

FANCY FRUIT

Issue: 22-01
April 4, 2022

A Newsletter for Commercial and Advanced Amateur fruit growers.

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EZ (liquid) formulations set to replace granular Valor SX and Chateau SW

(Stephen Meyers, slmeyers@purdue.edu)

If you use the herbicides Valor® or Chateau®, you may notice a change with your next jug. Valent U.S.A. Corporation is phasing out production of Valor SX and Chateau SW, both water soluble granule formulations. The new liquid formulations are called Valor EZ and Chateau EZ. While the granular formations contain 51% of the active ingredient flumioxazin by weight, the new liquid version will contain 4 lb of flumioxazin per gallon. But there is good news: the new liquid formulation can be applied at the same “ounce rate” as the granular versions.

So, if you would normally use 3 ounces of Chateau SW per acre, you would use 3 fluid

ounces of Chateau EZ per acre.

While Valor® is labeled for use in row crops and sweetpotato, Chateau® has a much broader label and includes many fruit crops. For crops that rely on a Chateau 24(c) special local needs label, the new EZ formulation will require its own 24(c) label.

To learn more about weed management options in fruit crops, visit the Midwest Fruit Pest Management Guide (<https://ag.purdue.edu/hla/hort/documents/id-465.pdf>).

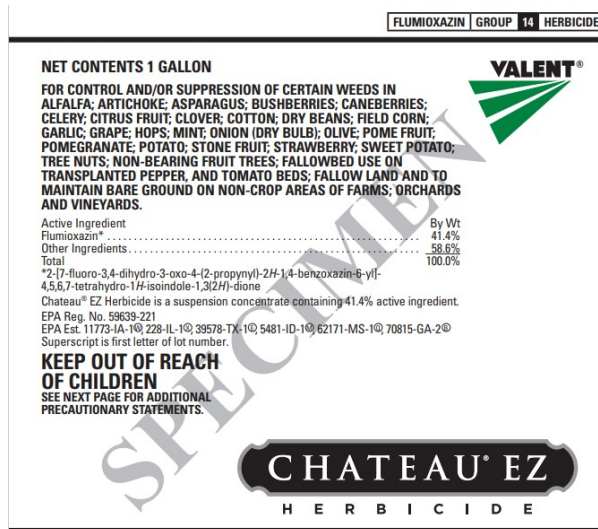


Figure 2. Chateau EZ (liquid) label.

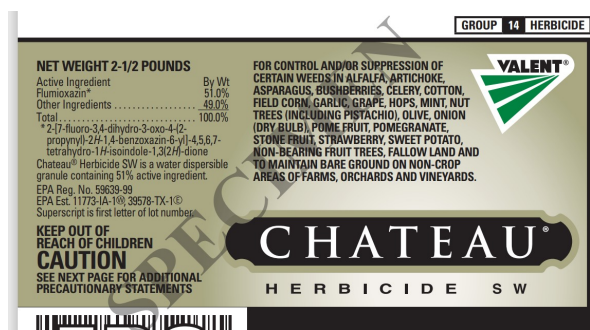


Figure 1. Chateau SW (water soluble granule) label.

A NEWA Deal for Indiana

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

Purdue recently joined and became one of twenty US states that are in the NEWA network. NEWA is a partnership of land grant universities and grower associations. If you live in one of the states listed, you can [buy a weather station](#) for your farm and connect to NEWA. For Indiana growers, this means your membership is covered in full. If you live in a different state, see the NEWA [Partners](#) page to check out the Ricky Bobby branding and find out more about your membership status.

What is NEWA?

The Network for Environment and Weather Applications (NEWA) delivers weather data from weather stations primarily located on farms through the Internet at newa.cornell.edu and automatically calculates and displays weather data summaries, crop production tools, and integrated pest management (IPM) forecasts.

How does NEWA and a weather station benefit me?

1. Promotes better and more precise IPM, reduced pesticide use, improved environmental protection.
2. Better crop management, improved crop quality, improved yield.
3. Enhanced decision support.

Okay, I'm interested. How does it work?

NEWA works with [Onset Data Loggers](#) and [KestrelMet](#) (weather stations) which are configured for NEWA's agricultural production tools. These stations provide the data to the NEWA system, and look like this:

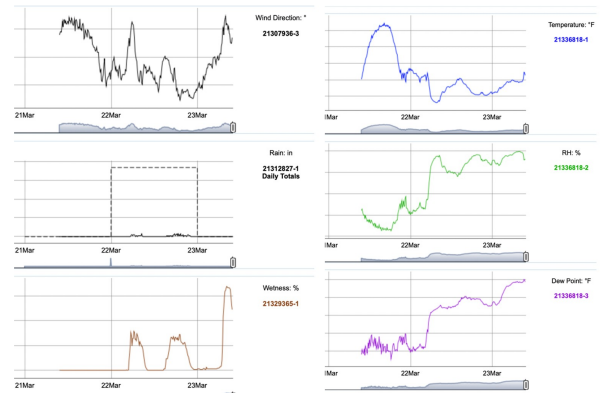
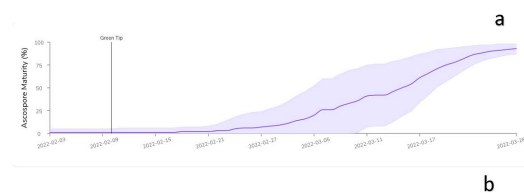


Figure 1. HOBOLINK data summaries from the weather station.

In this format, the data isn't super helpful for most people, but I know I piqued your interest if you've read this far. Keep reading...

How does NEWA help in crop management decision making?

As a nerd, the data above is really exciting, but it doesn't help me to make decisions. To do that, the data needs to be entered into appropriate mathematical models correctly to make it useful. Most people don't want to sit down and calculate degree days (DD) and growing degree days (GDD) with base temperatures for different crops, and then use that data for additional models to forecast insect hatch dates and plant disease infection periods. I sure don't (it's super tedious and easy to make mistakes). So, NEWA does this calculation for you and displays the data:





Infection Events Summary [Download CSV](#)

Events: [Dry](#) [Wet](#)

Date (dd)	Infection Events	Average Temp (°F) for wet hours	Leaf Wetness (hours)	Hours > 90% RH	Rain Amount
March 20	no	-	0	0	0
March 21	no	-	0	0	0
March 22	no	-	0	0	0
March 23 Forecast	combined	59	20	6	3.67
March 24 Forecast	yes	50	3	3	Night: 31% Day: 34%
March 25 Forecast	no	-	0	0	Night: 6% Day: 30%
March 26 Forecast	no	-	0	0	Night: 6% Day: 6%
March 27 Forecast	no	-	0	0	Night: 4% Day: 2%

Infection events, shown in red above, are based on the [Revised Mills Table](#) and are calculated beginning with 0.01 inch of rain. The word "Combined" means the wetting event on this day is being combined with another wetting event using the following rule: two successive wetting periods, the first started by rain, should be considered a single, uninterrupted wet period if the intervening dry period is less than 24 hours. When an infection event is in the 5-day forecast, the actual weather data logged may or may not translate into an actual infection event. Therefore, the table output may change once actual weather data are logged.

Figure 2a-c. Tools are provided in graphical form (top) and table form (middle and bottom). These data are from an orchard in Hendersonville, NC, taken 3/22/22).

There are over 20 weather-based IPM forecast tools in NEWA (see below for links to access those tools). Many tools in NEWA address apple and grape decision support. There are 14 pest problems for apples (fire blight, apple scab, sooty blotch & flyspeck, spotted tentiform leafminer, oriental fruit moth, codling moth, plum curculio, oblique-banded leafroller, apple maggot, San Jose scale, apple carbohydrate thinning, apple irrigation, apple evapotranspiration, and apple frost risk) and 5 for grapes (Phomopsis cane and leaf spot, powdery mildew, black rot, downy mildew, and grape berry moth). These crop risk assessment tools are available as part of the NEWA 3.0 online decision support platform. These useful resources make the process of tracking pest and disease risk easier and more efficient.

Nerding out is great, but how does this help my bottom line?

A 2017 survey found that NEWA users in New York saved \$4329 in spray costs per year, on average. Prevented per crop loss was valued at \$33K annually by growers as a direct result of using NEWA IPM tools and resources.

Keep in mind, these are just tools to help you better time pesticide applications. They aren't going to do the spraying for you or help you with the decisions as to what to spray See the [Midwest Fruit Pest Management Guide](#) for that information!). From my observation, experienced growers are often doing these calculations without even realizing it. For them, this tool provides a **notification or reminder** so they aren't in a constant state of alert wondering when to spray, and protects against missed sprays. For new growers, it helps them develop the experience by providing notifications of what they need to prepare for.

Like any tool, some people use them better than others. However, there is a robust set a literature, webinars, and papers to help you, if you need or want additional information!

For more information:

Visit the NEWA online Knowledge Base to quickly get started with NEWA 3.0

<https://newa.zendesk.com/hc/en-us/categories/4417359987223>

Apple management resources

<https://newa.zendesk.com/hc/en-us/categories/4416890573719>

Grape management resources

<https://newa.zendesk.com/hc/en-us/categories/4416914053911>

Vegetable management resources

<https://newa.zendesk.com/hc/en-us/categories/4416921096727>

Field crop management resources

<https://newa.zendesk.com/hc/en-us/categories/44>

Additional user support

Contact the NEWA Help Desk if you have any problems, have questions or (especially) if you find a bug or glitch. Do this by sending an email to support@newa.zendesk.com with details, screenshots, and other information that might be helpful for a quick resolution.

For additional information:

<https://newa.cornell.edu/crop-and-pest-management/>

<https://nyshs.org/wp-content/uploads/2017/05/Carroll-Pages-19-24-from-NYFQ-spring-book-2017-4.pdf>

Don't forget to prep your fruit insect monitoring tools for 2022!

(Elizabeth Yim Long, long132@purdue.edu)



Figure 1. Example of a “wing trap” to monitor tree fruit moths. Photo: E. Y. Long

Just a reminder to all fruit producers to organize and prep your fruit insect monitoring tools for the upcoming season! Depending on your fruit crop and location in the state, there's a suite of fruit insects that are important for you to track, including moths, aphids, scales, stink bugs, fruit and vinegar flies, and beetles. **Insect monitoring tools are so important because**

1) they serve as an early detection tool, giving you an idea of when insects first appear relative to the vulnerable period for your fruit crop, and 2) they eliminate the need for you to “chase” insects: instead the lures, which mimic the attractive odor of fruit, female insects, or even both, *do the work for you* by drawing insects directly to a trap where they are captured, killed, and remain for you to see and track over the season. Anyone who checks the trap will see if target insects are present, and once you see them, you'll be able to make an informed decision about the timing of action to protect your crop.

A few examples of common, important insects you'll want to monitor this season include:

Codling moth – monitoring efforts are focused on detecting adult moths that are attracted to lures placed inside a “wing trap” with a sticky card on the bottom (Figure 1); however, it's the caterpillar that is the damaging life stage. This pest prefers apples but may also attack other tree fruits.

Brown marmorated stink bug (BMSB) – monitoring efforts are focused on detecting adult stink bugs that are attracted to lures that are hung on a sticky trap (Figure 2); however, both adults and nymphs feed on fruit and can cause damage. This pest attacks a *wide* range of both fruit and vegetable crops, and will attack apples, peaches, and grapes to name a few.

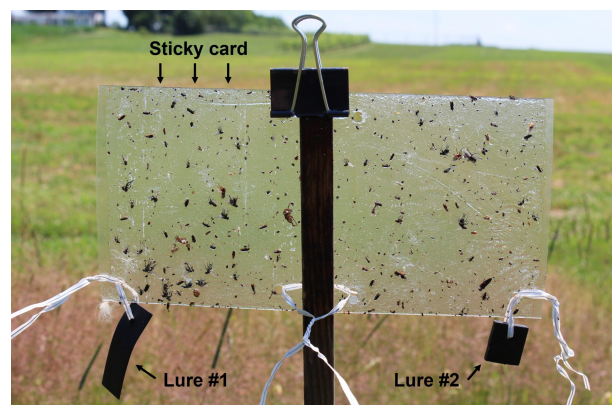


Figure 2. Example of a dual-lure sticky panel monitoring trap for brown marmorated stink bug. Photo: E. Y. Long

Spotted-wing Drosophila (SWD) – monitoring efforts are focused on detecting adult flies that are attracted to a salt-and-vinegar scented pouch that is placed inside a peanut butter-like container with red coloring and soapy liquid at the bottom (Figure 3). Adult flies enter the container and then fall into the liquid and drown. This pest attacks small fruits, including raspberries, blackberries, blueberries, and grapes.



Figure 3. Example of a Spotted-wing Drosophila monitoring trap. Photo: E. Y. Long

To further enhance your awareness of insect pest activity and their progress through the life cycle, you can track degree days to predict how quickly insects are developing, based on daily high and low temperatures. Because insect development is temperature dependent, progress from one life stage to the next (for example, the egg stage to the caterpillar stage) may speed up or slow down depending on daily temperatures.

Last, but not least, remember that preparing your monitor tools and placing them appropriately in your orchard is just the first step! It is critically important that you check your monitoring traps regularly, as often

as three times a week, depending on the insect pest you're monitoring and the vulnerability of your fruit crop during the season. Taken together, the ultimate goal of using insect monitoring traps and degree days is to keep track of the start, peak, and end of insect activity (be it adult flight or egg hatch), so that you can properly time insecticide applications to target the damaging life stage of the insect pest. For more information about important insects in fruit tree crops in particular, visit:

<https://extension.entm.purdue.edu/publications/E-274/E-274.html>

The Long Lab team will be monitoring fruit insect activity in a few places in Indiana, depending on the fruit crop, and we'll be sharing timely updates on insect activity in traps at this website: <https://extension.entm.purdue.edu/longlab/extension/#reports>. **New this year:** We are also looking for collaborators to monitor brown marmorated stink bugs in tree fruit orchards, so if you're interested, please reach out to me – we will provide monitoring supplies and training in return for your partnership reporting traps counts.

If you have questions about how to find, purchase, or use monitoring tools for insect pests in your fruit crops, please reach out! Here's to a happy fruiting season!

Double Pruning Grapevines for Spring Frost Protection

(Miranda Purcell, mrpurcel@purdue.edu)

Late Spring freezes are becoming more and more common, and it is important to take action to prevent damage to your buds.

A practice called **double pruning** can help avoid spring frost injury. Double pruning involves pruning the canes to 2-3x the desired amount of

buds during the winter, which delays budbreak (and the risk of frost damage) by several days for the buds near the base of the cane. Then, after assessing cold injury and adjusting bud number accordingly, go through and prune to the desired number of buds shortly after bud break. It is important to remember that the act of pruning encourages bud development. Therefore, prune your most cold tender varieties later in the Spring than your cold hardy varieties.

For details on assessing bud damage, see the following videos:

Part I-

https://www.youtube.com/watch?v=_RHJ5mY3fAs

Part II-

<https://www.youtube.com/watch?v=eWtr0jzI2Dk>

If you do experience bud damage, take the following action to achieve desired yields:

0-15% dead primary buds- Prune normally

15-35% dead primary buds- Increase the number of buds retained by 35%

25-50% dead primary buds- Increase the number of buds retained by 50%

>50% bud damage- Minimally prune

For more information:

[Frost Injury, Frost Avoidance, and Frost Protection in the Vineyard](#)

[Grapevine Frost/Freeze Damage I: Background and Prevention](#)

Virtual Strawberry Chat April 6th from 12-1:00 PM featuring Dr. Bruce Bordelon

(Miranda Purcell, mrpurcel@purdue.edu)

The next strawberry Chat will be on April 6, 12:00-1:00 pm EST. Dr. Bruce Bordelon will be our guest for the April 6 strawberry chat. We will discuss spring activities for the traditional way of growing strawberries, the matted-row system. Dr. Bruce Bordelon will share practical advice on growing strawberries in the matted-row system. You won't want to miss it if you grow strawberries using the system. Even if you are not growing strawberries this way, or not growing strawberries at all, it will be a great opportunity to learn more about strawberry production in our region.

Register here:

<https://purdue-edu.zoom.us/meeting/register/tJlofu-hpzwtHdMo29A06PVZ6GMafuANxWpc>

After registering you will receive an email with the meeting invitation. If you have any questions related to strawberry production, please email them to Wenjing Guan (guan40@purdue.edu) or Miranda Purcell (mrpurcel@purdue.edu). Your questions will help us determine discussion topics.

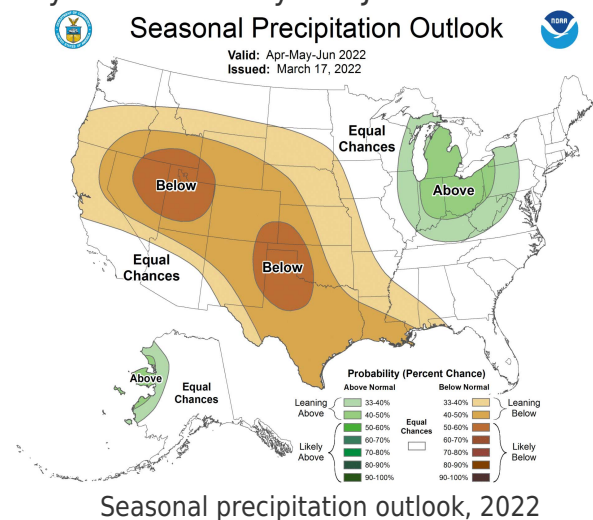


Wet conditions expected to continue across Indiana

(Beth Hall, hall556@purdue.edu)

Across much of Indiana, March has provided above-normal precipitation (combined rain and melted snow) except for along the Ohio River where precipitation totals were only 25%-50% of what normally fell during March from 1991-2020. Storm systems continued to bring precipitation to the state through the very end of March, likely improving conditions slightly in this area. With respect to snowfall, March was not nearly as snowy as was anticipated given the La Niña phase that is ongoing. This means that the excess rainfall that has occurred throughout much of the state has led to flooding issue due to seasonably frozen soils. The average March temperature was warmer than normal across the state by a few degrees which encouraged shallow soil temperatures to increase to above-freezing levels for brief periods of time. However, those above-freezing soil temperature have not remained consistent for too long before the next cold system would pass over the state.

Climate outlooks are favoring above-normal temperatures to continue over the next few months with above-normal precipitation (Figure 1). It is still too soon to know how this may impact planting season. Climate models are suggesting above-normal precipitation outlooks will transition to near-normal outlooks by the May-June-July 3-month period. This provides some hope that the La Niña global weather patterns will likely start to break down in the April-May period allowing for more normal precipitation patterns to move into the Indiana area by the end of May and June.



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