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Crop Conditions

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Black raspberry-dormant



Apple-dormant



Peach-dormant



Thornless blackberry-dormant



Strawberry-dormant



Grape-dormant

Spring Weed Management in Fruit Crops

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

Early spring is a good time to make the first herbicide application of the year. There are

several options for fruit crops including both pre- and post-emergent herbicides. See the weed control chapter in the 2018 Midwest Fruit Pest Management Guide for a complete list of 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 grasses (foxtail, barnyard grass, goosegrass, crabgrass, 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 in some fruit crops is to apply a broad spectrum post-emergent herbicide such as glyphosate (Roundup, Touchdown, etc.) or paraquat (Gramoxone) soon 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. That 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 blackberries. Another consideration is temperature. It has been very cool so far this spring and products like glyphosate are not very effective at cool temperatures. Gramoxone would be a better post-emergent burn down option if

these cool temperatures continue.

Insects and Temperature

(Ricky E Foster, fosterre@purdue.edu)

Insects and other arthropods are cold-blooded (or more technically, poikilothermic), which means that they don't generate their own body heat like we do, but must rely on the environment for their heat. Each insect has its own developmental threshold, a temperature below which no development takes place. For many insects, such as codling moth, that threshold is about 50° F. So, whenever temperatures below that temperature, codling moth is not active and no development is occurring. Other insects have their own developmental thresholds. In general, the warmer the temperature, as long as it is above the developmental threshold, the more rapidly insects develop. Most insects have an upper limit, above which developmental rate doesn't increase or may even slow down.

This reliance upon temperature for development is why we make our recommendations for management actions, whether putting out pheromone traps or making applications, based on the crop stage rather than on calendar date. While the developmental rate of the crop doesn't exactly parallel all the pest insects, it gives a pretty good approximation that we can use to determine when to act. Obviously, this year, insect development just like plant development is way behind where we were at this time last year, so we have to adjust the timing of our pest management activities appropriately.

Plants and Temperature

(Peter M Hirst, hirst@purdue.edu, (765) 494-1323)

For organisms that don't regulate their

temperature (such as plants and insects), the rate of development is largely controlled by the temperature of their environment. As we know, fruit trees and vines need a certain amount of “winter chilling” that they use to measure when winter is over. After the chilling period, plant development depends on temperature. Fruit plants in Indiana are primed and ready to grow – right now they are just waiting for suitable temperatures. Waiting, and waiting and waiting. Typically very little plant development occurs below 50F so we measure heat accumulation above 50F (Growing Degree Days) to predict the rate of plant development.

As we see from Figure 1, this year (solid black line) in Lafayette we have accumulated very few GDD, and those derived from a few warm days at the end of February. We have not accumulated any GDD since March 1, but with a couple of warm days upon us now this is poised to change pretty quickly. So far, 2018 is shaping up to be one of the latest springs this decade, but temperatures are still running ahead of the long term trend.

When we talk about crop development, we generally talk about developmental stage of the crop and about Growing Degree Days, rather than calendar date. An example of this is Figure 2. When we realize that early crop development is driven by temperature, then we see how different temperatures can be from one year to the next (Fig. 1), then we realize why we talk about bud stages rather than calendar date. Another stark example of this is in Figure 3. On the left are photos taken in 2017 and on the right are photos taken this year – similar calendar date but very different stage of crop development.

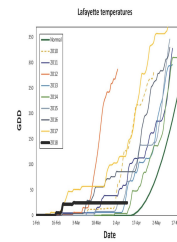


Figure 1. Accumulation of Growing Degree Days (base 50F) in Lafayette, IN.

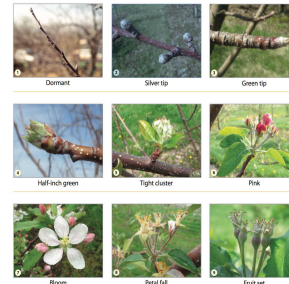


Figure 2. Diagram of apple bud stages. From “Managing pests in home fruit plantings”. Purdue Extension publication ID146



Figure 3. A comparison of apple development in 2017 and 2018.

Upcoming Events

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

May 7, 2018 Purdue Wine Grape Team “From Grape to Glass”

Byler Lane Winery 5858 County Road 35, Auburn, IN 46706

Contact Jill Blume blume@purdue.edu

June 26, 2018 Indiana Hort Society Summer Field Day

Garwood Orchard, LaPorte, IN

Contact Lori Jolly-Brown ljollybr@purdue.edu

October 17, 2018 Indiana Flower Growers
Conference

Daniel Turf Center

Contact Lori Jolly-Brown ljollybr@purdue.edu

January 8, 2019 Illiana Vegetable Growers
Symposium.

Teibel's Family Restaurant, Schererville, IN

Contact Liz Maynard emaynard@purdue.edu

[https://ag.purdue.edu/hla/Extension/Pages/IVGS.a
spx](https://ag.purdue.edu/hla/Extension/Pages/IVGS.aspx)

February 12-14, 2019 Indiana Hort
Congress.

Indianapolis Marriott East Indianapolis, IN

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<http://www.inhortcongress.org>

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