get them to switch from high risk herbicides, and ensure that they correctly apply herbicides. The herbicide 2,4-D is very commonly used in reduced tillage systems to kill emerged annual broadleaf weeds before planting corn or soybeans. Banvel or Clarity can also be used before planting corn to control annual or some perennial broadleaf weeds. Ask you neighbor to switch to tillage, or use herbicides with both foliar and soil-residual activity such as atrazine and cyanazine in corn and metribuzin in soybeans, or use Gramoxone Extra. Each of these alternatives has disadvantages, but altogether they will minimize potential drift problems. Gramoxone Extra can be hazardous to humans and must, like all pesticides, be applied correctly. If your neighbor must apply 2,4-D, make sure that he or she uses low volatility/ low drift formulations, is spraying when the wind is blowing away from your farm, and is leaving large buffer strips. In my opinion there are no “safe” formulations of either 2,4-D or dicamba (Clarity or Banvel).

Roundup will be used extensively this year both before planting and with Roundup Ready corn and soybeans. Roundup along with the ALS inhibiting herbicides (Broadstrike, Canopy, Pursuit, Scepter) will be absorbed by the foliage of fruit and vegetable plants and move to the growing points. Thus newly emerging shoot tips, developing fruit, and roots are affected. The effects of these herbicides at low concentrations can be hard to detect. Fruit and vegetable crops are a lot less sensitive to moderate risk herbicides than to high risk products. In my opinion, we generally experience drift injury from moderate risk herbicides due to application problems such as not leaving adequate buffer areas and spraying with winds blowing toward susceptible crops.

Replacements for some high and moderate risk herbicides.

Herbicide	Replacements
Before Planting Corn or Soybeans	
2,4-D	Tillage, atrazine (AAtrex), cyanazine (Bladex), metribuzin (Lexone or Sencor), paraquat (Gramoxone Extra)
dicamba (Banvel, Clarity)	Tillage, atrazine (AAtrex), cyanazine (Bladex), paraquat (Gramoxone Extra)
glyphosate (Roundup)	Tillage, large buffer strips, atrazine (AAtrex), cyanazine (Bladex), metribuzin (Lexone/Sencor)
After Corn or Soybeans Have Emerged	
2,4-D or dicamba	Clopyralid (Stringer see label for sensitive crops), bromoxynil (Buctril), bentazon (Basagran), pyridate (Tough), atrazine (AAtrex)
glyphosate (Roundup)	For corn: See above for broadleaf weeds. If grass weeds you may need to use cyanazine (Extrazine II or Cy-ProAT) or atrazine + oil. Avoid ALS inhibiting herbicides such as nicosulfuron (Accent) if possible. For soybeans: If grasses are a problem then use quizalofop (Assure II) fluazifop-P (Fusilade), sethoxydim (Poast Plus or Prestige), or clethodim (Select). If broadleaf weeds are a problem use bentazon (Basagran), acifluorfen (Blazer or Status), fomesafen (Reflex) or lactofen (Cobra).
ALS inhibitors	Use a contact herbicide. See glyphosate list above. (Canopy, Pursuit, Accent, Beacon, etc.)

I still recommend that you talk to your neighbors about moderate risk herbicides. Ask that they instead use minimum risk herbicides. If they must apply moderate risk herbicides ask they leave as wide a buffer strip as possible and apply herbicides to minimize drift. How wide a buffer strip should be left? Follow any recom mendations on the herbicide label. I am tempted to recommend 500 feet but probably a more reasonable area would be a 200-foot buffer. Many of the herbicides listed can still cause injury to fruit and vegetable crops, but the injury will generally be contact burn. Still, care is needed to avoid drift of any herbicide off its intended target site. -*adapted From Illinois Fruit and Vegetable News No. 6.*
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Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables: The FDA recently released a set of guidelines for producers of fresh fruits and vegetables that will be of interest to all fruit growers. This 35 page guide is available on the web at http://www.fda.gov. Following are excerpts from the preface and introduction. Comments and suggestions regarding the draft document should be submitted by June 29, 1998 to Dockets Management Branch (HFA-305), Food and Drug Administration, 12420 Parklawn Dr., rm. 1-23, Rockville, MD 20857. All comments should be identified with the Docket number 97N-0451. For questions regarding this draft document contact Joyce Saltsman, (202) 205-5916, or Michelle Smith, (202) 205-2975.. -*Bordelon*

American consumers enjoy one of the safest food supplies in the world. However, over the last several years, there has been an increase in reported outbreaks of foodborne illness associated with both domestic and imported fresh fruits and vegetables. In a January 1997 radio address, President Clinton announced a Food Safety Initiative to improve the safety of the nation's food supply. In May of 1997, as part of the President's Food Safety Initiative, the Department of Health and Human Services, the U.S. Department of Agriculture (USDA), and the Environmental Protection Agency (EPA) sent to the president a report that identified produce as an area of concern. On October 2, 1997, President Clinton announced a plan to provide further assurance that fruits and vegetables consumed by Americans, including fruits and vegetables imported from other countries meet the highest health and safety standards. The plan, entitled "Initiative to Ensure the Safety of Imported and Domestic Fruits and Vegetables," is geared towards increasing assurances that fruits and vegetables, whether produced domestically or imported, are safe. As part of this initiative, the President directed the Secretary of Health and Human Services, in partnership with the Secretary of Agriculture and in close cooperation with the agricultural community, to issue guidance on good agricultural practices (GAPs) and good manufacturing practices (GMPs) for fruits and vegetables.

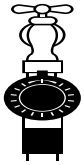
In response to this directive, the FDA and USDA are issuing "Guidance for Industry — Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables." This document ("the guide") addresses microbial food safety hazards and good agricultural practices common to the growing, harvesting, packing, and transporting of most fruits and vegetables that are sold to consumers in an unprocessed or minimally processed (raw) form. The guide is intended to be guidance only, to assist growers and packers in continuing to improve the safety of domestic and imported produce. Alternative approaches may also be applied if they minimize food safety hazards. Growers and packers should use the general recommendations in this guide to tailor food safety practices appropriate to their particular operations. Moreover, the recommendations in this guide do not supercede applicable Federal, State, or local laws or regulations.

Growers are urged to take a proactive role in minimizing the food safety risks from fruits and vegetables. Being aware of, and addressing, the common risk factors outlined

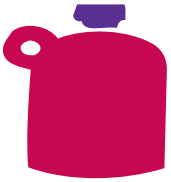
in this document will result in a more effective, cohesive response to emerging concerns about the microbial safety of fresh fruits and vegetables. Furthermore, growers should encourage the adoption of safe practices by their partners along the farm to table pathway, including those involved in the packing and transport of produce, distributors and retailers, food service operators, and consumers, to assure that each individual effort will be enhanced.

It is important to note that there are a number of missing pieces of information in the scientific basis for reducing or eliminating pathogens in an agricultural setting. Thus, the examples of good agricultural practices and good management practices presented in the guide are not intended to be required of all industry operators. Rather, the examples are intended to build broad industry understanding and awareness of those practices that individual growers and packers may find useful to address in their own operations. Because of the diversity of agricultural practices and commodities, practices to minimize microbial contamination will be most effective when these general concepts are adapted to specific operations.

The agencies recognize that the agricultural community has made a significant effort in the past few years to adjust practices to help minimize microbial food safety hazards in produce. Several organizations in the fresh fruit and vegetable industry, universities, State and local government agencies, and countries exporting produce to the United States have taken strong leadership roles in assisting growers in identifying potential hazards associated with their operations. These efforts have included the development of quality assurance programs, good manufacturing practices and good agricultural practices guidance documents; funding of agriculture research studies; and sponsoring educational initiatives. The intent of the guide is to build on those earlier efforts and to develop national guidelines to enhance the consistency and scientific basis of food safety initiatives throughout the country.



Drainage or Irrigation? Just a reminder that at this time of the year, the change from having too much soil moisture to too little can occur very quickly. This is especially important on young trees - remember that with young trees we are not just interested in getting them to survive, but we want them to grow rapidly so that crops can be carried early in the life of the orchard. If you plant dwarf trees but don't look after them, especially in terms of pest, disease and weed control, then you will lose the advantage that dwarf rootstocks can bring. *-Hirst*

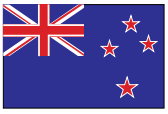


Cider Situation: To refresh your memory, the FDA has proposed 2 new rules govern ing fruit and vegetable juices, including cider. The first rule relates to warning labels while the second relates to HACCP and pasteurization. The comment period for the first proposed rule ended on May 26, so it's too late to comment on that one. The comment period on the second rule is open until July 8, so if you are involved in anything to do with cider and would like to have your say and hopefully influence the rule-making process, this is your chance. For those of you with computers, the proposed rules are available on the FDA webpage (http://www.fda.gov/). Bear in mind that the regulations are about 50 pages long, so I would prefer to email them to interested people or for you to access them yourself if possible. If you would like a copy of the proposed regulations and don't have access to the internet, let me know and I will send you a copy. Most of you have thoughts on whether pasteurization and/or HACCP should be mandatory, and who any such regulations should cover, so I would encourage you to put these thoughts in writing and send them in to the FDA.

It appears at this stage that placing of a warning label on the jug or display cabinet will be in for this year, and HACCP and/or pasteurization (or other procedures that achieve a 5-log kill) will be mandatory in 3 years time. At this stage, you won't have to put the warning label on if you are either pasteurizing or have a HACCP program in place. Please let me know if you are interested in attending a one day program on the practicalities of implementing a HACCP program, and if there is enough interest we will put one together prior to the start of the season. *-Hirst*

Thinning: I have heard reports of good thinning response in apples in many parts of the state, with a little over-thinning in some places. While it's fresh in your mind, make sure you have made good records of what you applied, the stage of crop development and the weather conditions at the time of application.

In central Indiana, now is a good time for hand thinning of peaches. Many folks still use a padded stick or broom handle to hit the branches until the required amount of fruit drop off. While this technique is not new and may seem somewhat primitive, it seems to work pretty well. It seems to work best right around the time of pit hardening, which is usually when fruit are 3/4 - 1 inch diameter. Generally we like to shoot for fruit spaced about 8" apart. *-Hirst*



New Zealand Fruit Tour: A number of you have asked me about putting together a fruit tour to New Zealand. I think we could do a tour that was both educational as well as very enjoyable. Some of you may be aware that the International Dwarf Fruit Tree Association (IDFTA) is planning to have their main February meeting in New Zealand in the year 2000, just under 2 years away. It seems to me to be logical to combine our plans to visit there with theirs, since a large part of the effort and cost is getting there. They are planning some orchard tours as well as a 2-3 day meeting, so the plan at this stage is to join with them for that, then maybe hire a bus and do a little touring on our own after that. As soon as IDFTA publishes more details of their plans, I will pass it on. In the meantime, think about it and save those pennies. The cost from Indiana for about 2 weeks down under is likely to be in the $3000 range. Remember, it's just a leisurely 12 hour flight from Los Angeles - leisurely in that someone else will be doing all the driving. *-Hirst*

1998 Pesticide Container Recycling Schedule: The Office of the Indiana State Chemist has announced the schedule for Pesticide Container Recycling. It is only sensible to recycle pesticide containers as opposed to landfilling them. Check for a location near you. If you have any questions, contact the OISC at 765-494-6271

August 4:	Quality Farm & Fleet, US Hwy 6, Kendallville
August 5:	Wil Farm, 1952 W. Market St., Nappanee
August 6:	Marshall County Fairgrounds, Argos
August 7:	Liberty Landfill, east of town on SR 119, Buffalo
August 11:	Oak Ridge RDF, CR 150 E, south of Logansport off Hwy 35, Logansport

August 12: Waste Mgt. Systems, Crawfordsville Transfer Station, 513 Bluff St., Crawfordsville
August 13: Clay County Fairgrounds, SR 59 south of US 40, Brazil
August 18: Daviess County Landfill, CR 650 E, north of Montgomery, Montgomery
August 19: Dubois County Recycling Facility, 1103 S 350 W, Old Jasper Landfill, Jasper
August 20: Vanderburg County 4-H Center, west of US 41, Boonville/New Harmony Rd, Evansville
August 25: Laughery Valley CO OP, 6490 N US 421, Osgood
August 26: Scott County Fairgrounds, Scottsburg
August 27: Bartholomew County Recycling, 720 S Mapleton, Columbus
September 1: Wabash County Fairgrounds, Gillen Ave., Wabash
September 2: Cargill, SR 8 & CR 250 W, Hebron
September 3: Benton County Fairgrounds, SR 352 & SR 41, Boswell
September 8: Cropmate, 335 S East St., Charlottesville
September 9: Randolf County Fairgrounds, 2.5 miles south on US 27, Winchester
September 10: Adams County Fairgrounds, 1/8 mile north of SR 124 on Polk, Monroe

IHS Summer Meeting Agenda

Friday, June 26, 1998
Meet at Hendricks Co. Community Center meeting room. (Look for IHS banner)
7:00 pm Roundtable discussion led by Peter Hirst
Bring your observations on the 1998 season and your concerns that need to be presented. If you have slides or pictures to share of the season so far, bring them along. The cider situation will be discussed. We will greet Dr. Ed Ashworth, our new Horticulture & Landscape Architecture Dept. interim Head.
9:30 pm Adjourn

Saturday, June 27, 1998
Meet at Beasley Orchard sales barn.
8:00 am Registration and Coffee & Donuts
9:00 am Tour of orchards, demonstration and discussion of tree training.
10:45 am Tour of retail market, packing facilities and cider facility.
12:00 Lunch on the grounds
1:00 pm IHS business meeting
2:00 pm Equipment Demonstration
3:30 pm Tour of vegetable production fields and discussion of marketing techniques, including the Heartland Apple Festival, newsletters, etc.
5:30 pm Adjourn

Notes:
Registration will be $2.00 per family. Lunch Saturday will be priced to just recover costs.

June is Indiana Wine and Grape Month: Wineries from the shores of Lake Michigan down to the banks of the Ohio River will be offering visitors a chance to get away and help celebrate this special month! Proclaimed by Governor Frank O'Bannon as Indiana Wine and Grape Month, many of the state's 18 wineries will be celebrating by hosting special activities. For more information and a free newly revised and updated Indiana Wineries brochure, contact the Indiana Wine Grape Council at 800-832-WINE or 317-481-0222.

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 email and we'll be happy to do an article for the next issue of the newsletter.

Compendium of Strawberry Diseases, 2nd Edition: The American Phytopathological Society (APS) has just published the second edition of "Compendium of Strawberry Diseases". It is in the same format as the first edition with 175 color photos, 90 black/white illustrations and of course excellent descriptions of the major and many minor diseases of strawberry. It also includes insect pests. I highly recommend this book for ALL strawberry growers. The price before June 30, is $29; regular price on orders received thereafter is $35. To order: call Toll-FREE 1-800-328-7560, M-F, 8:00 a.m.-4:00 p.m. (CST). Charge orders: Please have your credit card number ready. Or, ask the operator to bill you. -*Pecknold*

Coming Meetings

June 9 — Blueberry Growers of Indiana summer meeting. Pickin' Patch, 2811 N. US 31, Plymouth, IN. Contact Bruce Bordelon (765)494-8212, or Sam Erwin (219)784-2905.

June 15 — Southeast Indiana Fruitgrowers twilight meeting. 5:00 pm at Michaela Farm on SR 229 in Oldenburg; then to Alpine Berry Farm on Pocket Road south of Oldenburg. Contact Karen Witt at 765-647-3511.

June 26-27 — Indiana Horticultural Society Summer Meeting. Beasley's Orchard, Danville, IN. Mark your calendars, more details will follow. Contact Dick Hayden (765)463-6587.

July 21-24 — American Society for Enology and Viticulture/ Eastern Section 23rd Annual Meeting, Grand Rapids, MI. 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.

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