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FACTS FOR Fancy Fruit
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In This Issue

Crop Conditions

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The season is underway in the Lafayette area thanks to the warmer than normal conditions of the past week. Apples are at pink to early bloom, early grapes are at bud break and late ones are at full swell, currant, gooseberry and honey berry are in bloom, strawberry flower buds are visible in the crowns, and raspberry and blackberry both have well developed shoots. Paw paws are in pre-bloom.

Apple at pink to early bloom

Early grape at bud break

Grape at full swell

Gooseberry in bloom

Black currant pre-bloom

White currant in bloom

Honey berry in bloom

Strawberry with flower visible emerging from the crown

Blackberry shoot

Red raspberry shoots

Paw paw flowers at pre-bloom

Engelbrecht’s Countryside Orchard, Evansville

(Bruce Bordelon, bordelon@purdue.edu, (765) 494-8212)

April 23 Conditions – Engelbrecht’s Countryside Orchard, Evansville

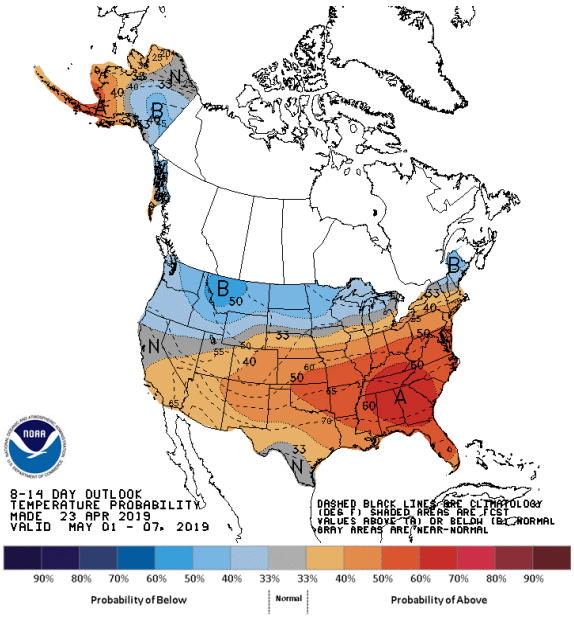
Recent warm weather has spurred a lot of growth. Peaches and nectarines currently range from petal fall to shuck split (depending upon variety), and sweet cherries are setting fruit. Apples are in full bloom and the pollinators are busy.

Indiana Climate and Weather Report

(Hans Schmitz, hschmitz@purdue.edu)

No reason exists to expect drought anytime soon in Indiana, with much of the state remaining rather wet after last weekend's showers. One good new development exists. The precipitation pattern that has existed since nearly January seems to be becoming a little less predictable, which could mean more periods of drier weather between fronts on the horizon. Another bit of good news exists in above normal temperatures predicted on both the 7-10 and 8-14 day forecasts, according to the Climate Prediction Center (https://www.cpc.ncep.noaa.gov/), which would allow for quicker drying of soils after any precipitation that does fall.

Current growing degree days (base 50) for 2019, as of April 22, vary from 206 in Indianapolis to 322 in Evansville to 111 in Angola, marking a clear gradient in insect development and greening from south to north. The entire state is now monitoring conditions for issuance of frost/freeze warnings from the NWS, as sensitive vegetation exists state-wide.



Apple Disease Management Notes for April

(Janna L Beckerman, jbeckerm@purdue.edu, (765) 494-4628)

Apple Disease Management Notes for April

For those at tight cluster through pink: Assuming trees have less than 3" of new growth, early applications of apogee will help prevent fire blight in what is shaping up to be a cooler, wet spring. With temperatures flirting with 70, fire blight needs to be on your radar and you can still apply Apogee.

All that new, succulent growth needs to be protected as it develops to prevent primary scab. Protectant fungicides for control of scab at this stage include mancozeb and captan. As an added bonus, both also protect against the summer rots, and mancozeb also protects against rust. Current work from our field trials suggests that the infection period for the summer rots is earlier than previously suspected. Early applications improved bitter rot management, in particular. For powdery mildew issues, include any FRAC 3 (Rally, Indar, Procure or Rhyme) OR FRAC 7-11s (Luna Sensation, Merivon, Pristine). The 7-11 fungicides will also work to prevent scab and powdery mildew. Or, just use the FRAC 7s (Aprovia, Fontelis, or Sercadis) and save your FRAC 11 fungicides (QoI, or quinone outside inhibitors, like Flint, Flint Extra or Sovran) for later in the season. Remember, captan does not control powdery mildew or rust!

For those at bloom: Balancing spraying demands between the potential for fire blight and the constant reality of apple scab, powdery mildew, summer rots and rust, (and insects!) is a challenge, which is why we refer to this period as 'crazy tank mix time'. During this time, let's not forget about protecting pollinators: We need them, and they need us to be mindful of what and when we are spraying! We also need to

remember that blooms are delicate—and captan is pretty 'hot'. Avoid captan at this time, and use mancozeb for scab, rust and rot control for your tank mix partner or protectant chemical of choice. Again, on-going studies suggest that the summer rot pathogens, but especially bitter rot, infect susceptible varieties earlier, at pink, then previously believed, especially when weather is warm and wet, and that secondary infection period continues throughout the growing season.

Peak apple scab ascospore release coinciding with these temperatures means that scab infection can occur in as little as 6 hours (See Mill's table below). Making sure trees are thoroughly protected before the infection periods is essential, as there are no guarantees of orchard entry after heavier rainfalls (or, more correctly, getting out of the orchard). For fire blight control on those susceptible varieties, like Jonathan, Fuji, Gala, Ginger Gold, etc., be sure to use streptomycin as we have not identified any streptomycin resistance in Indiana to date. Streptomycin is most effective when applied with Regulaid during slow drying conditions (like at night) at king bloom, and then repeated every 3-5 days after until petal fall. As an added bonus, you'll protect your pollinators. Repeated application of streptomycin+Regulaid until petal fall ensures efficacy (streptomycin breaks down after a few days) and reduces the risk of resistance. Keep in mind that Regulaid, as a penetrant, does increase your risk of phytotoxicity (Fig. 1). Forewarned is forearmed.

Be careful tank-mixing pesticides and adjuvants and applying them during bloom. This grower successfully protect the trees against disease…and from producing apples.

Table 1. Revised Mills Table. Approx. hours of wetting necessary to produce primary apple scab infections, and approx. number of days required for lesions to appear, at different average temperatures. From the NEWA website at: http://newa.cornell.edu/index.php?page=revised-mills-table

Temperature (˚F)	Hours [1]	Lesions Appearance (days) [2]
34	41	–
36	35	–
37	30	–
39	28	–
41	21	–
43	18	17
45	15	17
46	13	17
48	12	17
50	11	16
52	9	15
54-56	8	14
57-59	7	12-13
61-75	6	9-10
77	8	–
79	11	–

Number of days required for lesions to appear after infection has been initiated. No further wetting is required. Additional days may be required if conditions are unfavorable for lesion development (prolonged periods above 80° For very dry weather). Data of MacHardy & Gadoury (1989); and Stensvand, Gadoury, & Seem (1997).

For those at petal fall: A FRAC 3 + mancozeb will provide varying degrees of protection against all the major diseases assuming coverage is adequate. Just like during bloom, inclusion of

mancozeb provides additional protection against the summer rots, especially bitter rot.

Stone Fruit

Blossom rot never sleeps, and is particularly active under wet, moderate temperatures, like we have now. For those of you lucky enough to still have peaches and other stone fruit, be sure to protect your crop with iprodione (Rovral, Meteor) at bloom. Do not apply iprodione after petal fall.

If bacterial spot has been a problem, apply fire line or mycoshield at 7-day intervals from petal fall/shuck split to first cover. Avoid copper if the conditions are wet, and see the Midwest Fruit Pest Management Guide for more information.

To control blossom rot and peach scab at shuck split, I like a final application of Bravo Weatherstik (FRAC M), but other options include FRAC 11 (Abound; FRAC 7-11 Luna Sensation, Merivon or Pristine); FRAC 1(Topsin M) with or without captan; and FRAC 3(Indar, Inspire Super, Rhyme, Topguard Specialty Crop) or the premix Topguard EQ (FRAC 3+11). FRAC 3 fungicides improve powdery mildew management, if you are struggling with PM control.

Update your FieldWatch information and report off-target damage

(Bruce Bordelon, bordelon@purdue.edu, (765) 494-8212)

FieldWatch is an easy-to-use, reliable, accurate and secure on-line mapping tool intended to enhance communications that promotes awareness and stewardship activities between producers of specialty crops, beekeepers, and pesticide applicators. Originally developed at Purdue University, FieldWatch is now a non-profit company with support from producers, applicators, agricultural chemical companies and other organizations.

The program allows specialty crop producers and beekeepers to enter their locations on a secure on-line map. The map is viewed by pesticide applicators so they know what crops are in the area they intend to treat. For the past couple of years, applicators planning to apply the new dicamba products (XtendiMax, FeXapan, Engenia) have been required to check Fieldwatch.

All you need to do to sign up is visit http://www.fieldwatch.com/ and follow the easy tutorials under the resources tab. Once you have an account, you should be asked to update your FieldWatch information each year. If you have not heard from FieldWatch recently, log on to to update your account information. The service is free. You can purchase signs at reasonable prices to post at your location as a visible notification to applicators. See signs below.

Specialty Crop sign

Beehive sign

As most of you know, 2019 will likely be another challenging year for drift and off-target damage. The past two years, 2017 and 2018, saw a record number of drift complaints in Indiana and across the Midwest, mostly due to dicamba products used in soybeans (XtendiMax, FeXapan, Engenia). A very large increase in the acreage of Monsanto's Dicamba-Tolerant "Xtendimax" soybeans is expected in the state this year. Millions of acres of DT beans may be sprayed with dicamba in May and June so the potential for off-target damage is enormous. Special training programs have been held for applicators and new label restrictions have been added. All dicamba applicators are required attend the training. A requirement of the dicamba product labels is to check FieldWatch to determine where sensitive crops exist. Your orchard, vineyard, blueberry farm, high tunnel, vegetable planting, etc is protected by product labels that restrict making an application if the wind is blowing toward your crop. But if the applicator doesn't know you are there, they can't make the right decision. So be sure to sign up on FieldWatch today or update your account information. The spray season for row crops is coming up soon.

Report Damage:

The Office of the Indiana State Chemist is attempting to monitor off target damage due to dicamba and other pesticides in 2019 to measure success of their training programs. They are interesting in reports of damage and will inspect a report even if an official drift complaint is not filed. This is a change from past years. This takes the "discomfort" out of reporting an incident. Your neighbors will not inspected if you report an incident, unless you decide to file an official complaint. So please help us keep track of the situation this growing season. Keep your eyes open and report incidences of off-target damage if you see them. Contact the State Chemist Pesticide Section at 765-494-1582. Or just let one of us at Facts for Fancy Fruit know and we'll let them know so they can check out the report. They need your help in assessing the situation.

Chlorpyrifos insecticide under review

(Bruce Bordelon, bordelon@purdue.edu, (765) 494-8212)

SAN FRANCISCO (AP) — A federal appeals court has given the Environmental Protection Agency 90 days to justify why a widely used but dangerous pesticide should stay on the market.

The 9th U.S. Circuit Court of Appeals on Friday issued the order at the request of a coalition of farmworker and environmental groups. The attorneys general for several states, including California, Washington, New York and Massachusetts, joined the case.

The groups sued after then-EPA chief Scott Pruitt reversed an Obama-era effort to ban chlorpyrifos,

which is widely sprayed on citrus fruit and other crops.

Last summer, a three-judge panel of the court ordered the EPA to ban all sales of the pesticide. The court decided to reconsider that ruling with a slate of 11 judges, and those judges Friday gave the EPA three months to respond to the plaintiffs' objections.

–Associated Press

Weed management in fruit plantings

(Bruce Bordelon, bordelon@purdue.edu, (765) 494-8212)

Early spring is a good time to make the first herbicide application of the year in fruit plantings where a weed-free strip is maintained in the row. There are several options for fruit crops including both pre- and post-emergent herbicides. See the weed control chapter in the 2019-2020 Midwest Fruit Pest Management Guide for a complete list of registered products. In most situations, there will be some emerged weeds present in the planting at this time of the year. These could be winter annuals, perennials, or recently germinated summer annuals. A post-emergent herbicide can be used to control those established weeds. A pre-emergent material can be tank mixed at this time to provide residual weed control. However, most pre-emergent herbicides will provide only 6 to 8 weeks of control as they break down in the environment. So, if applied in very early spring, they may not provide sufficient control of summer weeds (foxtail, barnyard grass, goosegrass, crabgrass, lambsquarter, ragweed, etc.). If those are 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.) glufosinate (Rely, Forfeit, etc) or paraquat (Gramoxone) now, then come back in about 4 weeks with a second application of post-emergent tank mixed with a pre-emergent herbicide. That should provide reasonably good season-long weed control. This approach will not work well on brambles where primocane emergence will occur relatively soon. Another caution for bramble growers: we have seen significant damage from applications of glyphosate in recent years, likely due to improved surfactants in the formulations, even when applied during dormancy. Be especially careful if using glyphosate products, especially in thornless blackberries. Another consideration is temperature. Some products (e.g. glyphosate) are not very effective at cool temperatures, so wait for a warm day to make applications. Gramoxone would be a better post-emergent burn down option if temperatures are cool.

Events

(Lori K Jolly-Brown, ljollybr@purdue.edu)

May 6, 2019 Purdue Wine Grape Team Spring Workshop
Blackhawk Winery
Sheridan, IN
Contact: Katie Barnett, barnett6@purdue.edu

May 22, 2019 I INDY International Wine Competition
Purdue University, West Lafayette, IN
http://www.indyinternational.org/

June 1, 2019 Vintage Indiana
Military Park, Indianapolis, IN
https://www.vintageindiana.com/

June 21, 2019 Purdue Master Gardener State Tour
New Albany, IN
https://www.sunnysidemg.org/

June 27, 2019 Southwest Purdue Ag Center

Field Day
Southwest Purdue Ag Center
Contact Dennis Nowaskie nowaskie@purdue.edu

July 9, 2019 Turf & Landscape Field Day
Daniel Turf Center, West Lafayette, IN
https://turf.purdue.edu/field-day.html

July 18, 2019 Meigs Field Day
Purdue Meigs Farm
Contact Lori Jolly-Brown, ljollybr@purdue.edu

July 22-23, 2019 Indiana Winery and Vineyard Association Summer Meeting. Country Heritage Winery, LaOtto, IN
https://www.indianawinevine.org/

August 1, 2019 Small Farm Ed Field Day
Daniel Turf Center, Purdue Student Farm
Contact Lori Jolly-Brown, ljollybr@purdue.edu

September 5, 2019 Hydroponics & Greenhouse workshop
Purdue University, Deans auditorium
Contact Lori Jolly-Brown, ljollybr@purdue.edu

September 10-12, 2020 Purdue Master Gardener State Conference
Hosted by Hamilton and Howard Counties
Hamilton County Fairgrounds, Noblesville, IN
https://hcmga.org/2020-state-conference/

October 17, 2019 Indiana Flower Growers association conference
Purdue University, Daniel Turf Center
Contact Lori Jolly-Brown, ljollybr@purdue.edu

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