



## INDEX

Cold snap covers the state  
 Imidan risk assessment  
 Return Bloom Fund  
 Straw removal on strawberries  
 Fire blight  
 Collar rot of apple  
 Powdery mildew of apple  
 Peach leaf curl  
 Raspberry anthracnose  
 Grape flea beetle  
 Oil sprays  
 Early Season Miticides  
 Vineyard Establishment Workshop  
 Indar receives Section 18 Exemption for use on blueberries

**FFF00-02**  
**March 22, 2000**

**Crop Conditions:** Fruit crops are breaking dormancy across the state due to the warm temperatures we've been experiencing. Peaches in the south are at pink with full bloom expected in a week or so. Apples are at silver tip to green tip. Blueberry buds are swelling, but have not broken. Early grape varieties are at full swell to bud break in the south. Brambles have 1/2 to 1 inch shoots and may have been damaged by the recent cold temperatures. Strawberries are showing 2 to 5 new leaves but the flower buds are still in the crown. The risk freezing temperatures is still high through most of April. Let's hope we get through Spring without a major freeze event.

**Cold snap covers the state:** Since the last Facts for Fancy Fruit, much of the state was hit by a cold snap. Lowest temperatures were typically recorded overnight on March 12-13 and varied quite a lot even within short distances. For instance, in the northern part of the state, low temperatures were 24 in LaPorte, 23 in Kendallville and 20 in Plymouth. Not too far away in Logansport, 12 degrees was recorded. In the central part of the state, it was 14 in Frankfort, 17 in Indianapolis, 19 in Greenfield and 16 in Trafalgar. In the south, lows were typically around 20 with 24 in Mt Vernon, 18 in Vincennes and 21 in Milan. We recorded the lowest temperature here in Lafayette of 8 degrees. In central and southern regions of the state, apples were at about silver tip during this cold period. The chart in the back of the Tree Fruit Spray Guide says that 15 degrees will result in 10% damage at this stage of development, so I expect only very slight damage as a result. Southern parts of the state may have been at green tip at this time and 18 degrees is the threshold temperature for 10% damage but most areas only got down to around 20, so again I don't expect there to be too much damage. With peaches, most were at around half inch green or early stages – critical

temperatures are 23 for 10% kill and 5 degrees for 90% kill. Bearing in mind we only need 10% live buds for a good peach crop, with the mild winter I think most peach crops in the state are looking good at this stage. -Hirst

**Imidan risk assessment:** The risk assessment for Imidan will go into EPA's public docket on Monday, March 20, 2000 - this will kick off the second 60 day comment period. During this period - EPA is looking for input on risk mitigation. This is the time that EPA needs to hear about the reentry intervals you need by crop. If you have opinions on this, now is the time to make your voice heard. Send your comments to (send 3 copies of your letter):

US EPA  
 OP Pesticide Docket (7502C)  
 401 M Street SW  
 Washington, DC 20460

Or you may email comments to: [Oppdocket@epa.gov](mailto:Oppdocket@epa.gov) If you have questions, the person at the EPA to contact is Diane Isbell, phone 703-308-8154, email [isbell.diane@epa.gov](mailto:isbell.diane@epa.gov) -Hirst

**Return Bloom Fund:** I just received a call from a prominent southern Indiana fruitgrower and nurseryman who says the return bloom fund is working great, since his return bloom looks so good this year! Seriously though, this fund can't work miracles overnight, but will enable us to solve grower problems and identify and research new opportunities. The Return Bloom Fund is an initiative of the Indiana Horticultural Society. For more information, please contact a member of the Indiana Hort. Society board or Peter Hirst at Purdue.

In each edition of Facts for Fancy Fruit, we will update you on some of the activities being carried out at Purdue directly as a result of your support of the Return Bloom Fund. In this edition I want to highlight a planting to evaluate new dwarfing rootstocks for apples. This planting of Fuji trees went in the ground last year at the new Meigs hort research farm. We are evaluating rootstocks from two programs, one in New York and one in Germany. G.16 is one of the most promising new rootstocks from the Geneva program at Cornell University in New York. In other plantings, rootstocks derived from tissue culture have not performed the same as trees propagated in the conventional way from stool beds. In this planting we have trees on tissue cultured G.16 (G.16T) and rootstocks produced in the normal way (G.16N). This should eliminate some of the mix ups in previous plantings and allow us to not only evaluate this rootstock, but also allow us to examine the source of the rootstock. Three of the Supporter rootstocks from Germany are also included in the planting – Supporter 1, Supporter 2 and Supporter 3. These have not been previously tested in the United States, but look very promising in European test plantings. Both M.9 and M.26 are included in the planting as reference or standard trees. To formulate rootstock recommendations for Indiana, the rootstocks must be tested under local conditions. These trees are only one year old, so it will be several years until we can say too much about them, but I think it is very important to get trees on these rootstocks in the ground and get the process started. The support received from the Return Bloom Fund is allowing this to happen. -Hirst

**Straw removal on strawberries:** Studies done in Illinois indicate that proper time to remove straw is when the soil temperature at 4 inches averages about 40-43F. This temperature has been reached

for most areas of the state. Over the past 10 days soil temperatures have been in the low to mid 40s across the state. Rake most of the straw off the tops of the beds and into the row middles. Leaving some straw on top of the beds for plants to grow up through provides a clean surface for fruit. Straw should be removed from strawberry beds before the plants grow enough to cause yellowing of foliage. Allowing the leaves to become etiolated (yellowed with long petioles) due to late straw removal can reduce yields by as much as 25%. However, uncovering the plants early may promote early growth and increase chances of frost or freeze injury. This is a judgment call that growers have to make for themselves. After the straw is removed the frost protection irrigation equipment should be set up. -Bordelon

**Fire blight:** If fire blight has not been a problem in your orchard over the past few years there is *no need* to apply a copper based dormant spray. Dormant copper sprays are most beneficial in those years following severe fire blight. If you do feel copper sprays are needed, we suggest you apply copper to the entire orchard block, including non-susceptible cultivars. The reason for treating non-susceptible cultivars is that even normally fire blight 'resistant' trees like Red Delicious can be colonized by the bacteria and serve as a source of infection during bloom. If copper sulfate (4 pounds per 100 gallons) is used be sure to apply it when trees are dormant. If applied late it may burn leaf tissue. Also, **do not** apply copper sulfate with oil; apply copper sulfate and dormant oil as separate sprays spaced at least 10 days apart. If copper sulfate is applied under poor drying conditions or later than silver tip, plant injury can result. An alternative to copper sulfate are the fixed coppers such as Kocide and C-O-C-S; most fixed coppers do not have the compatibility problems of copper sulfate and can be tank mixed with early season oil sprays. Remember however that even fixed coppers, if applied after half-inch green, can cause fruit russetting in years when there is not enough rain to remove the copper residues before tight cluster. -Pecknold

**Collar rot of apple:** Think back to late last summer, did trees in your orchard show premature leaf reddening, sparse, yellow foliage, and many small, highly colored fruit? Such symptoms, if accompanied by a canker (localized discolored

tissue) at or just below ground level, are evidence of possible collar rot, caused by the soil-borne fungus, *Phytophthora*. If collar rot is suspected we advise the use of Ridomil 2E or Aliette. We especially recommend these fungicides in those problem wet areas having poor drainage and heavy, clay-type soil. Be sure to treat surrounding healthy appearing trees, not just trees already showing severe symptoms of collar rot. Both these fungicides are best used to prevent collar rot.... not cure it. Note: Ridomil Gold EC and Ridomil Gold WSP are new formulations of Ridomil that will eventually replace the Ridomil 2E formulation. See ID-168, "2000 Indiana Commercial Tree Fruit Spray Guide", for further information. -*Pecknold*

***Powdery mildew of apple:*** The Pathologist's Almanac states: after a very cold winter there will be very little powdery mildew on apple; however, after a very mild winter powdery mildew may be severe. If this prediction holds true, we could be in for a bad mildew year. It might be wise to use a fungicide that will also control mildew in your early scab sprays. Nova and Rubigan are excellent for scab, powdery mildew and rust control. -*Pecknold*

***Peach leaf curl:*** Peach trees need all the help they can get, that includes a spray for control of peach leaf curl. If you have not yet sprayed for leaf curl get on your tractor and spray the first chance you get; however, if peach trees are at, or past bud swell, you're too late. If you always seem to be too late, consider applying your leaf curl spray at leaf fall this autumn, then you won't have to worry about spraying in spring. -*Pecknold*

***Raspberry anthracnose:*** The most important spray you will apply this season for control of anthracnose on brambles is the delayed dormant spray of lime sulfur. DON'T FORGET IT! Liquid lime-sulfur at 20 gallons per acre should be applied when new leaves are exposed 1/4 to 3/4 inches; if you are late in your application and don't spray until a few leaves have unfolded, cut the rate to 10 gallons per acre. NOTE: There is greater risk of lime-sulfur burn, when applied at this later time. -*Pecknold*

***Grape flea beetle:*** Flea beetles can be a serious pest of grapes because they feed on developing buds after final pruning. Lost buds can relate to a

direct loss of yield. Grapes will be in early swell to budbreak across the state over the next two weeks and these are the stages most likely to be damaged from flea beetles. Scout vineyards for these insects or their damage and control if necessary. Damage appears as holes eaten into the sides of buds. The insects are small (1/8 inch long) and shiny green, blue or black in appearance. They crawl quickly along the canes and tend to drop to the ground if disturbed. Incidence often occurs in outer rows adjacent to fence rows or woods, making spot spraying an option. Scout the planting carefully and apply insecticides only where needed. Damage from flea beetles usually decreases as buds break and shoots become 1/2 inch or longer. Sevin will provide excellent control of this insect. Refer to the label or ID-169 for complete recommendations. -*Bordelon*

***Oil Sprays:*** One of the first and most important parts of a good insect and mite management program is the application of an early season oil spray to control European red mites, San Jose scale, and several species of aphids. Scales overwinter on the tree as nymphs and European red mites and aphids overwinter as eggs. Because two-spotted spider mites do not overwinter on the tree, oil sprays are not an effective control measure for that species. Although scales, European red mite eggs, and aphid eggs may appear to be inactive, they are living organisms and, therefore, must respire, or breathe. The application of the oil creates an impervious layer over the pests that will not allow the exchange of gases, causing the pest to die of suffocation.

Oil sprays should be applied between 1/2-inch green and tight cluster. Apply a 2% rate at the 1/2 inch green stage or a 1% rate at tight cluster. Oil sprays should not be applied during, immediately before, or immediately after freezing weather. For best results, apply when temperatures are 45°F or above, and not just before rain showers. Remember that the oils are not directly toxic to the pests. They only work by suffocation. Therefore, the better the coverage, the better control you will receive. Our data have shown that mite control is improved if oil is applied at tight cluster rather than at 1/2 inch green.

One question that has arisen as a result of our research that showed that predator mites overwinter on the tree is: What effect will early season oil sprays have on predator populations? In

other words, will the oil sprays kill the predators and create more serious European red mite populations? Our research showed that oil sprays, whether applied at green tip or tight cluster, had absolutely no detrimental effect on mite predators. Therefore, we recommend the use of early season oil sprays as a good management practice.

If you plan to use Apollo, Savey, Agrimek, Pyramite or some other material for mite management, a reasonable question to ask is: Is it still necessary to apply an early season oil spray? I believe that the oil application is still a good idea, for two reasons. First, it will provide control of aphids and scales, as well as European red mites. Secondly, I believe that the use of oil will reduce the likelihood of developing resistance to these miticides. Therefore, I still recommend oil sprays even if other miticides are going to be used. The addition of an insecticide with your oil spray usually will not increase control of any of the three pests by more than a small amount. *-Foster*

**Early Season Miticides:** Two of our best miticides, Apollo and Savey, are both ovicides (kill mite eggs) and work quite well when applied early in the season. Savey cannot be applied later than pink. Apollo can now be applied up to 45 days before harvest. Previously, Apollo had to be applied by tight cluster. In the past, I have recommended using these products early in the season on those blocks in which you suspect you might have a mite problem. The reason for that suspicion might be that you frequently have problems there, you saw high mite populations last year, or you did not use a miticide last year and expect a problem to develop. I have recommended to many growers that they use Apollo or Savey every other year, with materials such as Pyramite serving as a backup in the off years in case they ran into a problem. That strategy has served us well, with most growers getting excellent control and no signs of resistance to those products. The weakness with that strategy was that you had to apply the Apollo or Savey (and spend the money) before you even knew if mites were going to be a problem.

Now that Apollo can be used later in the season, growers have the potential for waiting until they see a problem developing before spending the money for an application. However, we really don't have a lot of experience with Apollo as a rescue treatment. Remember that Apollo acts primarily as an ovicide. So, if a problem develops

and you apply Apollo, no more eggs will hatch, but most of the mites that are present will either complete their life cycle while continuing to feed, or will be killed by some other factor, such as weather or predator mites. In other words, applying Apollo will not make the problem go away for probably several weeks. I attempted to answer some of these questions in my research last year, but the European red mite populations crashed in our orchard very early, so I was not able to tell if Apollo would work as a rescue treatment. So, for the 2000 growing season, my recommendation is that growers who want to wait to see a problem developing before applying Apollo should closely watch their mite populations. If you see populations start to increase early in the summer, go ahead and apply the Apollo before populations get too high. I can't give you a threshold to use, but I would recommend that you pull the trigger a little earlier than if you were using Pyramite. Hopefully, we will be able to test Apollo as a rescue treatment this summer and have some more definitive recommendations next year. I will be talking more about this at fruit meetings this spring and summer, so if you want to hear more about it, make sure you attend the meetings near you. Otherwise, feel free to call or email. *-Foster*

**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.



**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 75 WP is used for the control of mummyberry disease and is a replacement for Funginex which is no longer being manufactured. The supplemental label for the Section 18 exemption has not been issued by Rohm and Haas at this time, but we expect to receive it any day. 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. We will post a printable copy of the label at the Commercial Small Fruit and Grape Spray Guide web site at <http://www.hort.purdue.edu/hort/ext/sfg/> as soon as we receive it. -Bordelon

**Subscription Notice:** If you subscribe to the printed version of Facts for Fancy Fruit, check the mailing label on this issue. If there is a 99 in the corner we have no record of your payment for 2000, and you will not receive another issue of the newsletter. We messed up on the last issue and forget to change the labels for those of you that had paid. If you want to continue your subscription please fill out the subscription form attached to last issue and send with a check for \$15.00 payable to Purdue University, to: 'Facts for Fancy Fruit', 1165 Department of Horticulture, Purdue University, West Lafayette, IN 47907-1165. If you feel there is an error, please contact Penny White at (765) 494-1301. If you have e-mail and would like a copy sent electronically, send us your e-mail address and we will include you on the list, or subscribe through the web at <http://www.hort.purdue.edu/fff/fff.html>. Subscription to the email version is free. The newsletter is also available on the web at <http://www.hort.purdue.edu/fff/fff.html>.

**Subscribing electronically:** To subscribe (or unsubscribe) to Facts for Fancy Fruit, send a message to [fff@lists.hort.purdue.edu](mailto: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.

**Change of meeting date:** The pruning demonstration at County Line Orchard originally scheduled for April 5 has been changed to April 11. The time of 1.30 pm remains the same.

**Coming Meetings:**

**March 30** – Central Indiana Orchard School. Martinsville. Contact Chris Parker at 765-342-1010 or Jim Barbour at 317-253-0871.

**March 29-30** – New York Wine Industry Workshop. Ramada Inn Geneva Lakefront. Contact Nancy Long at NYSAES 315-787-2288.

**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).

Department of Horticulture &  
Landscape Architecture  
Purdue University  
1165 Horticulture Bldg.  
West Lafayette, IN 47907-1165

First Class  
Presort Mail  
U.S. Postage  
PAID  
Lafayette, IN  
Permit No. 221

Bruce Bordelon  
1165 Dept. of Horticulture &  
Landscape Architecture  
Purdue University  
West Lafayette, IN 47907-1165  
765/494-1301  
e-mail: bordelon@hort.purdue.edu

Paul Pecknold  
1155 Dept. of Botany & Plant Path.  
Purdue University  
West Lafayette, IN 47907-1155  
765/494-4628  
e-mail: Pecknold@btpny.purdue.edu

Peter Hirst  
1165 Dept. of Horticulture &  
Landscape Architecture  
Purdue University  
West Lafayette, IN 47907-1165  
765/494-1323  
e-mail: hirst@hort.purdue.edu

Rick Foster  
1158 Dept. of Entomology  
Purdue University  
West Lafayette, IN 47907-1158  
765/494-9572  
e-mail: Rick\_Foster@entm.purdue.edu

***Disclaimer:*** Reference to products in this publication is not an endorsement to the exclusion of others which may be similar. Any person using products listed in this newsletter assumes full responsibility for their use in accordance with current label directions of the manufacturer.