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FFF00-03
 April 5, 2000

Crop Conditions: Fruit crops are starting growth across the state due to the warm temperatures we've been experiencing. Cooler conditions (especially night temperatures) over the past two weeks have slowed development. Three weeks ago we would have said the season is looking about 3 weeks early, 2 weeks ago we would have said two weeks early, right now we're saying maybe a week early. The cool weather has slowed things down a lot. Here at Lafayette, peaches seem to be in a state of suspended animation, and have been at pink for almost 2 weeks now with no flowers open. Of course there is a wide range across the state with peaches in full bloom in southern counties a week ago. Apples are somewhere between half-inch green and tight cluster and the longer they stay that way, the lower the risk of frost damage becomes. This delay also helps us because it puts the critical stage of cell division a little bit later at which time we have a better chance of warm temperatures. Remember that warm temperatures during the month after flowering results in faster cell division and larger fruit at harvest time. Early grape varieties are at past bud break in the south and full swell north. Later varieties are still holding fairly tight. Blueberry buds have broken in the south and are swelling north. Brambles have 1 to 2 inch shoots with leaves unfolding. Strawberries flower trusses are out of the crown south and in the crown north. The risk freeze or frost is still high through most of April. Keep your fingers crossed!

U.S. Apple Association having an impact: Proctor and Gamble are set to launch a new product called "Fit" as an aid for removing pesticides, dirt and other contaminants from fresh fruit and vegetables. OK, so what's the problem? As part of their marketing for this product, the company intended to use a stylized apple on its packaging and mentions apples specifically. The U.S. Apple Association was concerned that this marketing strategy could generate consumer concerns regarding the safety of apples in particular. At a recent meeting between the U.S. Apple Association and Proctor and Gamble, it was revealed that the stylized apple has been dropped from the label. Whether apples will be featured in TV advertising for this product remains unclear. This is one small example of the impact of the U.S. Apple Association on behalf of apple growers nationwide. - Hirst

Insecticide Residues in Apple Juice: As all of you know, one of the main objectives of the Food Quality Protection Act is to protect consumers from potential

harmful affects of pesticides, particularly pesticide residues in food. The first group of pesticides being assessed are the organophosphate insecticides, which include the two most commonly used insecticides on apples in Indiana, Guthion and Imidan. In addition, apple is the crop that is first on EPA's list, primarily because of the high level of consumption by children. One of the concerns that many growers and others in the food production business has been that the EPA would use assumptions about pesticide use and residues rather than real data in making their decision.

I just received a report from USDA "Pesticide Data Program, Annual Summary Calendar Year 1998". This report summarizes the results of a very large program in which USDA samples fruits, vegetables, corn syrup, soybeans, and milk for residues of a number of different pesticides. While I hate to bore you with a lot of data, I think that it is instructive to just go through the results for several commonly used organophosphate insecticides and the residues found in apple juice. No data were collected on residues on fresh apples, but

with the emphasis of FQPA on children, the apple juice data are very important.

The process USDA uses is to take samples from throughout the country and analyze them for residues. The numbers I will report here include the number of samples taken, the number of samples that had any residue of the pesticide detected, the highest amount detected in any sample, and the tolerance for that pesticide in apple juice, which is the maximum amount of residue allowable. Finally, I have calculated how many times greater the tolerance is than the largest amount of residue actually detected.

Azinphos methyl, the active ingredient in Guthion, was detected in 29 of 694 samples of apple juice. The maximum amount detected was 0.071 parts per million (ppm). The tolerance currently is 2.0 ppm, or 28 times the maximum amount detected. By next year the tolerance will be lowered to 1.0 ppm, which is still 14 times the maximum detected.

Phosmet, the active ingredient in Imidan, was detected in 4 of 603 samples, with 0.025 ppm being the greatest amount detected. The tolerance is 10 ppm, or 400 times the maximum amount detected.

Neither chlorpyrifos, the active ingredient in Lorsban, nor diazinon were detected in 694 samples.

Dimethoate was detected in 117 of 694 samples of apple juice. The maximum amount detected was 0.07 ppm, which is 29 times less than the tolerance of 2.0 ppm

Methyl parathion, the active ingredient in Penncap M, was detected in 1 of 694 samples. The maximum amount detected was 0.005 ppm which is 200 times less than the tolerance of 1.0 ppm. Penncap M is no longer labeled for use on apples or other fruits, as a result of one of the first FQPA decisions handed down last summer.

The bottom line is that for each of these six organophosphate insecticides, there was not a single case in this 1998 study in which residues even approached the tolerance in apple juice. According to the introduction to this publication, these data will be used for risk assessment purposes in the implementation of FQPA. Certainly the use of these data will paint a much different picture of the risks associated with the use of organophosphate insecticides than assuming maximum use rates, maximum numbers of applications, and minimal pre-harvest intervals. -*Foster*

Spotted Tentiform Leafminers: Populations of spotted tentiform leafminers (STLM) have generally been higher than normal for the past three seasons in many orchards. STLM overwinter as pupae and the adults begin to emerge around green tip. Egg laying begins at tight cluster and peaks around the pink stage. Subsequent generations usually emerge in June and August. Young larvae (sap feeders) feed on protoplasm from cells that

they open with their mouthparts and older larvae (tissue feeders) feed on entire cells. The treatment threshold for the first generation is four new mines per fruit cluster and for the second generation is 2.5 mines per leaf. Treatment is usually not necessary for the third generation.

There are two strategies that you can use for control. The first is to target the adults by applying an insecticide such as Thiodan at peak moth flight. Thiodan will not do much harm to predator mites, so it is a good choice for this treatment. There have been some reports of reduced effectiveness with Thiodan, potentially because of resistance, although that has not been confirmed. For many growers it may be too late for adult control of the first generation. The second strategy for leafminer management is to control the larvae. Provado or Agri-Mek should be applied as soon after petal fall as possible. Especially for Provado, make sure that bees have been removed from the orchard before spraying. -*Foster*

Codling Moth: Pheromone traps to monitor for codling moths should be placed in the orchard at pink. Things are moving quickly this spring, so don't be left behind. Check the trap daily and after you catch the fifth moth in the pheromone trap, you should begin accumulating heat units.

1. Find the high and low temperature (Fahrenheit) for the day.
2. Add the high and low temperatures together and divide by 2 to get the average temperature for the day.
3. Subtract 50 from the average daily temperature to get the day's heat units. Codling moths don't develop below 50 F, so we are only interested in temperatures above their developmental threshold.
4. Add the day's heat units to the previous total to get the updated accumulated heat units. (On the first day you will be adding to zero.)

When you have accumulated 250 heat units, it is time to spray. The eggs will have developed to the point where they are almost ready to hatch, so if you put on a spray at this time, you will have the maximum amount of residue present to control the young larvae before they enter the fruit. -*Foster*

Plum Curculio: There is a fair amount of research going on around the country to develop methods for sampling for plum curculio so that the need for insecticidal control can be determined. Although some of the work shows promise, it has not reached the point of being used commercially. Therefore, our recommendations are still to apply an organophosphate insecticide at petal fall and first cover for control of plum curculio. -*Foster*

Rosy Apple Aphid: You should be scouting your orchard for rosy apple aphids at pink. If you find any rosy apple aphids, you should apply an appropriate insecticide at pink. See ID-168 for specific recommendations. If you do not find any rosy apple aphids, there probably is no reason to apply an insecticide at pink, unless you have a history of tarnished plant bug problems. After petal fall, rosy apple aphids should be controlled if more than 5% of the terminals have colonies of aphids present. -Foster

Apple Diseases: Tight cluster to pink is a time for maximum disease control efforts. During this period primary scab spores often reach their peak; powdery mildew infection is occurring on new growth; cedar apple rust is discharging spores with each rain; and fire blight is building, ready to be carried to opening apple and pear blossoms. It's not a pretty picture!

1. **Apple scab:** The potential for severe scab infection is ALWAYS high. The amount of scab is directly dependent on the frequency AND DURATION of spring rainfall. If we have a wet April, scab pressure will be high, if it turns dry, scab pressure will be low, spray accordingly.

2. **Rust:** The pink stage of apple growth generally coincides with the time rust spores begin to infect apple foliage and fruit. If rust is a chronic problem consider the use of a sterol-inhibiting fungicide such as Nova or Rubigan.

3. **Powdery mildew:** If mildew has been a chronic problem in certain blocks (Jonathan, Rome, Ida Red) the above mentioned sterol-inhibiting fungicides are excellent in helping to control mildew. The new strobilurin fungicides, Flint and Sovran, are also excellent for control of mildew, as well as scab and rust.

4. **Fire Blight:** Cool spring temperatures help prevent a rapid increase in the fire blight population; warm spring temperatures can cause very sudden, dramatic increases in the fire blight population. To date it's been a warm spring – be nervous. -Pecknold

Apple Scab: The most important time of year for scab control is from green tip to petal fall. If you don't control scab during this period it's an uphill struggle the remainder of the season. Be sure sprayers are properly calibrated; thoroughly read the label of all pesticides you will be applying; use sufficient water to provide good coverage; choose calm, good drying conditions for spraying (Good luck on this suggestion); prune trees so they have an open canopy allowing for good spray penetration; and maintain a tight schedule if wet weather persists during the primary scab period. -Pecknold

Planting to Avoid Fireblight: When establishing new orchard blocks, consider varietal susceptibility to fire blight. Blight control is easier if plantings of susceptible trees can be isolated. Avoid interplanting susceptible

apple varieties (Gala, Braeburn, Fuji, Ida red, Jonathan, Lodi, Rome, etc.) with pears or in fields adjacent to pear plantings. In mixed variety plantings, set varieties susceptible to blight in solid rows for ease of spraying with blight control chemicals. Also, most of the more severe fire blight problems have occurred in orchards planted on poor sites. These sites can be characterized as having heavy, poorly drained, and/or highly acid soils. Planting trees on poor soil invites fire blight damage and poor fruit production. -Pecknold

Brown Rot Of Stone Fruits: Management of brown rot began last year after harvest...with the removal of all fruit, mummies and blighted twigs. It continues this year at pink with early season fungicide sprays. We fortunately have an abundance of fungicides for use in control of brown rot. See ID-168, "2000 Indiana Commercial Tree Fruit Spray Guide", for a complete listing of suggested fungicides. -Pecknold

Indar Receives Section 18 Exemption for use on Blueberries: EPA has granted a section 18 Specific Exemption for fenbuconazole (Indar) fungicide on blueberries for the 2000 growing season. INDAR 75WP is used for the control of mummyberry disease. Use recommendations are as follows: Apply one 2 ounce pounce (1.5 ounce a.i.) INDAR 75WSP per acre by ground or air. Begin applications at early green tip and make subsequent applications at 10 to 14 day intervals. RESTRICTIONS: Do not make applications within 30 days of harvest. Do not make more than 5 applications or apply more than 10 ounces (0.47 lb. active) per acre per year. Do not use any spray adjuvants with INDAR 75WSP. Do not graze livestock in treated areas or feed cover crops grown in treated areas to livestock.

The supplemental label for the Section 18 exemption has been issued by Rohm and Haas and we have placed a copy on the Commercial Small Fruit and Grape Spray Guide web site at <http://www.hort.purdue.edu/hort/ext/sfg/>. This supplemental label must be in the possession of the applicator at the time of application. Check with your agricultural chemical dealer, contact Rohm and Haas Company, 100 Independence Mall West, Philadelphia, PA 19106 215-592-3000, or contact Bruce Bordelon. -Bordelon

Grape Sprays: Bud swell to bud break is the perfect time to apply liquid lime sulfur for control of anthracnose. Lime sulfur has also been shown to reduce overwintering inoculum of black rot and powdery mildew. It is likely that it helps reduce inoculum of Phomopsis, but I know of no research proof. It is important to get thorough coverage of all plant parts, especially the trunks and cordons where bark crevices harbor fungal spores. Other important pests to control this time of year are flea beetles and climbing cutworms. These pests feed on swollen buds, destroying the

primary shoot. The main damage is done when buds are in full swell. Once the shoots reach 1/2 inch long the damage caused by these pests is minor. Flea beetles seem to be the more common of the two pests in Indiana. Scout vineyards for these insects or signs of feeding beginning at early swell and continuing until shoots are about 1/2 inch long. The adult beetles are dark metallic greenish-blue or steel blue and about 1/8 inch long. They damage buds by eating a hole in the side or tip, and hollowing out the center. Scout perimeter rows, especially those adjacent to woods or brushy areas where adult beetles overwinter. If bud damage averages 4% or more, an insecticide application may be warranted. Refer to the Commercial Small Fruit and Grape Spray Guide (www.hort.purdue.edu/hort/ext/sfg) and the Midwest Small Fruit Pest Management Handbook (www.ag.ohio-state.edu/~sfgnet/) for complete discussions of grape IPM. –Bordelon

Is the Devastating Plum Pox Virus a Threat to Midwest Peach growers?

Many of you are no doubt aware of recent reports of the discovery of Plum Pox Virus (PPV) in Adams County, Pennsylvania. This is a destructive disease of stone fruit and could be a threat to peach, plum, and cherry production in Indiana. This virus has never been found in North America before, and now that it is here, we need to be aware of the findings surrounding this disease. In this article, basic information about PPV will be discussed. For more details visit the edifying web site on PPV, also called sharka disease, that is maintained by Pennsylvania State University (<http://sharka.cas.psu.edu>). This article is based on information obtained from the web site.

What was found? Plum pox virus (PPV) was positively identified in a relatively small region of Pennsylvania in October, 1999.

Where has the disease occurred before? PPV was first found in Bulgaria in 1915, spreading gradually through Europe, reaching France in 1970, soon after, to England, and by 1984, to Spain. Throughout Europe, plum pox is considered the most devastating disease of stone fruits, and it has been estimated that over 100 million European trees are infected. Plum pox continues to spread eastward in Eurasia and southward along the Mediterranean coast of Africa. In the 1990's PPV was brought to Chile and within a few years, large numbers of trees in the stone fruit-growing regions were infected. In North America, the only identified occurrence of plum pox is localized in 18 stone fruit blocks of 4 orchards in two townships in Adams County, Pennsylvania. Due to the localized nature of this infection, it is hoped that eradication may be successful in eliminating this isolated focus of infection from North America.

Host range. PPV infects not only plums but also all economically important stone fruit (Prunus) species including peach, nectarine, apricot, almond, and cherry. PPV is also known to have the ability to infect some

wild Prunus species, and a large number of weed species under laboratory conditions. In Europe, it is believed that spread within orchards occurs from infected to healthy fruit trees. The role of alternate weed hosts, if any, in disease spread is not known, but needs further study.

Symptoms on Stone Fruit. Symptoms of PPV may vary considerably with the plant species, the cultivar, tree age, nutrient status, and environmental conditions. In addition, different strains or variants of PPV may vary in virulence, and thus disease severity. Some infected plants show no clear symptoms at all. Diagnostic symptoms on leaves may consist of light green discoloration bordering the leaf veins (vein banding) or chlorotic light green or yellowed rings on the leaf blades. These symptoms may be obvious or barely visible to the eye, depending on factors described above. Symptoms frequently are restricted to only a few leaves per shoot. Infected trees are not stunted and are difficult to identify. Fruits of peach and apricot may develop lightly pigmented chlorotic rings or line patterns resulting from several rings coalescing together. Fruits may become deformed or irregular in shape, developing necrotic areas. The internal stone from an infected apricot fruit may show white to yellow or red colored rings on its surface when the flesh is removed. Plums are generally more severely affected and show more severe symptoms. For some plum cultivars, infected fruits drop prematurely from the tree. Infected plum fruits often develop darker rings or spots on the skin, are severely deformed, and develop a reddish discoloration of the flesh. Affected fruit can be low in sugars and tasteless. PPV infection of fruit trees results not only in development of typical symptoms on leaves and fruit, but also eventually debilitates the tree, reducing its useful life. Unfortunately, many trees fail to show symptoms for the first few years following the initial infection of the tree. In the survey done this fall in Pennsylvania orchards, only 2 of the 18 infected peach blocks had trees showing obvious symptoms. Therefore, symptoms are not a good indicator of infection and cannot be relied upon to determine the incidence or range of the disease. When symptoms do occur, however, they are frequently very diagnostic and easily recognized.

The Plum Pox Virus. PPV is a virus, an infectious agent much smaller than the disease-causing fungi or bacteria we often encounter. To visualize PPV, one needs to use an electron microscope that can magnify objects to 100,000 times natural size. Plum pox virus is a virus species in the genus Potyvirus. These viruses are transmitted by aphids. Once PPV is inoculated to a plant by a vector aphid, the replicating virus can spread throughout the plant infecting all tissues, including leaves, fruits, flower parts, buds, young bark, and roots. Plum pox virus is known to occur in several different forms or variants called strains. The strain introduced into North and South America has been the PPV-D

strain that appears to be more slowly spread by aphids in Europe, compared to other strains.

How does PPV spread in the orchard? In orchards, PPV is spread only by aphids. Aphids are small insects that feed through modified piercing-sucking mouthparts on internal phloem tissues of plants. One of the most efficient vectors, the green peach aphid (*Myzus persicae*) colonizes other stone fruits in Indiana. Therefore, the potential exists for aphid spread of PPV here. The aphids transmit PPV in a non-persistent manner which means that once the aphid probes into an infected plant and acquires the virus, the virus can only remain infectious and be transmitted by the aphid for a short time (usually some minutes or an hour).

How can the virus move internationally, and how did it get here? Long-distance spread of PPV by aphids is highly unlikely. Usually, long-distance movement of tree fruit virus diseases is done inadvertently through commercial shipping of nursery stock or budding material, but that has been pretty well ruled out in this case. A hobbyist propagator, a person who travels the world looking for new varieties from other countries, could bring a disease like this into the U.S. How PPV was introduced into the U.S. is not known.

Control through exclusion. Once PPV becomes established in a geographical region, it is very difficult or impossible to completely eradicate. Therefore, it is important to prevent the introduction of PPV into the country. Under the Plant Quarantine Act of 1912, in the United States, this is the responsibility of the Animal and Plant Health Inspection Service (APHIS) of the USDA. All fruit nursery stock for importation is tested for a range of known fruit tree pathogens and especially for those that are not known to occur in the United States (exotic pathogens). Only pathogen-free material is released for commercial use. The occurrence of PPV in Pennsylvania serves to remind everyone of the importance and need of strict plant quarantine and testing procedures associated with imported nursery materials. In almost all cases, transoceanic dispersal of plant pathogenic agents is associated with human transfer of infected host materials. Therefore, careful regulation and inspection combined with education of importers and travelers could prevent reintroduction of exotic plant diseases threatening U.S. crops once they are eliminated. Quarantine can be effective in preventing long-distance spread of PPV within a region, state, or country. If the disease is localized to a small area, it may be contained by local quarantines preventing movement of infected materials out of that area. Such a quarantine was implemented October 21, 1999, in Adams County, Pennsylvania, by the Pennsylvania Department of Agriculture (PDA). If implemented before movement of infected materials occurred, it will be effective in preventing spread of PPV. The objective of the quarantine is to exclude PPV from entering other fruit-growing areas. The inspection and testing of imported nursery

material and plant breeding materials is the first line of defense against PPV. It is also essential for commercial growers and nursery propagators to purchase only certified virus-free planting stock that has been tested and verified to be free of PPV, as well as other fruit viruses.

Control through eradication. Now that the virus is in the U.S., and since diseased trees cannot be cured, the next control strategy is to eliminate the virus-infected materials as quickly as possible before the virus spreads. Intensive surveys are planned to identify the extent of PPV spread. Because of quarantine concerns, the USDA has stepped in to work with the PDA and together, with advice from European scientists, they will develop a plan of action to eradicate the problem. Although details of the eradication program are not available yet, preliminary discussions suggest that hundreds of acres of stone fruits including peaches, nectarines, plums and apricots will need to be destroyed. Scouting and surveys to detect PPV will probably continue for several years to verify the effectiveness of the eradication program. This will involve use of laboratory assays such as serological tests (ELISA), or nucleic acid probes for specific viral RNA sequences. Once infected trees are identified, the cure is simple and administered with a bulldozer, chain saw, or other equipment to completely remove the tree, including roots. The role of weeds or nearby wild *Prunus* species in harboring the virus is not known. If weeds and wild hosts are found to be important refuges for the virus, then eradication may be nearly impossible.

Control through protection of trees from aphid vectors. Creating an insecticide barrier around healthy trees is not a practical means of preventing aphid transmission of PPV. Control of this type of transmission is difficult because the aphids are so mobile and need to probe for only a few seconds to acquire or transmit the virus, leaving little time for insecticide effects. Because aphids tend to lose the ability to transmit potyviruses if they land and test probe on a non-host plant before landing on the crop plant, decreased infection might result from surrounding *Prunus* with several rows of a non-host species such as apple.

Control through host plant resistance. If PPV becomes established in the U.S., then plant breeding and genetic engineering may become important. Unfortunately, little resistant germplasm has been identified in *Prunus* species. This means that few naturally occurring resistance genes are available for plant breeders to use in developing highly resistant fruit varieties. Genetic engineering of resistant *Prunus* species may be possible by insertion of specific genes from PPV into the plant, but this approach has only been demonstrated experimentally thus far.

Now that the disease is in Pennsylvania, can they get rid of it? At the moment there are many unanswered questions regarding how the virus arrived in Pennsylvania and exactly how far it has spread. To date, PPV has

not been found outside of two townships in Adams county. These townships are under quarantine making it illegal to move Prunus trees or bud wood from this area. The USDA Animal and Plant Health Inspection Service (APHIS) and the PDA Bureau of Plant Industry (BPI) are working to prevent this disease from spreading to other parts of the country if at all possible. The USDA has been successful in keeping PPV out of the country up until now since this is just the first report of PPV in North America, but with increased international travel and trade, this job becomes more difficult. Officials are hopeful that because the strain of PPV found here tends to spread slowly in nature total eradication of PPV from Pennsylvania is feasible. Presently, wild cherry, a common Prunus species growing in Eastern forests and fence rows, is also being tested to see if it is susceptible to PPV. If wild cherry proves to be a host, PPV may be difficult to stop. Within the quarantine area, home orchards and ornamental Prunus plantings are not excluded from PPV surveys and eradication, if found to be infected.

What are the implications of PPV for Indiana? Assuming the disease is eradicated from Pennsylvania, there would be little economic impact here. Growers will probably not be able to obtain Prunus trees from nurseries located in the quarantine area. If PPV is not stopped, then ultimately production of peaches and other stone fruits would not be profitable here until resistant trees are developed. Use and maintenance of ornamental Prunus species in the landscape would also be compromised. We should hope that the disease will be eradicated and that it will not appear here. (adapted from an article by John Hartman, Kentucky Fruit Facts) –*Hirst*

In the near future, an informational color pamphlet about Plum Pox Virus will be sent from Purdue's Plant and Pest Diagnostic Laboratory as part of an educational outreach effort by the USDA and the IDNR. If you are not currently receiving hard copies of *Facts for Fancy Fruit* and would like to receive this special mailing, please contact the Plant and Pest Diagnostic Laboratory (phone: 765-494-7071, fax: 765-494-3958).

Blueberry Promotion Referendum: Voting on a referendum to decide on the establishment of a national blueberry promotion program has been extended to April 14. The program, proposed by the North American Blueberry Council (NABC), is designed to help increase sales among the nation's more than 2,000 cultivated blueberry growers and importers in response to increased production which has occurred in recent years, coupled with the aggressive competition in the marketplace. Approval of the order will take place under these conditions. First, the majority of the blueberry producers and importers voting in the referendum must approve the order. Second, the combined production and imports of those producers and importers must exceed 50% of

the total volume of blueberries imported and produced by the voters in the referendum.

AMS will mail ballots, voting instructions and a summary of the proposed program to all known eligible blueberry producers and importers. Those who believe they are eligible to vote and who do not receive a ballot should contact Oliver L. Flake, the referendum agent, by calling (888) 720-9917; fax (202) 205-2800; or email Oliver_Flake@usda.gov. The proposed order was published in the Feb. 13 issue of the Federal Register. It can be accessed at www.ams.usda.gov/fv/rpb.html.

National Agricultural Earth Day Celebration Announced: The Ag-Earth Partnership, a coalition of more than 70 agricultural organizations and agencies, have announced plans for a multi-faceted celebration of environmental stewardship in American agriculture in the weeks leading up to Earth Day on April 22, 2000. The Partnership is a three-year initiative designed to highlight ongoing stewardship efforts that are helping America's farmers and ranchers contribute to clean water and air, healthy soil, sustainable forestry, improved wildlife habitat and open spaces, and a quality environment for all.

"Members of the Ag-Earth Partnership are very excited to share their environmental success stories with the public, lawmakers and school children during the celebration of Earth Day 2000," said Tom Van Arsdall, vice president, National Council of Farmer Cooperatives and national coordinator, Ag-Earth Partnership. "Through interactive exhibits and displays, our Partner organizations will highlight innovative environmental practices and a public rededication to conserving and protecting the approximately 1 billion acres of land used in the United States to produce food, natural fiber and many other products." The Ag-Earth Partnership will exhibit on the Mall in Washington, DC from April 13-22. The primary educational programs will take place on April 13 and 14 during which school children will tour the displays and participate in interactive exhibits that will help teach them about agriculture's positive contribution to the environment.

In addition to the national events in Washington, Ag-Earth Partners will host local Earth Day Agricultural Celebrations across the country. A list of these events will be available on the Partnership's website at: www.nasda-hq.org/nasda/earth/index.html.

"Conservation and environmental progress in agriculture are the result of hard work and a commitment to stewardship by individual farmers and ranchers," said Van Arsdall. "We in agriculture truly have something to celebrate on Earth Day."

Return Bloom Fund: In the last edition of Facts for Fancy Fruit, I gave an overview of a planting of new dwarfing rootstocks that we are testing to see how they

survive and perform under Indiana conditions. I believe the future for our industry is centered around the use of more dwarfing rootstocks than we have used in the past – maybe not to the extent of going to full dwarf trees, but at least making a step downwards in terms of tree size (and upwards in terms of productivity, fruit quality and labor efficiency). Bearing this in mind, we are testing semi-dwarfing rootstocks as well as those in the dwarfing range of vigor. There are 3 rootstocks that in tests at other places look promising. Two are from the Cornell series and are CG.707 and CG.814. The other one is from the Supporter series in Germany, Supporter 4. We have also included M.7 EMLA and M. 26 EMLA as standards. By including the standards, we can say that a certain rootstock will produce a tree a certain size compared with M.7 or M.26, and how the productivity compared. We will also be looking at survival, which will be especially telling if we have a bad fireblight year. Both of the Cornell rootstocks are apparently fireblight resistant, but we don't yet know how their tree size, productivity, etc will compare with M.26 and M.7. If we can identify a rootstock that is resistant to fireblight, and with tree size of around M.26 or maybe slightly smaller, with high productivity, then I think we could be on to a winner. It's still early days for this planting, so time will tell whether these new rootstocks offer any advantages over what we already have available. I would like to acknowledge the contributors to the Return Bloom Fund – without your support I doubt we would be able to test these rootstocks. The Return Bloom Fund is an initiative of the Indiana Horticultural Society. For more information on, contact Peter Hirst at Purdue or a member of the Indiana Horticultural Society board

Vineyard Establishment Workshop: A workshop will be held on April 15 at Jacksonville Vineyards in Switzerland County to show growers how to properly establish commercial vineyards. Site selection and preparation will be discussed and techniques for vineyard layout and vine planting will be demonstrated. This will be a hands-on workshop so bring your gloves and wear your boots! Owner Steve Crabtree will appreciate all the help he can get. The workshop will start at 1:00 pm and will end about 5 pm after an open discussion and wine tasting. Jacksonville vineyard is located on St. Rd. 56 5.5 miles north of downtown Vevay (intersection of St. Rd. 56 and St. Rd. 156). If you come from the north it is 6.5 miles south of St. Rd. 250. For more information contact Bruce Bordelon at 765-494-8212.

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 subscription is free of charge.

Coming Meetings:

April 5 - Fruit meeting. Floyd County. Blue River Orchard, Kays Chapel Road, Fredericksburg, IN. 5:30 pm slow/local(at the site) time (6:30 pm fast / Louisville time. Directions: Approx 1.5 miles west of Fredericksburg on HWY 150 then North on Kays Chapel Road approx 0.5 miles on right. Fredericksburg is approx. 25 miles north west of Louisville, Kentucky. Contact Roy Ballard (812-948-5470).

April 6 – East Indiana Fruitgrowers twilight meeting 6.00 pm, Minnetrista Cultural Center, Muncie. Contact Harold Brown at 765-747-7732.

April 11 – Pruning demonstration. County Line Orchard, Hobart, Lake Co. 1.30 pm. Contact Stan Sims (219-755-3240)

April 11 – Twilight meeting. LaPorte Co. Contact Walt Sell (219-326-6808).

April 15 – Vineyard Establishment Workshop. Jacksonville Vineyards near Vevay in Switzerland Co. Contact Bruce Bordelon at 765-494-8212

May 3 – Eastern Indiana Horticultural Society meeting, Muncie. Contact Harold Brown (765-747-7732).

May 9 – Twilight meeting. LaPorte Co. Contact Walt Sell (219-326-6808).

June 6 – Eastern Indiana Horticultural Society meeting, Muncie. Contact Harold Brown (765-747-7732).

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