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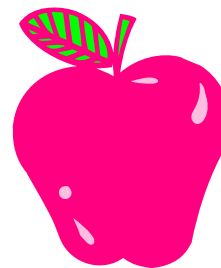
FFF02-07
June 7, 2002

Several growers are reporting frost damage to fruit crops from the recent frosts. A number of orchards in northern parts of the state have suffered severe frost damage from lows around 24F on April 6 and 28F on May 21. Overall, damage to fruit crops in Indiana is probably not as severe as in surrounding states, but some growers have been especially hard hit. Strawberry harvest is underway in south and central areas and should be starting soon in the north. Grapes are blooming south and central.

How Late Can You Thin and Still Have an Effect? We all know that earlier thinning has more benefit than later thinning, both in terms of fruit size increase and return bloom. But the question is, if you haven't thinned your apples yet, how late can it be done and be still worth doing? Obviously there is quite a difference among varieties here, but in general I'd say that up to about 20 mm in size and you may still get a fruit size effect and with some varieties this may also increase return bloom. For varieties that have a tendency for biennial bearing though, this is going to be way too late to ensure good return bloom. Although Sevin is most effective as a thinner earlier, it is reported to have some effect even on fruit up to 18-20 mm in size.

So if you missed the ideal thinning window, it's probably still worth thinning. Even if it's too late to have any response in terms of fruit size or return bloom, there are a couple of other benefits. Firstly, overcropping

can result in broken branches destroying tree structure. Secondly, fruit in bunches can push each other off as fruit size, and also shade each other and so prevent good fruit coloring. (Hirst)



Fire Blight Reaches Epidemic Stage In Southern Indiana: In the previous edition of this newsletter we asked the question: "Could 2002 be a repeat of 2001 for fire blight?" Unfortunately the answer is now all too clear. YES! And then some! After the tenth phone call this morning on what to do about fire

blight we are ready to officially proclaim that fire blight has reached epidemic status in several southern and mid-state locales. The Vincennes/Washington area appears to be especially hard hit, but then this area of the state is infamous for its fire blight outbreaks. Not a good area of the state to plant M.9 and M.26 rootstocks or interstems in combination with highly susceptible cultivars. See the previous edition for suggestions on how to manage fire blight. Be especially diligent in patrolling young blocks of apples (<5-7 yrs old) for the first symptoms of fire blight, wilted terminal tip ends. Cut out any new infections as soon as they appear, using the ugly stub cut method of pruning for those shoots attached to the central leader or major scaffolding limbs. And remember, when severe windstorms or rainstorms with or without hail occur during peak fire blight season (now), apply streptomycin within 24 hours...the sooner it is applied the better. (Pecknold)

Further Information on Fireblight: The late Dr. Paul Steiner, of the University of Maryland, made enormous contributions to our understanding of fire blight and posted some excellent articles about fire blight on the World Wide Web at <http://www.caf.wvu.edu/kearneysville/wvufarm10.html>. I highly recommend you visit this web site and make these articles part of your permanent bookmarks. (Pecknold)

Apple Diseases, What To Do: In addition to fire blight, now is the time growers need to be walking their orchards looking for symptoms of apple scab, powdery mildew, and rust. When looking for diseases select those blocks that are most disease prone. Ida red, Jonathan, and Rome 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: Apple scab - the safest bet is to apply Rubigan or Nova in combination with a FULL rate of captan, OR,

use one of the new strobilurin fungicides, Sovran or Flint. b) Fire blight – see above and last edition of FFFF 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)

Grape Pest Management: With all the rain we've had this spring, this is shaping up to be a bad disease year (or a good year if you're a plant pathologist). We are approaching the critical time for disease development...bloom and immediate post-bloom. Growers should be sure to keep disease control their top priority right now. Black rot is probably the biggest concern. Annemiek Schilder, grape pathologist at Michigan State, reported on some spray trials in which good control of black rot was achieved under high diseased pressure with one pre-bloom and two post-bloom sprays, or two post-bloom sprays only, of Nova at 5 oz/acre. Black rot incidence was 80% in the untreated control plots, which should prove to growers that this disease is prevalent in our region and, if left uncontrolled, can cause serious losses. Phomopsis is also a major concern right now and is prevalent in many vineyards. Infection of the flower cluster stem (rachis) can lead to significant fruit rot near harvest. Mancozeb or captan is recommended for control of Phomopsis. Don't forget to monitor the Grape Berry Moth traps. Control may be needed within the next few weeks. (Bordelon)



Shoot Positioning in Grapes: Shoot positioning in grapes is done to reduce shading of the renewal zone for improved fruitfulness next year and to improve sunlight exposure of fruit clusters. Varieties differ in their need for shoot position due to their growth habit and vigor. Some varieties such as Vignoles and Chancellor tend to have relatively short shoots that stand up well on their own, so shoot positioning is seldom needed. Other varieties such as Traminette, Foch and all the American varieties produce horizontally growing shoots that tend to run along the top of the trellis and cause significant shading of the fruit and renewal zone. Shoot positioning is very important with these varieties. Other varieties vary depending on vigor of the particular site.

For high cordon systems, shoots are positioned downward on both sides of the row to improve sunlight exposure to the fruit and renewal zone. The first positioning can usually be done a week or two before bloom. Wait a week if significant shoot breakage occurs. Repeat the positioning about 2 weeks after the first round. If you wait too long, the tendrils will begin to attach, and significant shoot breakage can occur. Timing is very important to reduce shoot breakage and accomplish reduced shading in the renewal zone in time to improve fruitfulness. Fruit bud development begins about bloom so shading during this time can reduce fruitfulness for next year.

With vertically shoot-positioned (VSP) training, the shoots are vertically trained upright above the cordon (or cane). Catch wires are used to support the shoots which are manually tucked into position. Shoot positioning on VSP is done as shoot length warrants. The first set of catch wires is typically at 8 to 12" above the cordon. When the majority of shoots are at or above this point, the first round of positioning is done. If positioning is delayed too long the cordon (or cane) may rotate and shoots will be pointing down or to the side. It is difficult to turn shoots back up to a vertical plane once they've fallen. The same problem can occur if the first set of catch wires

is placed too high above the cordon. Some growers use movable catch wires to help position shoots. The wires are released from their holders and kept beneath the cordon during the winter. Pairs of wires, one on each side of trellis posts, are brought up to a fixed position above the cordon, bringing the shoots into a vertical plane in the process. Various shoot "taping" or tying systems are commercially available to attach shoots to the trellis wires if necessary. (Bordelon)

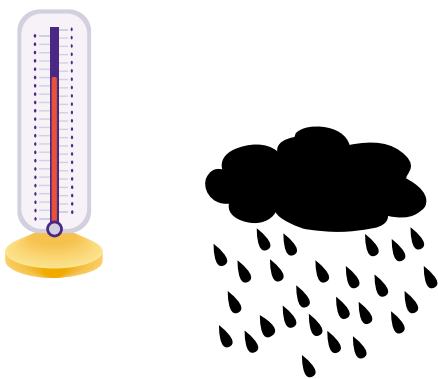
Obliquebanded Leafrollers: We recently collected obliquebanded leafroller (OBLR) larvae from some unsprayed, young apple trees in the northern part of the state. This pest has not been a problem in Indiana in the past. We suspect that some damage observed over the last few years to harvested fruit in northern Indiana orchards has been caused by OBLR. Since this is a new pest for most of us, I would like to review the life history briefly.

OBLR overwinter as larvae and begin feeding on the opening buds early in the spring. They will later roll the leaves into tubes and feed inside where they are protected. They are pupating now and the adults will begin to emerge in a couple of weeks. The larvae from those moths will feed during July and August and a second generation of moths will emerge in August and September. OBLR larvae from those moths will feed on fruit and overwinter. The larvae are 0.75 to 1.25 inches long, with dark brown or black heads. The body varies from light to dark brown or black.

The main reason we are concerned about OBLR is that in many areas they are resistant to the organophosphate insecticides, Imidan and Guthion. Growers who maintain consistent cover sprays still see significant amounts of damage at harvest. At this point, I am relatively sure that only growers in the northern part of the state need to worry about OBLR. If you see larvae that survive your cover sprays that you suspect to be OBLR, please let me know.

If the organophosphates are not effec-

tive against OBLR in your orchard, some of the newer products such as Danitol, Avaunt, Intrepid, Confirm, or SpinTor will be required to get them under control. Most of these newer products are relatively expensive and, especially the insect growth regulators (Intrepid and Confirm) require good timing. (Foster)



Weather Effects on Insects: This has been the most unusual spring I have experienced in the fourteen years I have lived in Indiana. Extremely hot weather pushed us from tight cluster to bloom in about 4 days. Extremely cold weather slowed things down for several weeks. And, of course, lots of rain prevented us from doing much of the work that we needed to do. Now, it's extremely hot again.

This type of weather is exactly why I think it is a good idea to monitor insects such as codling moths with pheromone traps, keep track of degree days, and spray based on the insect's development rather than on calendar date. For example, we would normally target the first cover spray against codling moths. However, this year, the weather was so cold between petal fall and first cover (14 days later), that we had accumulated very few degree days, which means that the codling moth eggs would not be hatching and the spray would not be as effective as we would like. Here in Lafayette, we did not accumulate enough degree-days to spray for 7 days after the first cover would have normally gone on, or 21 days after the petal fall spray. By using the degree-day accumulations, we were able to

time that spray application much better than we might have otherwise.

Especially this year, it is important that growers be watching for insect activity in their crops. Don't expect insects to behave as they "normally" do. A lot of insects are out of synch this year, so make sure you apply pesticides when they will do the most good. (Foster)

Grape Insect Pest: Unusual weather often causes us to see unusual insect problems. This spring has certainly been unusual. Last week I was given a sample of a caterpillar that was found feeding on grapes in a commercial vineyard. The caterpillar was very distinctive, with many black and white stripes running across its body. Interestingly, they preferred one variety to all the others. We were able to identify the insect as the eight-spotted forester. It commonly feeds on grapes, Virginia creeper, and Boston ivy, but is not considered to be a pest of grapes. Obviously, we don't have a lot of information about control, but my guess would be that most of the insecticides used on grapes would control it. (Foster)

Toll-Free Extension Advice: No roaming charges! Unlimited anytime minutes from anywhere in the state! That's right, growers with questions for state Extension Specialist can contact us using the new Purdue Extension toll free number: 1-888-EXT-INFO (398-4636). The operator will direct your call to the appropriate specialist. Start by contacting your county Extension Educator for help, then if you need our assistance, feel free to call us on our dime.

Indiana Horticultural Society Summer Meeting - July 1-2:

The summer meeting of the Indiana Horticultural Society will be hosted jointly this year by Dow AgroSciences and Purdue University. The agenda for the meeting is as follows:

Agenda

Monday July 1, 2002

- 1:00 -2:00 pm. Assemble at Dow AgroSciences Midwest Research Center
- 2:00 -5:30 pm. Tour of the buildings, field plots and orchard
- 6:00 pm. Supper on the grounds - modest cost to be determined
- 7:00 - 8:30 pm. Roundtable discussion of grower concerns.
Bring your questions and experiences to share.
- 9:30 pm. Adjourn to travel to West Lafayette Motel information is included in this issue.

Tuesday July 2, 2002

- 8:00 - 9:00 am. Assemble at the Horticulture Farm, 555 Sharon Chapel Road, West Lafayette, Coffee, cold drinks and maybe a donut will be available.
- 9:00 - 11:30am. Tour of the orchard plots
- 11:30 - 12:00 pm. Indiana Hort Society Business meeting.
- 12:00 pm. Lunch on the grounds modest cost to be determined
- 1:00 pm. Travel to the Meigs Farm

Dow AgroSciences: The Midwest Research Center of Dow AgroSciences is located approximately 12 miles from Fowler, IN, and is Dow AgroSciences' newest research facility. The station consists of 310 acres of level to gently rolling land, which was purchased in 1997. Construction of the building complex was started in January of 1998 and completed in September of 1998. The 1999 season was the first full-scale research program to be conducted at the facility.

The majority of soils at the MWRC are prairie-derived soils, mostly fine-textured with 3-5% organic matter and pH levels around 7.0. Some areas of the farm have forest-derived soils, still fine-textured but with lower organic matter contents (around 1.5%). Irrigation capabilities consist of lateral overhead sprinklers, traveling gun, and standpipe systems. Water is supplied from a 5-acre irrigation storage pond through a series of underground

pipes and risers.

While corn and soybeans are the predominant crops at the station, a wide variety of crops are grown. These include winter and spring cereals, Canola, potatoes, sugarbeets, sunflowers, tomatoes, cole crops, and other vegetables. Permanent plants include 400 mature apple trees transplanted from the former Greenfield station, 600 trellised apple trees, and a vineyard.

The MWRC is a state-of-the-art research facility. The goal is high quality field characterization of potential and current Dow AgroSciences products. The station is also a learning center and proving ground for new technologies.

Purdue Horticulture Research Farm: The Horticulture Research Farm is located about two miles west of the Purdue University campus and just south of State Road 26 on

Sharon Chapel Road. The farm is devoted primarily to research in the areas of production, breeding, handling and marketing of fruit crops. The farm resources are used by faculty and staff from a number of departments at Purdue including Horticulture and Landscape Architecture, Botany and Plant Pathology, and Entomology.

The original tract of land (Horticulture Farm) was purchased for the Horticulture Department in 1921 and consisted of 120 acres of which about 65 acres were tillable. The farm was originally used for both fruit and vegetable research but vegetable research was moved to other farms in 1951. The Thomas Hinsley tract consisting of 94 acres just east of Sharon Chapel Road was acquired from the Animal Science Department in 1960 and has been used for apple studies. The land is now mostly used for apple and pear breeding projects. In total, the Horticulture Research Farm now consists of approximately 265 acres of land of which about 130 acres are tillable and currently about 50 acres contain fruit plantings. In recent years almost all of the apple and peach crops that are not used in research studies have been sold through the retail sales room at the farm. Cider is sold through the sales room and some retail markets in West Lafayette. Proceeds from these sales are used for hiring summer help at the farm and also to help defray some of the farm operating costs.

Storage and packing facilities were constructed in 1968 and in 1980 a cider research building was completed to carry on a research program on the production of apple cider and related products. Cider is still produced in this facility but currently no research on cider production is being done.

Plantings include:

- NC-140 dwarf rootstocks. Gala growing on 17 new dwarfing rootstocks, including 6 different M.9 subclones (planted 1994).

- NC-140 semi-dwarf rootstocks. Gala growing on 4 semi-dwarfing rootstocks (planted 1994).

- Wine Grape Cultivar Trial: Over 60 cultivars and selections are under evaluation for wine quality. This is one of 4 similar trials across the

state.

- Table Grape Cultivar Trial: About 20 seedless table grape cultivars have been evaluated at this site since 1992. Several have proven to be poorly adapted and have suffered from winter injury. The remaining varieties have performed fairly well. (Block 56).

- Apple breeding populations using the best scab-free selections as parents.

Meigs Farm, Purdue Ag Centers: Located 8 miles south of Lafayette as part of the Throckmorton Agricultural Center, the Meigs Farm consists of 160 acres dedicated to horticultural research. The Throckmorton-Purdue Agricultural Center (TPAC) includes over 1,000 managed acres in Southern Tippecanoe County. The original farm near US 231 was given to Purdue by Dr. George Throckmorton in 1935 in memory of his father. Research at Throckmorton involves agronomic studies in corn, soybeans, wheat, and canola. Fertility, yield, and pesticide testing are just a few of the studies conducted with crops at Throckmorton. In 1997, we started the process of moving horticultural and specialty crop research to the newly acquired Meigs Farm located near Throckmorton. This new location was put into a trust by Samuel G. Meigs to be utilized by Purdue. At this location, vegetable, tree/vine, and specialty crop research is undertaken that provides researchers with both drip and overhead irrigation and has been extensively tiled for optimum drainage. Work in weed control, yield and quality enhancement, and alternative crop development are just a few of the areas explored with crops at this location.

Since 1999 we have been planting apples, peaches, grapes and pawpaws at Meigs and when current field trials are completed at the old Hort Farm in a few years, we will concentrate all our fruit research at the Meigs facility.

Although all the fruit plantings at Meigs are still fairly young, we will tour the following plants:

- NE-183 apple cultivar evaluation trial. This is part of a cooperative project in 22 states and 3 Canadian provinces and is testing 20 new apple

varieties.

- NC-140 rootstock evaluation plantings. Again these are cooperative plantings being made in a number of states. We have 4 NC-140 plantings in the ground at Meigs: Fuji on 6 dwarfing rootstocks, Fuji on 5 semi-dwarf rootstocks (both planted in 1999), Redhaven peach on 14 rootstocks (planted 2001), Buckeye Gala on 11 new dwarfing rootstocks (planted 2002).

- Organic apple production - this planting, led by Rick Foster, consists of about 250 GoldRush and 250 Pristine trees with a similar planting located at the Purdue SWPAC in Vincennes, IN. The goals are to investigate the feasibility of growing apples organically in Indiana and develop orchard practices that are less reliant on pesticides.

- Grape Cultivar Evaluation Trial: Over 50 entries including standard cultivars, new releases and advanced selections are being evaluated for wine and table use.

- Grape Training Study: Three training systems are being evaluated on Traminette to determine the best vineyard performance and wine quality.

- Pawpaw Cultivar Trial: We are one of 13 locations with this trial of 28 cultivars and selections of pawpaws.

- Small Fruit Teaching Block: Nine different small fruit crops are grown for use in teaching and demonstration.

Travel Notes: The Dow AgroSciences Midwest Research Center, 1736 N 1200 E, Fowler, IN 47944, is located on the county line road between Benton and White counties about 1.3 miles north of SR 18. If you are approaching on I-65, proceed to exit 188 which is the SR 18 exit. go west toward Fowler. Continue west on SR 18 about three miles from the Jct. of US 231 to the county line, then North about 1.3 miles. The Center is on the west side of the road.

The Horticulture Farm is located on Sharon Chapel Road, south of SR 26 about a mile and a half west of the campus in West

Lafayette. Most of you have been there.

The Meigs Farm is located east of the Throckmorton Farm which is on US 231 south of Lafayette about 8 miles. From the Junction of US 231 and Co. Rd. 800 South (a blinker light is there) go east one mile to 100 E, then south to the farm on the east side of the road. Note: US 231 has been moved to the west of the old highway, making travel from the campus much easier. From West Lafayette, take South River Road which is now US 231. Cross the new bridge over the Wabash River and continue south to 800 S.

Accommodations: There are motels at the Junction of I-65 and SR 43 and at I-65 and SR 26. The University Inn is on US 52 in West Lafayette and the Purdue Union is at the corner of State and Grant Streets on campus. A partial list of accommodations will be in the IHS newsletter to be out next week.

Upcoming Meetings

June 11 - Blueberry Growers of Indiana Spring Meeting and Farm Tour. Blueberry Dune Farm, LaPorte. 4:00 PM Farm tour, 5:00 PM Potluck dinner (bring a dish to share), 6:00 PM BGIN business meeting, 6:30 PM MBG business meeting. Blueberry Dune Farm in on State Road 39 1 mile south of I-94 on the west side. For more information call Don Kepler 219-362-3393 or Melvin VanKley, BGIN Pres. 219-956-3687.

July 1-2 Indiana Horticultural Society Summer meeting. Lafayette area. Details in this issue of FFF.

July 9-12 American Society for Enology and Viticulture-Eastern Section conference. Baltimore, MD. Contact www.nysaes.cornell.edu/fst/asev.

July 17-19 - July 17-19. Workshop on developing and implementing HACCP for Juice and Cider Industries. Holiday Inn at the Pyramids, Indianapolis. For a brochure and program see <http://www.foodsci.purdue.edu/outreach/haccpcider/02brochure.pdf> or call Peter Hirst for a copy of the program.

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