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FFF 99-03
April 8, 1999

CROP CONDITIONS

Above normal temperatures over the past week have started the growing season. We've received about 75-100 growing degree days (base 50) in the Southwest part of the state. Peaches in that part of the state are just starting to bloom, and in many places the bloom looks good. In most northern areas of Indiana, peach bloom is not a happy situation and a good bloom probably won't be seen for about 12 months. Apples are at green tip in most areas. Grapes and brambles are at early bud swell in the south and still mostly dormant elsewhere. Strawberries are starting to push new leaves so the straw should be off and the irrigation equipment ready for frost protection.

Weather Update: (from the Purdue Crop and Weather Meeting 3/26/99) Fall and winter 1998-1999 has been a period with dramatic swings. The last six months (October - March) have been rather warm overall and predominantly dry. November and December were quite warm, both in the top 10 warmest in the last 100 years, January was cooler then February warmed back up to be in the top 5 warmest in the last 100 years. Following the warm February, temperatures in March dropped dramatically with March looking to be in the top 12 coldest in the last 100 years. During the same period Indiana was predominantly dry. January and February were quite wet, with both ranking in the top 5 wettest in the last 100 years then we moved into one of the driest March's on record. — Ken Scheeringa

These swings could be attributed to the La Nina period. Typically during strong La Nina periods the northern 1/3 of the United States experiences cold and wet conditions. During weak La Nina periods, such as the one we are experiencing, we are more likely to experience the flip-flops we have had. — Ken Scheeringa & Tom Priddy

Several new products have been added to the Indiana Weather and Climate by County page on the internet. Included in these are Palmer Drought, Lows, Past Rain, Past Temps (Indiana and nation), Dewpoint, Regional Observations and other items. Take a look at these at http://wwwagwx.ca.uky.edu/innowwx.html. Tom would be glad for feedback on these products and others you would like to see added. You can email Tom at tpriddy@ca.uky.edu

The medium and long range outlook for 6-10 days calls for much above normal temperature and above normal precipitation. The 30 day outlook calls for below normal temperature and normal precipitation while the 90 day outlook calls for normal temperature and above normal precipitation.

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 an ugly picture!

1. Apple scab: The potential for severe scab infection is high. The amount of scab is directly dependent on the frequency 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.

4. Fire Blight: Cool spring temperatures help prevent a rapid increase in the fire blight population; warm spring tempera-

tures can cause very sudden, dramatic increases in the fire blight population. Here's hoping for a cool spring. *-Pecknold*

Apple Scab: Apple scab infection was above normal last year, you should therefore expect an above normal amount of primary scab spores this spring. 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, "1999 Indiana Commercial Tree Fruit Spray Guide", for a complete listing of suggested fungicides. *-Pecknold*

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 (http://www.hort.purdue.edu/hort/ext/sfg) and the Midwest Small Fruit Pest Management Handbook (http://www.ag.ohio-state.edu/~sfgnet/) for complete discussions of grape IPM. *-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^{o}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 on predator mites that showed that the predators overwinter on the tree is: what affect 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.

Early Season Miticides: The decision to use or not use our best miticides must be made early in the season before you know if mites are even going to be a problem this year. So, how do you know whether to go to the expense and trouble of

making that application? Below are a couple of suggestions that may help you to make that decision.

1. If you used either Apollo or Savey last year, you should not use either of them this year. I make this recommendation for several reasons. First, if you did a good job conserving your predator mites, there probably will not be enough European red mites to cause a problem. Second, if you do run into a problem later in the season, you can clean up the infestation with Pyramite or oil sprays. Finally, leaving a year between applications will delay the development of resistance to Apollo and Savey, which is a definite cause for concern.
2. If you did not use Apollo or Savey last year, you should probably use one of them, especially on those blocks of apples where you traditionally have mite problems, such as Red Delicious. Some growers have tried to skip two years and have run into problems. However, if you did not use Apollo or Savey last year and monitored your mite populations and know that there were very few mites late last summer, you could consider waiting to see what develops. Then, if mite problems arise, you can still use Pyramite or oil sprays to get them under control.

You may notice that I have not mentioned AgriMek in this article. AgriMek has not performed particularly well in my research trials and the reports I have received from growers have not been very encouraging either. Although AgriMek is an available alternative, at this point I believe there are better options out there. I will continue to look at AgriMek in my trials to attempt to find the best way to use this product.

FQPA: According to the US Apple Association, the EPA will soon be launching public discussion of risk assessments and risk mitigation options for a number of pesticides important to apple production. They report that the risk assessment of OP's, starting with Guthion, will be released shortly for public comment on both the risk assessment and the risk mitigation strategies. US Apple are lobbying for a slower approach and would like to see the process delayed until more scientific data are available. Look right here in Facts for Fancy Fruit for updates as the process proceeds. *-Hirst*

Getting the Most Out of Roundup and Other Sprays: Adapted from an article by Gary Thornton in the Michigan State University Fruit Crop Advisory Team Alert (Vol. 14 No. 1). Glyphosate (Roundup) is a systemic herbicide that is widely used by fruit growers. In order for glyphosate to be effective, it needs to be absorbed into the plant. In soft water glyphosate has no problems in being absorbed. However in hard water glyphosate will be 'tied up' and not absorbed as readily. Hard water, common in many parts of Indiana, contains high concentrations of soluble salts, calcium and magnesium. When these cations are present they react with the negatively charged glyphosate to form compounds that are not readily absorbed by plants. This results in poor uptake and poor weed control.

The solution to the hard water problem is to add ammonium sulfate to the spray water before mixing with glyphosate. Ammonium sulfate ions tie up the calcium and magnesium ions forming conjugate salts. Additionally, some of the glyphosate reacts with ammonium to form a compound that some weeds preferentially absorb. Follow the Roundup label recommendations on the amount of ammonium sulfate to add.

Another problem associated with spray water quality is that many fungicides and insecticides break down quickly in high pH water. Captan, Cygon, Imidan, Kelthane, malathion, and Omite are examples of compounds that are especially vulnerable to alkaline hydrolysis. Both the Commercial Tree Fruit and Small Fruit and Grape Spray Guides have a discussion of spray tank pH. Refer to those publications for specifics on adjusting pH. *-Bordelon*

Hard Cider Conference: A one day conference on hard cider is being held on April 20 for cider makers and others interested in hard cider. The conference will be held at Silver Lake Wineries, Woodinville, WA (a suburb of Seattle). Registration is $25 including lunch and cider tasting. For further information contact: Western Washington Tree Fruit Research Foundation, 7220 88th Street Court SW, Tacoma, WA 98498 Email: gamoulton@wsu.edu *-Hirst*

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Coming Meetings

April 10 – Grape pruning demonstration at Fantasy Vineyards near Rockville, Parke County. Contact Bruce Bordelon at 765-494-8212

April 13 - Twilight meeting, 6:30 pm. LaPorte County. Location to be announced. Contact: Walt Sell at 219-326-6808 extension 271

April 20 – Twilight meeting, Elkart County. Contact Jeff Burbrink at 219-533-0554.

May 5 - East Indiana Fruitgrowers twilight meeting 6:00 pm. Minnetrista Cultural Center, Muncie. Contact Harold Brown at 765-747-7732.

June 8 - East Indiana Fruitgrowers twilight meeting 6:00 pm. Minnetrista Cultural Center, Muncie. Contact Harold Brown at 765-747-7732.

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