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Crop Conditions:

Very warm temperatures over the past week pushed plants quickly. Grapes are at bud break to 6-inch shoots, depending on location. Strawberries are in bloom in central areas and growers should scout for eastern flower thrips after the strong winds of the past week. Bloom in apples has come (and in many places gone) quickly. Regarding effects on pollination, rain during bloom may have been offset by warmer than usual temperatures.

Care of New Trees: If you planted new trees this spring, a few points to remember to help them get off to a good start.

- Heavy pruning on young trees delays the time when cropping begins. So to bring trees in to cropping early, minimal pruning should be done in the early years.
- Make sure the graft union is a few inches out of the soil to reduce the chance of scion rooting.
- If planting dwarfing trees, provide a post or trellis as tree support right from the time of planting.
- Pay attention to weed control. Weeds can severely impact the establishment of young trees.
- If deer are likely to be a problem, apply control measures from day 1 (deer fence, soap, etc).
- Even though trees won't have fruit the first year, good pest and disease control is essential.

Remember, your goal is not for the trees to just survive (although that is definitely a good start!), but to have them perform close to the optimum. (Hirst)

New this spring for Grape Growers

Michigan State University has been working with the National Grape Cooperative and the Michigan Wine Industry to bring you a new resource for integrated vineyard management. Visit <http://www.grapes.msu.edu/>. This is a great new resource for grape growers in our region. The website compliments the new publication *A Pocket Guide for Grape IPM Scouting in the North Central and Eastern U.S.* that Michigan State University published this past year. Details for ordering the publication are available on the website.

What to Consider for Spring Grape Disease Management: Disease history of the vineyard: Most vineyards do not have a history of all grape diseases. Growers should focus their

disease control efforts on the diseases they know are a problem for them. Disease pressure depends on the weather conditions, the cultivar grown, the age of the vineyard, the location, and the training system. For instance, humid weather is more conducive to powdery mildew, and hedged vineyards typically have more Phomopsis than hand-pruned vineyards. (Annemiek Schilder, Michigan State University)

Cleanup of vineyard: Prune out dead canes and stubs as much as possible since they are the main sources of Phomopsis spores. Remove any fruit mummies still hanging on the vine, since these may release black rot spores. Also remove large pieces of wood from the vineyard and burn them. This is especially important in Eutypa-infected vineyards, since dead wood remains a source of Eutypa inoculum for multiple years. While it is recommended to remove pruned canes from vineyards, most growers find it more practical to chop them up. This may be okay, provided that the canes are well pulverized so that they can decompose quickly. Make two passes with a brush-chopping mower if necessary.

Timing of disease control measures: Timing of disease control measures is critical to success. Protectant fungicides have to be used before an infection period occurs. Between one and five inches of shoot growth, Phomopsis cane and leaf spot is the primary disease of concern. Clusters and shoots are vulnerable as soon as they become exposed. Young tissues are most susceptible. Spray timing trials have indicated that this stage is important for controlling cluster stem (rachis) and shoot infections. Wet weather conditions during this period of rapid shoot elongation are ideal conditions for the infection and spread of Phomopsis. Applications should be made 10 days to two weeks apart, depending on weather conditions. If there are frequent rain events (several per week, with rainfall totals greater than one inch since the last spray) then the spray interval should be 10 days. Protectant materials will protect the shoots and leaves for two weeks if rain events occur weekly with

rainfall totals less than one inch since the last fungicide application. Powdery mildew control should not be delayed in vinifera and susceptible French hybrid vineyards past the 10 to 12 inch growth stage. However, in most Concord vineyards, powdery mildew control is not imminent at this time. Phomopsis is still the primary concern at this stage of growth. Black rot may be an issue in vineyards that had a problem the previous year. There is an abundance of succulent tissue that is highly susceptible to infection. In addition, the clusters are also exposed to infection at this stage. Extended periods of wet weather are very favorable to most grape diseases. In general, if the leaves and shoots are wet for eight hours or longer, infection is possible if not protected by a fungicide.

What fungicides to use early in the season?

The fungicides most effective in controlling Phomopsis are also effective in controlling early season (foliar) black rot. The broad-spectrum fungicide mancozeb (Dithane, Manzate, Penncozeb and Manex) is the most effective material for controlling these diseases early in the season. It is recommended to save the use of SI's (e.g., Nova and Elite) and strobilurins (e.g., Abound, Sovran, Flint) until later in the season when they are needed for control of multiple diseases. Both of these groups of fungicides are prone to resistance development, so are best used at critical disease control periods (immediate prebloom until second postbloom). Do not use these materials more than three times per season regardless of the material. Rotating these two fungicide groups can help delay the development of resistance. JMS Stylet Oil or sulfur may be used to control powdery mildew early in the season. However, powdery mildew generally is not a great concern at this time, except in susceptible cultivars and vineyards that had a problem with fruit infection the previous year. Resistance development to these materials is not a concern, but there are some compatibility restrictions with Stylet Oil and other spray materials. Read the label for details. Do not apply sulfur to sensitive varieties.

Use of dormant sprays: Delayed dormant sprays (before budbreak) have shown promising results for Phomopsis control in Michigan. We observed, on average, a 50 to 60 percent decrease in disease severity on the grape leaves as well as clusters from a single dormant spray of Topsin M, lime sulfur, sulfur, Stylet oil, or copper (Kocide) at budswell. Tank mixing Sulfur and Stylet oil did not increase control; rather the combination was worse than each product used singly. A single dormant application with a sulfur or copper product appeared to be the most inexpensive of the treatments tested. If no green tissue is showing, these products should be safe on sulfur or copper sensitive varieties. At this time, only lime sulfur and copper products are explicitly labeled for use as dormant sprays in grapes. The labels on sulfur products are somewhat ambiguous on dormant use. We will be evaluating these and various other products again as dormant sprays in 2004, as well as reduced spray programs in combination with dormant sprays. (Source: Fruit Crop CAT, Vol. 19, No. 2, April 13, 2004)

Fire Blight: The best prevention for fire blight is the application of streptomycin during bloom. Apply streptomycin just as blossoms begin opening and repeat every 3-4 days if weather favorable for blossom blight infection persists. Streptomycin is most effective when applied the day before or the day of an infection event. The "MARYBLYT" computer software program will help you in determining when and if an infection event occurred as well as predict the risk for future infection periods. We strongly recommend its use for those growers at high risk. Speaking of high risk, be especially diligent in your fire blight program if you have blight susceptible varieties (Ida Red, Jonathan, Gala, Rome, Lodi, etc.) in combination with M-26, M-9 and/or Mark rootstocks and/or interstems. These DYNAMITE combinations have the potential to explode into rootstock blight, which usually means a dead tree!

Apple Scab: The peak period for scab infection is NOW! Primary scab spores are ripe and ready to infect, all they need is a good scab

rain. Are you prepared? For growers on a curative schedule, or for those who get caught with their pants down (unprotected), we suggest Nova, Flint, or Sovran. These fungicides will provide up to 96 hours "curative activity". However, the sooner you apply them the better! Do not sit around thinking there is no need to rush. NOTE: see comments below on the Strobilurins.

Rust Diseases: Cedar apple and cedar quince rust are now actively infecting foliage and fruit. Except for the northern areas of the state, we are now into the peak period for rust infection. The sterol-inhibiting fungicides, Nova and Rubigan, are excellent in preventing rust problems, as well as providing excellent control of powdery mildew, which is also infecting new leaf tissue, right now!

Nova, Rubigan & Tank Mixes: All Nova or Rubigan applications should be tank-mixed with a standard protectant fungicide to avoid problems with resistance to apple scab. However, it is especially important that your final spray (petal fall or first cover) of Nova or Rubigan be combined with a protectant fungicide such as captan, ziram, mancozeb, or Polyram. The addition of a protectant fungicide at this time will help provide protection from summer diseases such as black rot, sooty blotch and fly speck and also give added protection from fruit scab. Refer to Rubigan and Nova labels for additional information on tank mixes.

The Strobilurins: The strobilurin fungicides, Sovran and Flint, are excellent in control of many diseases. Unfortunately they are also very prone to the development of resistance. Therefore growers should be extremely **judicious** in their use of these compounds. We suggest you consider the use of **Flint or Sovran in ONLY the FIRST, THIRD and SEVENTH** cover sprays (three times only) for control of fruit scab and sooty blotch and flyspeck (SBFS). Our field trials this past year confirmed our previous findings that Sovran, applied at the full rate, gives excellent control of both fruit scab and SBFS when applied at these three times (first, third and seventh

cover). While the strobilurins are effective in precover sprays for the control of other diseases, we believe their real strength lies in the control of fruit scab and sooty blotch and flyspeck. So let's use them when they will do the most good and hopefully avoid future resistance problems.

'Ovation' Strawberry Released by USDA-ARS at Beltsville, MD: The 'Ovation' strawberry is large, firm, attractive, and has a very late fruiting season. It has resistance to red stele and is little affected by most foliage diseases, although it does show some powdery mildew after fruiting. Anthracnose plant disease has not been observed on plants in the field, but growth chamber studies indicate that infection is possible under conditions favorable for development. Yields in Maryland, Ohio, and Pennsylvania in the plasticulture production system have been outstanding and 'Ovation' is an excellent variety to follow Chandler. In the traditional matted row-system, 'Ovation' has been the top yielding late season cultivar in Ohio and New Jersey. It has been average to below average in Maryland trial yields, however fruit size and appearance have been excellent. Although we have not evaluated this cultivar in Indiana, varieties that have been released from the USDA breeding program in Maryland have generally done very well for us. (Bordelon)

Strawberries and Botrytis Fruit Rot: The most important sprays for control of Botrytis fruit rot (gray mold) of strawberry are those applied at bloom - starting at 10% bloom. There have been some major changes in fungicide registrations for Botrytis control in strawberries. Ronilan and Rovral can no longer be used on strawberries. Elevate received registration in 2000, and Switch received registration in 2002. Both should provide excellent control of gray mold. So, the options for Botrytis control are Elevate, Switch, and Topsin M. None of them should be used alone for season-long control of Botrytis because of the potential for development of resistant pathogen strains. See ID-169, 2004 Indiana Commercial Small Fruit & Grape Spray Guide, (www.hort.purdue.edu/hort/ext/

[sfg](http://www.ag.ohio-state.edu/~sfgnet/)) and the Midwest Small Fruit Pest Management Handbook (www.ag.ohio-state.edu/~sfgnet/) for complete discussions of strawberry IPM. (Pecknold and Bordelon)

Eastern Flower Thrips: One of the factors we believe may be associated with problems with eastern flower thrips on strawberries is having sustained, strong southerly winds early in the growing season. Such winds may blow eastern flower thrips to Indiana from southern areas. Considering the very strong winds we had this past week, it would be prudent for strawberry growers to watch for thrips as we approach bloom. We recommend looking at the early flowers, especially on early varieties. Although an exact threshold has not been established for Midwest conditions, data from elsewhere suggest that control is warranted if counts exceed 2 to 10 thrips per blossom. This is a wide range, but more precise information is not available. Lorsban or Thiodan are probably the best choices among conventional insecticides, and Brigade and Danitol or SpinTor also are likely to work well. Growers may also want to consider using an insecticide containing neem extracts (Align or Neemix) that is less toxic to bees. (Foster and Bordelon)

New supplemental label for Sinbar: The herbicide Sinbar has recently received a supplemental label for newly planted and non-bearing fruit trees. Contact your agricultural chemical supplier for more information.

E-mail Groups Available for Indiana Growers: We'd like to remind you about the two mail groups for Indiana fruit and vegetable growers, winemakers, farm markets, etc. as part of our Fruit and Vegetable web site. The project is sponsored by the Purdue University Department of Horticulture and Landscape Architecture and was partially funded by a USDA Specialty Crop Block Grant through the Office of the Indiana Commission of Agriculture. The "Fruitveg" group is for all fruit and vegetable growers, farm marketers, etc. in Indiana and surrounding states. The "Winegrape" mail group is primarily for the Indiana wine industry. Anyone can subscribe to either group. These mail groups are free and open for all to use.

The mail groups have been established to allow Indiana fruit and vegetable growers, wine grape growers and wineries, and farm marketers to interact with each other electronically. We envision growers and marketers using this forum for free and open exchange of information and ideas. We also feel that the list can be used to coordinate group purchases of equipment and supplies, and as a forum to buy and sell produce and used equipment and supplies. However, we believe that advertising by commercial vendors is not appropriate use of the mail group. While we do not intend to moderate the list, we will keep an eye on the activity. We will not allow personal vendettas, inflammatory comments or other inappropriate use of the list. Any statements made do not represent "official" opinions, and Purdue University takes no responsibility for content. Remember that all messages sent into the mail group are distributed to everyone on the list, therefore it is not intended for private communication between 2 individuals.

There are two ways to receive messages from the mail groups, as a list or a digest. If you subscribe to the mailing list, each message that is sent to the list will be forwarded to you as a separate e-mail message. For example, if there are 5 messages sent to the list in one day, you will receive 5 e-mails from the list that day. Subscribe to the mailing list using this option if you want to receive messages as soon as they are posted. If you subscribe to the mailing list digest, all messages received by the list in one day will be combined into one e-mail message and sent to you periodically. If there are 5 messages sent to the list in one day, you will receive one e-mail containing all 5 messages. Subscribe to the mailing list using the digest option if you prefer to receive fewer separate e-mail messages.

To subscribe to the list, send a message to <majordomo@purdue.edu> with the following command in the body of your email message:

subscribe fruitveg
or
subscribe winegrape

or if you prefer the digest option, send a message to <majordomo@purdue.edu> with the following command in the body of your email message:

subscribe fruitveg-digest
or
subscribe winegrape-digest

You will receive a message back from majordomo requiring authentication of your subscription. The process is quick and self-explanatory. If you have any problems, let one of us know and we'll try to help.

Health Update: In addition to the health benefits we already know about, eating more fruits and vegetables may also help fight bacterial infections.

Flavonoids – antioxidants found in fruits and vegetables – have now been found to stop the growth of some strains of drug-resistant bacteria. Previous studies have shown flavonoids can help guard against allergies, inflammation, viruses and some cancers. (from Phytotherapy Research via Hope Health Newsletter).

Upcoming Meetings:

April 28 – Northeast Indiana Fruitgrowers twilight meeting. Fairland Orchard. For more information contact Ricky Kemery, (Phone 219-481-6826, email ricky.kemery@ces.purdue.edu)

April 29 – Fruitgrowers twilight meeting. Sunrise Orchards, Goshen. 6.30 pm. Contact Jeff Burbrink for more details (Phone 219-533-0554, email jeff.burbrink@ces.purdue.edu)

May 4 – Eastern Indiana Fruitgrowers Twilight meeting, 6:00pm. Hosted by Wayne Jacobs (formerly Rex Anderson's Orchard). 4676 N - 75 W, New Castle IN. Contact Dave Clamme for more details (Phone 765-747-7732, email dclamme@purdue.edu)

May 5 – Twilight Meeting, County Line Orchard, 6.30 pm. Directions at the County Line Orchard website (www.countylineorchard.com), or contact Stan Sims, (Phone 219-755-3240, email ssims@purdue.edu)

June 21 – Indiana Winegrowers' Guild summer meeting & workshop. Chateau Pomije Winery, New Alsace. Visit www.indianawines.org for details.

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