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FACTS FOR Fancy Fruit
PURDUE EXTENSION

FACTS FOR Fancy Fruit

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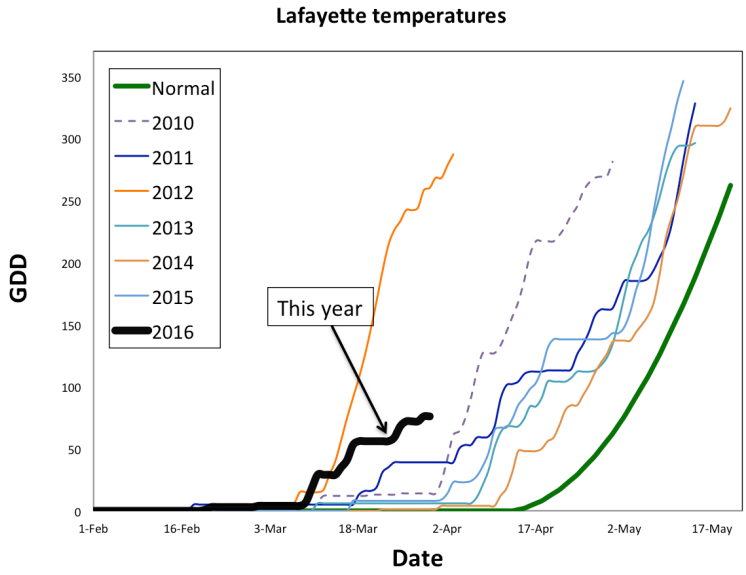
Crop Conditions:

Peaches are in bloom in southern areas of the state but just showing a little green in more northern areas. Apples range from green tip in the north to tight cluster in southern areas of the state.



Another early spring:

Spring is off to an early start around the state again. For many growers this will bring back memories of 2012, and as we all remember, that did not go well for growers. To measure the effect of temperature on tree growth, we usually talk in terms of Growing Degree Days or GDD. This is the average daily temperature minus some base temperature below which we don't expect any development to occur. For many of our temperate fruit crops, the base is 50°F (10°C). Exactly the same method is used to measure insect development.

Until a week ago, temperatures in Lafayette were tracking pretty much the same as 2012. Thankfully the last week has seen cooler temperatures which has helped delay things a little. The latest data we have (Fig. 1) show that we're about 2 weeks ahead of last year. It's also interesting to note that in each of the last 7 years we've been

significantly earlier than our long term average.

Cooler weather in the forecast ahead is a mixed blessing. Growers in the northern half of the state have most fruit crops just starting to grow so the forecasted cooler weather will help slow crop development reducing the risk of frost damage. In more southern areas in the state, crops such as peach are already in bloom so warm temperatures are needed for good pollination success. (Hirst)

Lambs, Lions and Black Swans: A black swan refers to an event that defies expectation and that would be extremely difficult to predict. This spring is one of those. And although it seems unlikely that we will emerge from our last frost-free date (May 15 here in Tippecanoe County) unscathed, it could happen and then you could end up with a lot of scabby fruit if you didn't start spraying! Scab spores already flying here: Be sure that you have started those early season sprays—and continue them. Less expensive options include captan, manzob and copper, which will provide adequate protection and keep inoculum levels low until we are more certain about the state of our crops.

Pruning to remove diseased wood from last year is a great way to begin your 2016 disease management. If you haven't already, remove prunings from orchard. If you haven't finished pruning out and removing any fire blight or cankered wood, you should be making an extra effort now. One more reminder: In case it hasn't been said already, be sure to calibrate all your spray equipment

It is probably still too early in most of the state, but start monitoring for apple scab. In addition to pruning out any overwintering inoculum, a late, dormant application of copper can be used on almost all tree fruit (apple, peach, cherry, plum etc.) to help control a variety of diseases (fire blight, apple scab, peach leaf curl, bacterial canker, black knot, etc.). This is not a silver bullet (remember, it's copper!) but it does work to knock back fire blight and protect against scab.

Copper comes in many forms-oxides, hydroxides, sulfates, linked to fatty acids--the list is long! There are approximately 40 different labeled copper fungicides, so it is difficult to generalize. Most "dormant" copper products applied at or near bud-break are "fixed coppers" that have low solubility in water. After application, these copper particles slowly release copper ions over time, providing continued protection . . . and continued risk of phytotoxicity if weather suddenly warms and we go from silver tip to tight cluster to pink in a matter of days. Since this is Indiana, I would caution anyone from using the highest rates of copper, especially finely ground coppers that have the ability to stick around, and could result in fruit russetting on early flowering varieties.

Where apples are just beginning to show green-tip, it is definitely time for protective fungicides such captan or EBDCs, especially if you skipped the copper. Remember, you want that first spray for scab management to go on before the first infection period—in other words, once green tissue is visible you need to be protecting it! How to decide which one to use depends upon the stage of growth and the weather. If you are still at silver or not yet at half-inch green, consider using copper, to knock back the bacteria that cause fire blight, while providing scab control,

Facts for Fancy Fruit is a newsletter for commercial and advanced amateur fruit growers. It provides timely information on pest control, production practices, and other topics likely to be of interest to fruit growers. All growers and interested persons are welcome to subscribe.

Subscriptions are $15 per year. Subscribers will receive 12-15 issues biweekly during the growing season and monthly otherwise.

To subscribe, send your name, mailing address, and check for $15 (payable to Purdue University) to:

Facts for Fancy Fruit
Purdue University
Department of Horticulture & Landscape Architecture
625 Agriculture Mall Drive
West Lafayette, IN 47907-2010
Attention: Lori Jolly-Brown

This newsletter can be accessed free at www.hort.purdue.edu/fff/.

too. An early application of copper is as effective 3 lbs/acre of mancozeb at controlling apple scab and may also reduce overall fungicide resistance levels in an orchard by knocking back those fungicide-resistant isolates. Do not use copper if frost is anticipated. If you are at or past the half-inch green stage, stick with captan if the forecast consists of light rains, or mancozeb if the rains are expected to be heavier. Captan is a slightly better fungicide against scab, but not effective against rust. Keep in mind that there were reports of phytotoxic reactions beween captan and Fontelis and captan and Merivon. This damage appears to also be associated with cool, overcast weather and slow drying conditions.

Of course, you can always split the difference and take the captozeb (3lbs captan+ 3lb mancozeb) approach. Mancozeb at 3 lbs./acre may be adequate for scab control at green tip in blocks that had little scab the previous season. Tank-mixing mancozeb with captan may be advantageous if you carried over more scab than you should have last year. Assuming you don't have a significant resistance problem, Syllit (dodine) is labeled for use up to petal fall. Be sure to tank mix with captan (2lbs/A) or mancozeb (2.25 lbs/A). Syllit can cause some damage if conditions get to freezing or near freezing. Other tank mix options if you think you have dodine resistant scab include Scala or Vanguard. Keep in mind that these don't redistribute as well as Syllit, and perform best when temps are below 70F.

Finally, hold off using your DMI fungicides (Rally, Indar, Inspire, Topguard, etc.), strobilurins (Sovran, Flint), or SDHIs (Fontelis) or SDHI mixtures like Pristine(SDHI+QoI), Luna Sensation (SDHI+QoI), Luna Tranquility (SDHI+AP), and Merivon (SDHI+QoI) UNTIL after tight cluster, when you have significant green tissue and the systemic and translaminar activity of these fungicides are put to their best use for you. Many of these products are also very effective against powdery mildew, and the strobies (FRAC 11) and Sis(FRAC3) are excellent against rust. Remember that you will still need to use an SI or strobilurin fungicide from bloom to first cover on the really susceptible varieties, like 'Jonathan', 'Ida Red', 'Ginger Gold,' and 'Cortland', to name but a few.

After the unusually wet weather last year, root rots like Phytophthora might have gotten established. Symptoms of Phytophthora on apple are often difficult to diagnose, and include poor growth, smaller and fewer leaves, yellowing leaves, and possibly cankers at the crown of the tree (Fig. 2). Spring is the time to treat any trees that have been diagnosed as having Phytophthora. Keep in mind that "Phytophthora resistant" rootstocks do not protect against all the Phytophthora out there, but only a small fraction of them. (Beckerman)

Fig. 2 Phytophthora root and crown rot cause vague symptoms that are often overlooked and misdiagnosed

Trial Update: High Tunnel Strawberry Variety Evaluation:

Last August, we set up a high tunnel strawberry variety trial at Southwest Purdue Agricultural Center. There are 10 strawberry varieties including 3 day-neutral varieties and 7 June-bearings. Thanks to the nice fall weather, we did have a fall/winter harvest on day-neutral (Albion, Sweet Ann and San Andrea) and two early June-bearing varieties (Sweet Charlie and Radiance). In the winter, we covered the plants with row covers at the nights when temperature was below 32° F (Fig 3), and took the covers off when temperature inside high tunnel was above 60° F. Majority of the cultivars stopped growing in the winter, except

Fig. 3
Strawberries were covered at night when temperature was below 32° F

'Radiance'. We tried to save those 'Radiance' flowers growing in the winter, and harvested a few 'Radiance' berries in January and February. However, we realize even those flowers survived the low temperatures, it is difficult for them to be completely pollinated.

In late January, we pruned all the dead leaves. This is a very helpful strategy to control pests in the spring. Starting in late February, many new leaves emerged. Plant size almost doubled compared with that in the winter. Currently, almost all the varieties have entered the blooming stage (Fig 4). How to pollinate these flowers while maintaining an idea

Fig. 4
Varieties entered flowering stage in early March

temperature (50° F - 80° F) inside the high tunnel becomes our biggest challenge at this time. We tried to use a leaf blower to pollinate flowers in early February, but it was not very efficient. We lost some early flowers because of the lack of pollination. Since we started to open the tunnel, pollination improved dramatically. Several green fruit are growing now (Fig. 5). We are looking forward for an early harvest coming very soon. Please watch for our updates in the next issues of Facts for Fancy Fruit.

Fig. 5 Developing fruit of 'Sweet Charlie' (Picture was taken on March 24, 2016).

(Guan)

Double pruning to avoid spring freeze injury in grapes:

Spring freeze damage can be a significant economic problem for Midwest grape growers. Widespread damage occurred in 2007 and 2012 when warm temperatures in March were followed by freezing temperatures in April. Obviously this year we have had a warm February and March so it is very possible that we will have early bud break and the potential for freeze damage. The average date of last spring frost for central Indiana is about May 1. Grapes pruned recently are bleeding, meaning that bud swell is beginning to occur and bud break will not be far behind.

Varieties differ considerably in the amount of heat units (growing degree days -base 50˚ F) needed to cause bud break. Exact figures are not well established, but for early grapes such as Foch, Marquette and Brianna, I think 100-150 GDDs is sufficient to lead to bud break. For late varieties such as Vidal and Chambourcin, it is likely 250 or more. We normally start counting GDDs on April 1, but by then, we are already at bud break in the south. So it makes sense to consider those that occur earlier. In Indiana, we normally only accumulate about 25-30 GDDs by April 1. I checked this week and we have accumulated 150 in southeast Indiana, about 50 in central Indiana, and 30 in northern Indiana. There are a number of web sites where growers can find this information. I regularly use the Midwest Regional Climate Center (http://mrcc.isws.illinois.edu/)and the GDD Tracker out of Michigan State (http://www.gddtracker.net).

Fortunately growers have options to manage freeze risk. A technique called long pruning or double pruning helps avoid spring frost and freeze damage, especially on varieties that tend to bud out early. The procedure utilizes the apical dominance of buds on a cane. The first buds to begin growing are those on the tip of a cane, while buds closer to the cordon begin growth later. Additionally, if more buds are left on a vine, the rate of bud development for all buds will be delayed.

To perform long pruning, select canes to be used for fruiting spurs during the normal pruning practice, but leave those canes long, with 10-15 more buds than desired. Spurs are normally pruned to 3 to 4 nodes for fruiting, but if they are not cut back, then the extra buds will help delay the development of the desired basal 3 to 4 buds, which helps avoid frost injury. After the date of the last probable spring freeze has passed, the canes are shortened to the desired length to properly adjust the shoot number for

the vine. Growth of the basal buds can be delayed as much as two weeks if weather conditions are favorable.

Another advantage of double pruning is that if frost damage occurs to primary shoots, the large number of buds retained will result in many secondary shoots. Even though secondary shoots are not as fruitful as primaries, the large number can result in near normal yields. This was the case in our research plots in 2012 and we were able to produce a full crop on most varieties, despite essentially complete loss of all primary shoots. While this procedure may require an extra trip through the vineyard, it can mean the difference between a full crop and little or no crop.
(Bordelon)

Straw removal on strawberries:
The proper time to remove straw from matted row strawberries is when the bare-soil temperature at 4 inches averages about 40-43˚F. This usually coincides with mid to late March in central Indiana. This year is earlier than average with temperatures well into the 50s already by March 15. Plants will begin pushing new leaves as the soil temperatures rise steadily so the straw should be raked 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 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. The difference between early removal and late removal may increased first harvest by about three days, so there is no real advantage. After the straw is removed the frost protection irrigation equipment should be set up and tested and made ready for frost during bloom.
(Bordelon)

Spring weed management in grapes and berries:
Early spring is a good time to make the first herbicide application of the year. There are several options for grapes, brambles and blueberries including both pre and post-emergent herbicides. In most situations, there will be some emerged weeds present in the planting at this time of the year. That means a post-emergent herbicide will need to be used to kill those established weeds. A pre-emergent material can be tank mixed at this time to provide residual weed control. Most pre-emergent herbicides will provide only 6 to 8 weeks of control. So, if applied in the early spring, they may not provide sufficient control of summer grasses (foxtail, barnyard grass, goosegrass, crabgrass, etc.). If those are the main weeds of concern, growers may want to delay application of pre-emergent herbicides until a bit later in the season. A good option is to apply a broad spectrum post-emergent herbicide such as glyphosate (Roundup, Touchdown, etc.) now then come back in about 4 weeks with a second application of glyphosate tank mixed with a pre-emergent herbicide. That should provide reasonably good season-long weed control. One word of caution for bramble growers: we have seen significant damage from applications of glyphosate in recent years, likely due to improved surfactants in the formulations. Be especially careful if using glyphosate products, especially in blackberries.
(Bordelon)

Raspberry anthracnose:
The most important spray of the season for control of anthracnose on brambles is the delayed dormant spray of lime sulfur, Sulforix or copper hydroxide. If you have a problem with anthracnose, this is one spray that you can't afford to miss. One of these materials 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 reduce the risk of leaf burn. See the 2016 Midwest Fruit Pest Management Guide (https://ag.purdue.edu/hla/Hort/Pages/sfg_sprayguide.aspx) and the product labels for complete information on rates and timing.
(Bordelon)

Pruning brambles:
March is a good time to finish pruning summer-bearing brambles. Last years fruited canes should be removed now if they were not removed last summer or fall. Remove weak or spindly floricanes and thin to 4-6 canes per foot of row.

Laterals on blackberries and black and purple raspberries should be trimmed back to about 2/3 to 3/4 of their original length to promote flowering on strong wood. Red raspberry canes can be tipped if desired, but should not be tipped more than 1/4 of the cane length. If the planting is trellised, the canes should be tied to the wires now before growth starts. Fall bearing types can be mowed to the ground now for a fall-only harvest, or the fruited tips can be removed if a summer and fall harvest is desired. Remove and destroy the prunings to help prevent anthracnose and botrytis. There may be some winter injury this year in blackberries. I will not be surprised to see floricanes completely fail to leaf out, or leaf out then collapse during the first hot weather. This is especially true in the southern half of the state where temperatures in late February reached -15° F or colder.
(Bordelon)

Indiana Horticultural Congress:
It was good to see so many growers at the recent Hort. Congress. Over 700 growers attended the Congress and the trade show was again sold out. Our usual program topics were held covering agritourism, farm marketing, fresh vegetables, fruit, organics, processing vegetables, and winegrapes. We are in the process of finalizing the dates and location of the 2017 Hort Congress but once we have this set we'll let you know in FFF.
(Hirst)

Indiana Cider Contest:
This year saw another round of the annual Indiana cider contest held in conjunction with the Indiana Hort. Congress. Beasley's Orchard produced the best apple cider, while both Adrian Orchards and Downing Fruit Farm were among the top 3 places.
(Hirst)

FoodLink:

-How many times have you had to explain to a customer how to select, prepare or store a product that you have grown and are offering for sale?

-Did you ever wonder if more shoppers might buy your product if they had a clear understanding of how to prepare it?

-How many of us would buy a kohlrabi if we never learned how to prepare one in a manner that our family would enjoy?

Many of today's shoppers are making purchasing decisions based on convenience and a lack of knowledge about how to select and prepare traditional fresh produce.

If we expect this generation of shoppers to buy what we are growing we need either a lot of time and patience to help them one at a time as we encounter their questions in the marketplace and/or we need tools so the shopper can educate themselves at the point of purchase (your market) or the point of use (their kitchen).

FoodLink, a FREE tool developed by a team within Purdue Extension to help you do exactly this…to help your customer choose YOUR high quality fresh Indiana products over lesser choices that take their dollars away from the farm and perhaps out of state and may have less nutritional quality than your fresh farm products.

FoodLink provides vendors (YOU) access to materials that include Quick Response (QR) codes that are unique to each of over 40 common Indiana fruits and vegetables from Asparagus to Zucchini and even Honey!

Depending on which crops you are marketing at any given time, simply make the appropriate QR code available to the shopper to scan from their smart phone and allow them to use the clear concise information that immediately appears at their fingertips to make the decision that is right for them and their families.

Even if you personally do not use a smartphone or know how to open a QR code…statistically…87% of women shoppers with children have a smart phone and they use them to access information that impacts their purchasing!

This code driven tool will provide immediate access to the user about proper food selection, use, preparation, pairings, storage and a variety of other quickly accessed information including quick and easy recipes that will encourage the incorporation of fresh fruits and vegetables into the diets of Hoosier families. The tool will address the needs of not only home shoppers but also those of institutional buyers with recipes suitable for not only a family of four but groups of 400.

Codes can be reproduced and

placed on signage-large or small, physically on larger produce (melons and pumpkins etc), on clothing (aprons, shirts, hats etc), on boxes used for wholesale shipments and many creative ways that we have yet to identify.

For more information about how to access and use FoodLink resources in your farm marketing activities, please contact Roy Ballard, Purdue Extension educator, ANR, Hancock county by calling 317-462-1113 or by e-mail at rballard@purdue.edu

The growing season will soon be here and the marketing season soon follows. . . Please take a few minutes to take a look at the FoodLink website at www.purdue.edu/FoodLink to see if it might have benefit to you.

You may enroll your farm market in FoodLink now to receive periodic updates and to access free marketing materials while supplies last. There is NO COST to use FoodLink!

Note. . . FoodLink will continue to evolve and improve based upon feedback. . . Recipes and additional content will be added over the coming weeks. Your feedback is welcome anytime.

Upcoming Events:

Purdue Wine Grape Team's 2016 Spring Workshop May 4, 2016 9:00am

Holtkamp Winery, 10868 Woliung Rd, New Alsace, 47041, Rettig Hill Winery & Vineyard, 2679 E State Road 350 Osgood, IN 47037

Due to limited class size, advance registration and fees are required. Registration fee $50 per person and includes lunch.
Make checks payable to Purdue University and mail with registration to:
Jill Blume
Purdue University
Department of Food Science
745 Agriculture Mall Drive
West Lafayette, IN 47907

Indiana Hort Society Summer Field Day June 22, 2016

David Doud's Countyline Orchard
7877 W 400 N, Wabash, IN 46992

More details TBA

Current Bud Stages in West Lafayette, IN

Apple, half inch green

Thornless blackberry, half inch shoots

Grapes, early swell

Red raspberry, half inch shoots

Cherry, green tip

Thorny blackberry, 1 inch shoots

Peach, swollen bud

Contributors

Janna Beckerman
Purdue University
Department of Botany & Plant Pathology
915 West State Street
West Lafayette, IN 47907-1155
(765) 494-4614
jbeckerm@purdue.edu

Bruce Bordelon
Purdue University
Department of Horticulture & Landscape Architecture
625 Agriculture Mall Drive
West Lafayette, IN 47907-2010
(765) 494-8212
bordelon@purdue.edu

Rick Foster
Purdue University
Department of Entomology
901 W. State St.
West Lafayette, IN 47907-1158
(765) 494-9572
rfoster@purdue.edu

Peter Hirst
Purdue University
Department of Horticulture & Landscape Architecture
625 Agriculture Mall Drive
West Lafayette, IN 47907-2010
(765) 494-1323
hirst@purdue.edu

Wenjing Guan
Southwest Purdue Ag Center
Department of Horticulture & Landscape Architecture
4369 N. Purdue Rd.
Vincennes, IN 47591
guan40@purdue.edu

Follow us on:
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Facts for Fancy Fruit
Purdue University
Department of Horticulture & Landscape Architecture
625 Agriculture Mall Drive
West Lafayette, IN 47907-2010