

FACTS FOR *Fancy Fruit*



May 15, 2015
Volume 15 • Issue 4

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Crop conditions:

In Lafayette grapes are 2 to 6-inch shoots. Blueberries are at early bloom. Strawberries are at full bloom and it is obvious that there was only minor damage by frost that occurred on April 23-24. Blackberries and raspberries are at 2 to 4-inch shoots with flower buds visible. Aronia and paw paws are in full bloom. Apples are about 10 mm and fruit drop is starting to occur.

Spring weather:

We've seen pretty warm spring pollinating weather in most parts of the state. Growing degree days are increasing rapidly and we're on a similar track as the past few years, thankfully with the exception of 2012 (Fig. 1).

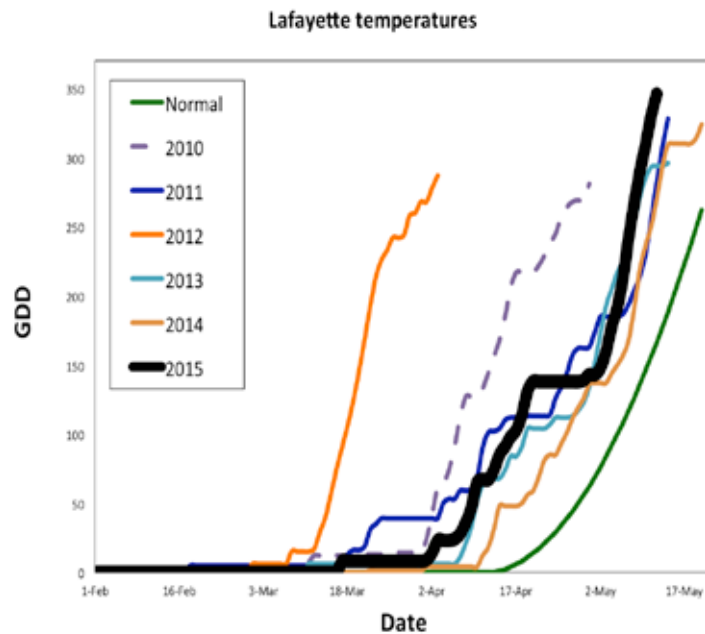








Fig. 1

Current bud stages West Lafayette, IN

| | | |
|--|---|--|
| <i>Raspberry</i> | <i>Grape</i> | <i>Paw paw</i> |
|  |  |  |
| <i>A shoot with flower buds visible</i> | <i>6 inch shoots (6 leaves & clusters)</i> | <i>Paw paw at full bloom</i> |
| <i>Apple</i> | <i>Blackberry</i> | <i>Strawberry</i> |
|  |  |  |
| <i>Post petal fall</i> | <i>Shoot with flower buds visible</i> | <i>Full bloom</i> |

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:

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

Blackberry winter injury:

Many of our blackberry varieties at the Meigs research farm did not survive winter, which was not expected. Temperatures were not that cold (-10°F) but regardless, most failed to leaf out normally. Even those that have, the canes appear to be damaged and I expect they will collapse as we get into warm weather. While we normally get a good crop on the Eastern thornless types (Triple Crown) and the Arkansas erect thornless types (Natchez, Ouachita, Apache, etc.) after a normal winter like we just had, most of those appear damaged this year.

Fig. 2 This shows how valuable the new primocane fruiting varieties developed in Arkansas will be for our region. We have APF 45 and Black Magic in our trials and they have been very productive on primocanes. We just mow them to the ground each spring. We just planted Freedom, a new thornless primocane fruiter this year so we are anxious to see how it performs. (Bordelon)



Fig. 2 Blackberries showing chlorotic discoloration due to winter injury

Frost damage update in grapes:

Frost that occurred across northern and central Indiana April 23-24 caused more damage than originally reported. At first it appeared that only a small percentage of buds were damaged, but eventually it became obvious that up to 80% of the buds on early varieties were injured. Many varieties are highly fruitful on secondary buds so the impact on yield will not be known for some time.

This should serve as a good reminder about pruning date and double pruning. Pruning in the fall or early winter can lead to early bud break, probably because there are fewer buds on the vines and as growth starts, those buds get all the energy and grow faster. Actually, it is probably much more complicated than that, but whatever the underlying causes, in most years we notice that early pruned vines tend to bud out 5 or more days earlier than unpruned vines of the same variety. While it is nice to get the bulk of the pruning work done while weather conditions are more favorable, it can lead to considerable injury. One approach to avoiding injury is to leave extra buds. I discussed double pruning in the first issue of the newsletter this year, but it is worth a reminder here. Double (or long spur) 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. Growth of the basal buds can be delayed as much as two weeks if weather conditions are favorable. However, even when we don't leave long spurs, but leave many extra spurs, we see a similar delay in bud break. So on those early budding varieties like Foch, Marquette, La Crescent and Frontenac, I highly recommend a conservative approach to pruning. Delay pruning as long as possible and leave lots of extra buds just in case we have frost after bud break.

(Bordelon)

Important sprays for grape disease management:

Grape growth is finally reaching normal after a slow start this year. Grapes will soon be reaching the critical pre-bloom time period in the southern part of the state, which is a key time to control important diseases such as black rot, downy mildew, and powdery mildew. The next three or four sprays will be critical in controlling fruit infections. Growers should pay extra attention to getting thorough coverage and use the best fungicides available. The Midwest Small Fruit and Grape Spray Guide lists a wide range of products recommended. A protectant such as mancozeb or captan plus one of the sterol inhibitors such as Rally or generic tebuconazole is the recommended fungicide treatment. Rotating with one of the strobilurins such as Abound, Sovran, Flint, or Pristine is a good option as well. The combination products such as Revus Top, Quadris Top and Adamant should also be good for broad-spectrum disease control. These

next few sprays are critical to producing sound, clean fruit.
(Bordelon)

Shoot and cluster thinning in grapes:

Shoot and cluster thinning during the early season is a critical management practice for most varieties. With the winter injury we had to primary buds this year, shoot thinning may not be necessary, but since many vines have been retrained after last year's damage, managing crop to avoid overcropping will be critical. Many hybrids tend to produce a large number of "non-count" shoots from adventitious buds and basal buds at count nodes. These lead to excess crop and shading in the canopy. Shoot thinning reduces excess shoot number to both adjust crop and reduce shading. Growers typically select 40-60 nodes per vine during dormant pruning. Now is the time to go through the vineyard and assess shoot number and adjust it to the desired number. Five to six shoots per foot of row is generally considered to be the optimum density. It is very easy to accomplish now while the shoots are short. They are not attached to the vines very firmly so they break off easily. If you wait too long, the shoot attachment toughens and the shoots many need to be cut, greatly increasing the time required for removal. Cluster thinning will also be necessary on most large clustered varieties. Growers should try to set the crop to balance the fruit production to about 10 times the vine pruning weight. If you have taken

data in your vineyard you should know the appropriate number of clusters to leave to produce the optimum yield. If not, see HO-221 Grape Varieties for Indiana for average cluster weight data from my trials and a discussion about crop load ratio.
(Bordelon)

Stinger herbicide gets 24(c) Special Local needs label for Indiana:

The Indiana State Chemist Office has issued a Special Local Needs (SLN) label for Stinger herbicide (clopyralid) for use on blueberries in Indiana. The SLN label must be in the possession of the user at the time of application. It is available on the Midwest Small Fruit and Grape Spray Guide website:

https://ag.purdue.edu/hla/Hort/Pages/sfg_sprayguide.aspx

Instructions for timing of applications, PHI, application rates and ground and surface water advisories on the SLN label.

(Bordelon)

2015 Midwest Tree Fruit Spray Guide alert!

Growers should be very careful in using the 2015 Midwest Tree Fruit Spray Guide this year. A number of editing errors occurred in the lining up of the Material and Rate/Acre columns. There are a number of places throughout the guide where the Rate/Acre column is shifted upward so that the correct pesticides and rates do not line up. Please account for these discrepancies when consulting the guide. Always check the pesticide labels for rates.

Codling Moth:

Codling moths are flying throughout the state. I reached biofix here at W. Lafayette last Thursday. Therefore, it is now time for me to start calculating degree days. Codling moths have a developmental threshold of about 50° F, which means that they don't develop at temperatures below 50. To calculate degree days, we basically just take the mean of the high and low temperatures for that day and subtract 50. There are a couple of tricks to those calculations. First, if the low temperature is below 50 and the high is above, adjust the low to 50 before calculating the mean. Second, if the high is above 85, adjust it down to 85 before calculating the mean. This is because they don't develop faster when temperatures are above 85.

Thursday, the low was 57 and the high was 85, so the mean temperature for the day was 71. When we subtract 50 from 71 we get 21, so we accumulated 21° F days on Thursday.

On Friday, the low was 65 and the high was 84, so the mean was 74.5. We accumulated 24.5° F days for Friday, for a total of 45.5 (21 + 24.5).

On Saturday, the low was 63 and the high was 77, so the mean was 70, and we accumulated 20° F days for a total of 65.5.

On Sunday, the low was 61 and the high was 79, so the mean was again 70, so we accumulated 20° F days for a total of 85.5.

If you look at the table on page 23 of the Tree Fruit Spray Guide, you can see the proper timing for various

insecticides for codling moth control. If I were using Rimon or Dimilin, I would be spraying today. If I were going to spray Intrepid or Confirm, I would know that the time to spray would be a couple of days away, depending on continued accumulation of degree days. For the other products, the wait would be a little longer. Timing is very important for codling moth control. The closer you can make your application to optimal timing, the better your control will be.
(Foster)

What's that little moth in my Codling moth pheromone trap?

Sex pheromones are chemicals that insects use to increase the likelihood of successful mating. Generally speaking, these chemicals are very specific. However, the synthetic versions of pheromones that we use are not quite as exact as the ones the moths produce, so we can sometimes find other insects attracted to our traps. One that happens fairly frequently is for Oriental fruit moths to be attracted to codling moth pheromone traps. Orientals look somewhat similar to codling moths but they are only about half the size. Oriental fruit moth larvae look very similar to codling moth larvae except that they have an anal comb that is not present on codling moth larvae (only an entomologist would care about anal combs). They typically are more of a pest on stone fruits, with the first generation causing flagging by feeding on shoot tips and the second and third generations attacking fruit.

Most importantly, don't be fooled into thinking you have a massive infestation of codling moths because you see Oriental fruit moths in your codling moth trap. Fig. 3
(Foster)



Fig. 3 Comparison of size of codling moth and Oriental fruit moth in pheromone trap

Protecting fruit against summer rot:

As apples set, it seems like this is as good a time as any to remind growers about protecting fruit against summer rots. In fact, this is one of the best times, because something can still be done to prevent summer rots from happening, particularly bitter rot and the bot rots NOW, before the weather may turn hot and wet and infection has already occurred.

Summer rots include black rot (Fig. 4), caused by the fungus *Botryosphaeria obtusa*, appears as a firm dark decay, often at the calyx ends of fruit. White rot (Fig. 5), caused by *Botryosphaeria dothidea* results in a softer decay, often coming in on the sides. Of these two diseases, black rot seems more prevalent in Indiana. Most prevalent in hot, wet summers is bitter rot (Fig. 6), caused by members of the genus *Colletotrichum*.



Fig. 4 Black rot can cause serious losses in apple orchards, especially in warm, humid areas. Three forms of the disease can occur: a fruit rot, a leaf spot known as frog-eye leaf spot, and a limb canker.



Fig. 5 Drought stress and winter injury have also been associated with an increase in infection and canker expansion of white rot.



Fig. 6 Bitter rot outbreaks appear to be weather driven events that require hot, wet weather for infection. Honeycrisp appears to be particularly susceptible.

This disease first appears on the sun-exposed sides of the apple, especially if scald is an issue. After infection, decay progresses toward the core in a V-shaped pattern. Eventually, the bitter rot fungus produces target-like rings of slimy salmon-colored spores on the surface of decay lesions.

Numerous studies have shown that missing sprays early in the season have the biggest impact on later fruit quality. Furthermore, this often requires additional sprays later in the season to make up for this loss, and rarely, if ever, provides the same level of control as proper early season spraying. In the past, Topsin M and late season applications of mancozeb used to effectively control most summer rots (and captafol before that), but resistance to Topsin-M, and PHI intervals of mancozeb have left growers with fewer options.

However, one often-overlooked option is mancozeb, and making sure you apply it at the latest possible moment permissible with PHIs. In bitter rot outbreaks in 2010 and 2011, we noticed that growers who skipped that last application of mancozeb had much greater incidence of bitter rot compared to growers who used mancozeb to the last possible date. Including mancozeb in first and even second cover (if possible) provides excellent protection against all of these rots. In second and subsequent covers, Merivon alone (not with captan) or Pristine (both FRAC 11+7) tank-mixed with captan should provide excellent control.

At first and second cover, growers

are also encouraged to continue use of a DMI or strobilurin for scab control, and for control of powdery (which is not controlled by captan or mancozeb) and rust (which is not controlled by captan). The SDHI fungicides also provide protection against the early season diseases, and Merivon is noteworthy for its control of bitter rot. Note that Merivon should NOT be applied with any captan, oils or emulsifiable concentrates in your tank mix. Finally, Syllit, which is excellent against scab, has no activity against rust or powdery mildew or summer rots. (Beckerman)

Apple chemical thinning:

Most growers will have put on at least one chemical thinner application and are anxiously looking to assess the effect. Detailed research has shown that it takes anywhere from 9 to 22 days to be able to accurately visibly assess the effect of a chemical thinner application. It is very risky to apply a second thinner application within 2 weeks of the first application since it's unlikely the effect of the first application can be accurately assessed at that time. In most places of the state we've had mostly warm and sunny weather – this is not only good pollinating weather but also is good for fruit set. On this basis we should expect less fruit drop than usual and so more aggressive chemical thinning might be required. (Hirst)

Food safety audit cost-share and consulting program:

Published: 04/29/2015 by Scott Monroe jmonroe@purdue.edu

Purdue University and the Illiana Watermelon Association (IWA) are offering food safety audit cost-share programs to Indiana fruit and vegetable growers this year. Funds for the programs come from a grant from the Indiana State Department of Agriculture through the USDA Specialty Crops Block Grant Program.

Through the Purdue program, Indiana fruit or vegetable growers who receive passing scores on their third party food safety audits are eligible for reimbursement of 40% of their audit cost, up to a maximum of \$400 per farm. Through the Illiana Watermelon Association program IWA members may receive reimbursement for 75% of an audit cost (up to \$1,500) if a preferred audit-provider is used, or 60% (up to \$1,200) if a non-preferred provider is used. Producers of any fruit or vegetable wishing to take advantage of the IWA program may join the IWA.

To apply for cost-sharing, complete and return the appropriate application by July 1. Applications for both cost-share programs are included in the hard copy of this newsletter, The Purdue application may be downloaded [here](#), or filled out online at tinyurl.com/audit-cost-share. The IWA application is available [here](#). Producers may receive reimbursement from only one of the programs. To receive reimbursement, documentation

of audit results and cost must be submitted to Purdue or IWA after the audit is complete.

The program also provides the opportunity for growers to have a walk-through of their farm with a private food safety consultant contracted by Purdue. The private food safety consultant may also address specific farm and packinghouse food safety questions and issues. This opportunity is open to any grower, whether or not they participate in either audit cost-share program. To request a consultant visit, use the application for the Purdue cost-share program and return by July 1.

For more information, contact Scott Monroe at 812-886-0198 (office) or 765-427-9910 (cell).

Deadline for conservation certification filing approaching:

WEST LAFAYETTE, Ind. – A Purdue University horticulture professor urges specialty crop producers who applied for enhanced crop insurance this year to make sure they file for a conservation compliance form with the U.S. Department of Agriculture by June 1.

“It’s a new requirement, and many specialty crop farmers might be unaware of the upcoming deadline for compliance,” Bruce Bordelon said. “If they do not complete the form, they will not be eligible for federal crop insurance payments.”

Under the 2014 farm bill, specialty crop producers were given the option of applying for enhanced crop coverage

through the federal Noninsured Crop Disaster Assistance Program, commonly known as NAP.

To receive payments through the NAP enhanced coverage program, farmers must certify that they will not plant crops on erodible land unless previously approved by the Natural Resources Conservation Service.

Applicants must also agree not to drain, dredge, level or fill any wetlands on their property.

“Conservation certification is required to receive payments through most USDA programs,” Bordelon said. “But typically, specialty crop producers do not participate in marketing assistance loans, farm storage facility loans and disaster assistance or other USDA programs, so they might not have completed the conservation compliance form previously.”

Producers who complete the form by June 1 will be eligible for federal crop insurance payments for the 2016 reinsurance year, which begins July 1, 2015.

The Highly Erodible Land Conservation and Wetland Conservation Certification form is available at local USDA service centers or online at www.fsa.usda.gov/AD1026form.

Completed forms should be taken to the local USDA service center. Writer: Darrin Pack, 765-494-8415, dpack@purdue.edu

Source: Bruce Bordelon, 765-494-8212, bordelon@purdue.edu



Farewell Jennifer Dennis:

Specialty Crops Marketing Specialist, Jennifer Dennis, is leaving Purdue. Jennifer joined the Department of Horticulture and Landscape Architecture back in 2004. She leaves June 1 to take up an administrative position at Orgeon State University. We wish her well in her future endeavors.



Upcoming events:

June 2, 2015:

Eastern Indiana Horticulture Society: James Heasley's "Slice of Paradise" at 6:00 PM. Jim has an extensive variety of plantings of all kinds of small fruit and tree fruit. Located at 3912 S. Felton St., Marion IN. This is close to the intersection of S.R. 15 and 38th. St. 765-674-3791 There will only be street parking.

June 11, 2015:

Blueberry Growers of Indiana Spring Meeting and potluck. 4:00 pm at Country Heritage Winery, LaOtto, IN. Blueberry Acres Farm of Jeremy and Jennifer Lutter. Country Heritage Winery & Vineyard 0185 CR 68 LaOtto, IN 46763 Phone: 260-637-2980 Directions: 10 minutest north of Fort Wayne on St Rd 3. For directions go to www.countryheritagewinery.com 4:00pm - (Eastern Daylight Time) - Gather for farm tour led by Jeremy 5:00pm - Potluck dinner (Meat and drink provided, please bring a side dish and/or dessert to share) 5:45pm - BGIN Business Meeting Election of president/sec/treasurer Minutes of 6/13/2014 meeting Financial Report (pass the hat time to reimburse host) Steering Committee.

Topics of Discussion:
Rolly Groenink of MBG will talk about SWD issue and chemicals.
Comments from Bruce Bordelon of Purdue University.
Crop estimate and location of next year's meeting. Please consider hosting BGIN in 2016.

June 23-24:

Indiana Horticultural Society summer meeting and field tour, Purdue Meigs farm, Lafayette, IN.
All tree fruit, grape and berry crop growers are invited to attend. We have a program planned that should be of interest to all, especially the sprayer calibration demonstration and discussion of water quality issues. A campus tour including visits to the Hort greenhouse, Turf research center, horticulture labs, enology labs and vine library will be offered on June 24 for those who wish to stay. The tentative program for the June 23 field day is listed below:

IHS tentative program

9:00 am Registration
9:30 am Welcome and program overview
9:45 am Sprayer calibration and determining the quality of spray water.
11:30 am Exhibitor introduction
12:00 pm Lunch at the farm
12:45 pm Begin field tours

- Dwarf apple tree management
- Avoiding biennial bearing on Honeycrisp

- Grape variety performance after the 2014 Polar Vortex: The good, the bad, and the ugly!
- High tunnel growing
- Pest control on sweetcorn
- Spotted wing Drosophila in berries

5:00 pm Social Hour

Optional wagon tour of the farm highlighting other research plots and crops, precision agriculture applications, hops, berries, vegetables, paw paws, etc.

6:00 pm Dinner at the farm

8:00 pm Adjourn

Meals

A boxed lunch (\$10) and evening dinner (\$15) will be offered to provide time for networking among growers and exhibitors.

Registration and costs

Registration is \$10 per person, lunch is \$10 per person and the evening dinner is \$15 per person. Both registration and meal costs will be collected on site. However we ask that those planning to attend RSVP to assist with our planning for meals and other arrangements.

If you would like to join us, please

register [here](#)

<http://tinyurl.com/o55wph2>

July 21, 2015:

Indiana Winery and Vineyard Association Summer meeting. Country Heritage Winery, LaOtto, IN. More information will follow.

July 26-29, 2015 :

The Second International Workshop on Vineyard Mechanization and Grape and Wine Quality, Fredonia, New York.

<http://www.ishs.org/symposium/428>

Jan. 19-21, 2016:

Indiana Horticultural Congress, Wyndham Hotel, Indianapolis, IN

<http://www.inhortcongress.org/>



Please visit our Purdue HLA Extension website under the Events tab for further event details.

<https://ag.purdue.edu/hla/extension>



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