

Ag Notes

Harford County Newsletter

UNIVERSITY OF
MARYLAND
EXTENSION

 August 2019

University of
Maryland Extension

Harford County
Agricultural Center

Suite 600
3525 Conowingo Rd.
Street, MD 21154
(410) 638-3255

M—F 8:00 a.m.—4:30 p.m.

Extension.umd.edu/harford-county

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Hello, Harford County!

I hope everyone had a great time at the Harford County Farm Fair! Congratulations to all the 4-H and FFA'ers who exhibited; it is always great to see the hard work they put into their projects! Good luck to all who will be exhibiting at State Fair later this month.

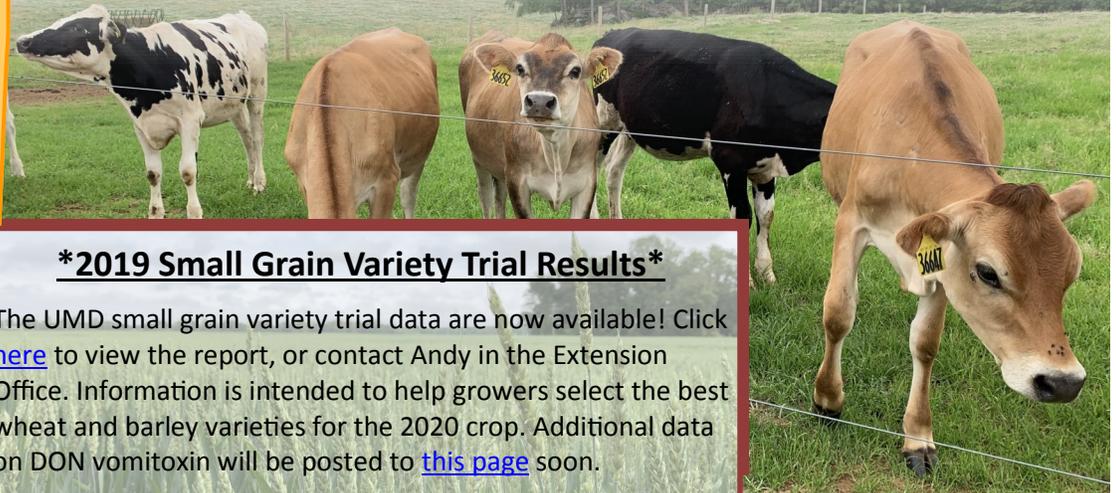
Now that we are well into the 2019 growing season and into the month of August, a familiar foe to sweet corn production begins to make its presence; the corn earworm. For those of you growing sweet corn, I'd like to remind you/bring to your attention our corn earworm monitoring program.

If you're spraying non-GMO corn to manage corn earworm, then check out our new website for monitoring populations at www.mdmothmap.com. There you'll find up-to-date catch counts for pheromone traps located across Maryland; two locations are monitored in Harford County. Just click on a pin to display the most recent 5-day catch total. These 5-day totals are used to calculate your recommended spray interval, which you can see by clicking "[Spray Rate](#)" in the top right corner of the page. This website also works on mobile devices.

If moth populations are high enough to warrant an insecticide application, be sure

to use products that have efficacy and be sure to rotate modes of action in order to reduce the development of resistance. Some corn earworm populations have developed resistance to pyrethroids (Group 3A insecticides). Consult Extension for additional information regarding management, or refer to the [Mid-Atlantic Commercial Vegetable Production Recommendations](#) for a list of effective insecticides. Always be sure to read and follow all pesticide labels before application. It should also be noted that GMO hybrids with the *Vip3A* trait provide nearly 100% control of corn earworm (thus negating the need for insecticides to manage earworm), which you may want to consider for future crops.

Until next time,
-Andy



2019 Small Grain Variety Trial Results

The UMD small grain variety trial data are now available! Click [here](#) to view the report, or contact Andy in the Extension Office. Information is intended to help growers select the best wheat and barley varieties for the 2020 crop. Additional data on DON vomitoxin will be posted to [this page](#) soon.

*Sarah Everhart, Legal Specialist, Agriculture Law Education Initiative
University of Maryland*

In the past 12 months, inspectors from the U.S. Dept. of Labor, Wage and Hour Division have been conducting inspections on farms and nurseries in Maryland. These inspections have focused on employers with H-2A workers and have required employers to produce years of required records. Following the inspections, severe fines and penalties have been issued to employers. After hearing about these inspections, ALEI partnered with the Maryland Department of Labor and Licensing Regulation and created some resources to help better prepare farm employers for these inspections. The first is a [self-audit worksheet](#) to help employers do an internal review of operations and recordkeeping related to both H-2A and non-H2A employees. The second is a

[recorded webinar](#) on this subject that is available for download.

Remember: If you have migrant or seasonal workers (non H-2A) you are subject to the federal Migrant and Seasonal Worker Protection Act (MSPA). For more information on this law and what is required check out this [publication](#) and for more information, please contact the Agriculture Law Education Initiative (410-706-7377).

It is **very likely** these inspections will continue to occur throughout Maryland in the near future. If you have H-2A, migrant and/or seasonal laborers at your operation please take advantage of the resources above and make sure your operation is in legal compliance prior to an inspection.

Tax Credit Pilot Program Expands in Maryland

Amy Cawley, Farm to Food Bank Coordinator, Maryland Food Bank

Great news for Maryland farms, as HB 403 passed through the Maryland legislature in April. Starting July 1, farmers can receive tax credits for produce donations. Conventional produce donations will be valued at 50% of the market value, while certified organic donations are eligible for credits worth 75% of the market value. There is a \$5,000 cap per farm and \$100,000 statewide cap on this program. As Farm to Food Bank coordinator for the Maryland Food Bank, I encourage farmers to take advantage of this program for several reasons:

- There are 650,000+ food insecure residents across Maryland. Those struggling to make ends meet likely can't afford to put food on their plate, especially nutrient dense food like fresh fruits and vegetables. As a result, they often make difficult tradeoffs between the quality and quantity of the food they purchase.
- Fresh produce provides vital nutrients that are necessary to sustain a healthy and active life. Individuals who regularly consume fresh produce are less likely to be hospitalized due to improved immune systems, are at decreased risk of chronic diseases, and are less likely to miss work and school due to improved general health.
- We hope this program will further encourage farmers to donate excess produce to MFB and allow us to coordinate volunteer gleanings of their fields so that we can distribute more fresh produce

and educate Marylanders on the importance of good nutrition.

- The program needs to be used in order to keep it viable. If the legislators do not see farmers utilizing the money set aside, the fear is that it will go away and never return.
- Lastly, having worked with farmers for nine years and being a farmers' daughter, I am hoping that this credit benefits our Farm to Food Bank partners.

These donations must be made to Maryland Department of Agriculture (MDA) tax credit certification administrators (TCCA). As the largest charitable food provider in Maryland, the Maryland Food Bank (MFB) is one those organizations. At the time of the donation, the MFB will provide a MFB donation form to the farmer. The farmer will then use that record to complete a separate form that can be found on the MDA website. The MDA will then determine the value of the donation based on USDA market values at the time of the donation. That form will then be sent back to the farmer for use when filing taxes.

If you have any questions about this program you can contact Amy Cawley, Farm to Food Bank Coordinator for the Maryland Food Bank, at acawley@mdfoodbank.org. You may also reach out to Stone Slade of the Maryland Department of Agriculture at stone.slade@maryland.gov.

Factors Needed for High Quality Tomatoes

Jerry Brust, IPM Vegetable Specialist
University of Maryland, College Park



Figure 1 & 2. Comparison of tomato with (right) and without (left) internal whitening.

Tissue tests taken in tomato fields over the last 6 weeks show that fields with good levels of potassium (K) (>3.2%) have overall lower levels of fruit ripening problems than fields with below recommended levels of K (< 2.5%). Figure 1 shows an example of a tomato with good levels of K, while Figures 2 and 3 show what often happens when K levels are too low. Tomatoes like the one in Figure 2 can still occur in fields with high K levels because about 60% of the fruit ripening problems can be explained by the lower levels of potassium in the plants, but that still leaves about 40% that potassium levels do not explain. What are some of these other



Figure 3. Very high level of internal whitening.

factors? One of them is the cultivar grown; some cultivars are just more prone to fruit ripening problems than others and the best way to find the ones that work in your growing system is to trial several cultivars over the years.

Another factor is the weather. Intense heat and high humidity along with

very intense sunny days or heavy downpours will take a toll on plants and can reduce the quality of the fruit. The first few clusters of fruit that are produced on a vine usually look the best as these clusters are found deep inside the plant and shielded from rain and intense sun. As the later clusters mature they are often exposed (Fig. 4) and can end up with sunscald, rain check (Fig. 5) or other fruit ripening problems. Good canopy coverage will help with protecting these later clusters of fruit. One other thing that will help with these exposed fruit is using a

30% shade over the top 1/3—1/2 of the plants. I know most growers will not use this but it has been shown to increase the marketable yield of tomatoes by 20-50% depending upon the year and the shade cloth can be used for many years. Other factors impacting fruit quality include diseases and other nutrient deficiencies such as phosphorus, nitrogen and boron. So, while there are many factors that go into producing a lovely red tomato, potassium levels, cultivar selection and weather play the biggest roles and their impact can be mitigated to produce the best fruit with the best investment.



Figure 4 (left). Fruit clusters exposed to the weather.

Figure 5 (right). Rain check on tomato fruit



Horticultural Twilight Meeting & Tour

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Join us at the Western Maryland Research and Education Center in Keedysville, MD (18330 Keedysville Road, Keedysville, MD 21756) for the 2019 Horticulture Twilight Tour. Refreshments will be served at 5:00 and the tour will start at 5:30 p.m. Topics this year include: tree fruit disease updates; bee monitoring & bee research; pumpkin disease and insect update; spotted wing drosophila & disease management in brambles; weed management update; Maryland apple tree project; trellis apples and hops show-and-tell. Questions about the program may be directed to Bryan Butler, bbutlers@umd.edu or (410) 386-2760.

August 15

5—8:00 PM

*Western MD Research
& Education Center*

This program is free, but please RSVP by **August 9** by going to wmrectwilight.eventbrite.com, or call Susan Barnes, (301) 432-2767. If you need special accommodations to participate, please let us know by August 9.

FSMA Produce Safety PCQI Training

A training workshop in Food Safety Modernization Act (FSMA) preventive control for human foods rule (PCQI) will be held at the Baltimore County Extension Office, September 3-5.

- Completion certificates required to develop food safety plans
- Guidance regarding food safety risks and how to mitigate them

September 3-5

*Baltimore County
Extension Office*

Who should attend? Food processors who:

- Need to comply with FSMA preventive controls for human foods (HARPC) rule
- Entrepreneurs in processed food business
- Want to remain up-to-date with the FSMA regulations and how to comply with them

How much does it cost? \$275

Where will it be held? September 3-5, 2019 at Baltimore County Extension Office, Cockeysville, MD

What will you get from attending this workshop?

- In-depth understanding of the requirements of preventive control rules
- Hands-on experience in writing food safety plans that are required under the FSMA rules

How do I register?

- Online via: <https://forms.gle/BrNS37XzD2FVSkpT7>

Want to know more?

- E-mail Dr. Rohan Tikekar rtikekar@umd.edu, or call (301) 405-4509

Fall Pasture Field Day

August 14

6—8:30 PM

*Western MD Research
& Education Center*

You are invited to attend an upcoming pasture field day on Wednesday, August 14, 2019 from 6-8:30 p.m. at the Western Maryland Research and Education Center in Keedysville.

This field day will focus on fall pasture planning and maintenance and is part of a larger [MD/VA/WV Tri-State Pasture Education Series](#). See the [attached flyer](#) and agenda for more details. Registration is **free** and can be completed at <https://mdpasturefieldday.eventbrite.com>. Please register by **Monday, August 12**. Questions or need special assistance? Please contact Amanda Grev at agrev@umd.edu or (301) 432-2767 x339.



Water: The Forgotten Nutrient

Sarah Potts, Dairy & Beef Specialist
University of Maryland Extension

As summer heats up, water becomes more important for cattle. An animal's body is comprised of 70% water and adequate water consumption is required to maximize performance. It's no secret that withholding or restricting water can decrease feed intake and reduce gains. Yet many producers often forget to assess whether or not their animals have optimal access to high quality water. An animal's water requirement is met through consumption of feed and drinking. Many feeds, such as silage and grasses, contain a large proportions of water that help cattle meet their water requirement. Additional requirements are met through drinking.

Water Requirements and Intake

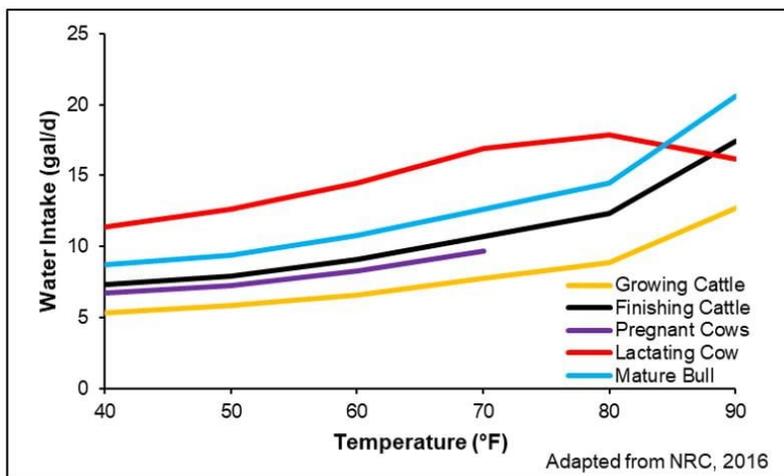


Figure 1. Water intake of various types of cattle across increasing ambient temperature.

Water requirements vary depending on the physiological state of the cattle. Reproductive status, lactation status, rate and composition of gain, and amount of physical activity will affect how much water cattle need to consume. Lactating cows will consume more water, on average, than growing, finishing, or pregnant cattle (Figure 1).

Temperature will also affect water requirements, with higher temperatures increasing voluntary water intake for all cattle regardless of physiological state (Figure 1). For lactating cows, water intake will increase by over 23% when the ambient temperature rises from 60 to 80°F. Across a similar temperature shift, growing cattle will increase their water intake by 35%.

Management factors, such as diet composition and physical access and palatability of drinking water, also affect how much water cattle drink. Because of their higher moisture content, diets that contain a high

proportion of silage or pasture can reduce the amount of water consumed through drinking. Diets that contain high levels of protein, salts, or other diuretics will increase water intake through drinking.

Water Quality

Not only is it important for cattle to have access to sufficient quantities of water, the quality of that water is also important. Water quality is assessed by examining factors such as palatability, chemical properties (e.g., pH, dissolved solids, hardness, soluble salts, etc.), presence of toxic compounds, mineral content, and presence of harmful bacteria (e.g., coliforms).

The level of total soluble salts can provide some indication of water quality. Of the soluble salts, sodium chloride (NaCl) is often a major driver of the total soluble salts content in water. Other major contributors to the total soluble salts content include: bicarbonate, sulfate, calcium, magnesium, and silica. High concentrations of soluble salts can decrease water intake and ultimately reduce production. Total soluble salt concentrations less than 1,000 mg/L are ideal. Levels above 3,000 mg/L may start to impact production and water with total soluble salt concentrations over 5,000 mg/L should not be used as a primary drinking source for pregnant or lactating cows.

Table 1. Upper limits of select compounds for cattle.

Compound	Upper Limit (mg/L)
Aluminum	0.50
Arsenic	0.05
Cadmium	0.005
Chromium	0.1
Cobalt	1.0
Copper	1.0
Fluorine	2.0
Lead	0.015
Mercury	0.01
Selenium	0.05
Zinc	5.0

The concentration of certain minerals can also be used to assess water quality, with nitrate and sulfate

concentrations being of most interest. Nitrate concentrations below 44 mg/L are considered safe for all types of cattle to consume. Over short periods of time, cattle can tolerate nitrate levels up to 221 mg/L with modest effects on production and health; however, concentrations above 221 mg/L can result in significantly reduced production and serious health problems. Cattle can generally tolerate sulfate concentrations up to 2,500 mg/L for a short duration (up to 90 days), although concentrations less 500 mg/L

and 1,000 mg/L are considered ideal for calves and adult cattle, respectively.

Concentrations of other compounds are also used to assess water quality. Table 1 shows the recommended upper limits of several compounds.

Reference: National Academies of Science, Engineering, and Medicine. 2016. *Nutrient Requirements of Beef Cattle, Eight Revised Edition*. Washington, DC: The National Academies Press. doi: 10.17226/19014

Fungicides On Soybean: To Spray Or Not To Spray?

Andrew Kness, Agriculture Agent
University of Maryland Extension, Harford County

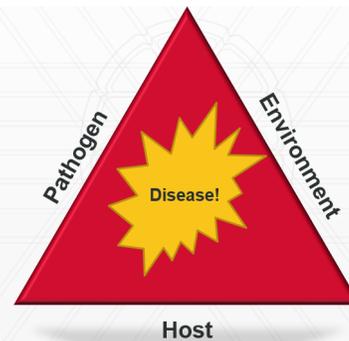
With the full season soybeans in the reproductive stages, growers may be considering a foliar fungicide application; however, with the current prices of soybean, is it worth the expense? That is a million dollar question and it is very difficult to answer. This article will outline a few points to consider as you try to decide if a fungicide application is worth the investment.

First and foremost, the purpose of a foliar fungicide application is to manage foliar diseases. This is what they are designed to do, and with the exception of where pathogens have developed resistance, they are very good at accomplishing this task. However, in order for a fungicide to achieve disease control and a yield boost, disease must be present and yield-limiting. The predominant foliar diseases of soybean in Maryland include Septoria brown spot, Cercospora leaf blight, frogeye leaf spot, and to a lesser extent, target spot and downy mildew. These diseases are all generally favored by moist, warm weather and typically do not appear in our region to any significant extent until our soybeans reach flowering. Historically, these foliar diseases are not typically present at high enough levels to cause a reduction on yield—but sometimes they do. It should be noted that the diseases that typically cause the major yield reductions in soybeans are stem and root diseases that infect soybeans very early in the growing season and cannot be managed with an in-season fungicide application. These diseases require a different management approach.

If you look at the body of research on foliar fungicide effect on soybean yield, you'll find the results to be quite variable from year-to-year. One year you may see a positive and *significant* yield response to a fungicide application, then nothing the following year, or even at a different location within the same year. Current research on soybean indicates a positive

and *statistically significant* yield response from a fungicide application about 30-50% of the time.

Generally, a significant yield response is achieved when foliar disease pressure is high; which goes back to the purpose of a fungicide, which is to manage disease. A statistically significant yield response is more likely when disease pressure is high. The trick is trying to figure out when conditions will favor situations of higher disease pressure. If we can do that, then we can



Plant disease triangle.

do a better job of determining when and where foliar fungicides are needed. To do this, take into account the foundation principal of plant pathology; the disease triangle. Like any triangle, the disease triangle has three legs, which are a visual representation of the three criteria that must be present, at the same time, in order for a disease to occur. They are: 1) a susceptible host, 2) a virulent pathogen, and 3) a conducive environment for the pathogen. If all three are present at the same time, disease will occur and this is where fungicides are a valuable tool in our toolbox. Assessing your risk in each one of these three categories can help you determine if a fungicide application is necessary. Here are some considerations for each.

Susceptible Host. Know your varieties and check the disease resistance ratings. Host resistance will significantly decrease, and in some cases, completely eliminate your risk for developing that particular disease. If you are growing susceptible varieties then you will have an increased likelihood of developing disease.

7 Virulent Pathogen. In the case of the major foliar diseases of soybean in Maryland, a virulent pathogen is always present. These pathogens persist on residue, waiting for a susceptible host and conducive environment to cause infection. Soybeans planted after soybeans will have a greater risk for developing disease.

Conducive Environment. This is the most difficult leg of the disease triangle to determine and the reason why fungicide applications can sometimes be “hit or miss.” Each pathogen requires slightly different conditions for which it can grow; but in general, research indicates that temperatures within the range of 75-86°F; coupled with accumulated rainfall greater than 0.5 inches in 5 days or 1.0 inch in 10 days; or 3 days with 10+ hours of relative humidity at or above 95%, favor the development of the major foliar diseases of soybean. If these temperature and moisture parameters are met, the risk of developing foliar diseases increases.

However, predicting these conditions is very difficult and the micro-climate within the soybean field itself can vary greatly from conditions outside the field (i.e. where a weather station may be located). Factors that can influence the micro-climate within a field that favor higher humidity and thus greater disease potential include: narrow row spacing, higher plant populations, taller/larger plants, hedgerows, wood lines and topography that restrict airflow, fields that are prone to frequent and prolonged periods of dew or fog (for example, fields near streams/rivers).

As a general rule, warm temperatures coupled with moisture around the time of flowering through pod development will favor disease development that could significantly reduce soybean yield.

Fungicide timing is also important. When we do see a yield response, it is typically from a fungicide

application made between R1-R3.

An additional consideration is economics. If the application costs you \$15 per acre, then you will need at least 1.76 bushel increase to pay for that application if your sale price is \$8.50 per bushel. This is certainly attainable if disease pressure is high, but if it turns hot and dry, you would be out \$15 per acre.

Also remember fungicide resistance when considering a fungicide application. From a resistance-management standpoint, it is better to save fungicides for when you need them. Spraying fungicides when not needed exposes pathogens to the active ingredients and pushes fungal populations towards resistance, *even if disease pressure is low*. Also, cutting fungicide rates accelerates resistance. Remember to rotate modes of action to slow the pace of fungicide resistance. For example, there are several populations of the frogeye leaf spot pathogen that are already resistant to strobilurin fungicides (Group 11, such as Quadris®, Aproach®, Headline®, etc.).

Determining if a foliar fungicide application will provide a yield bump is tricky, but taking into consideration the above points as it relates to the disease triangle can help. For more information on fungicide selection, consult this [publication](#).

Agonomy

The Mill Join us for **Crop Showcase**
August 27, 2019 at Clear Meadow Farm
3116 Troyer Road, White Hall, MD 21161

**Wagon Tours
Over 35 Vendors**

Stop 1: Maximizing Nitrogen Efficiency
Stop 2: Sulfur's Impact on Soybeans
Stop 3: Forages for Pasture or Grass Hay

Lunch will be provided by Big Bob's BBQ.
please RSVP to 800-993-3300 or at www.themillicrops.com by 8/19.



Job Opening: Harford Land Trust



The Harford Land Trust seeks a **Communications & Development Manager** to lead and execute our communications, public outreach, and fundraising programs. Please apply if you have at least three years of relevant work experience, interest in taking ownership of a role in a self-starting environment, and a passion for land preservation in Harford County. Full position description is available [here](#), or contact Kristen Kirkwood, (410) 836-2103 or kkirkwood@harfordlandtrust.org.

Great resources are just a click away!

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General Interest

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Ag Notes

Harford County Newsletter

Dates to remember

- 2 Aug.** [Ag Night at Ripken Stadium](#). 6pm. Ripken Stadium, Aberdeen. \$15. Tickets available [online](#).
- 9 Aug.** Dairy Field Day. 10-2:15pm. Central MD Research & Education Center, Ellicott City. \$10. Register [online](#) or call (301) 405-1392.
- 12 Aug.** [Grow It Eat It Preserve It: Peach Salsa Workshop](#). 11-1:30pm. Harford County Extension Office, Street. Register [online](#) or call (410) 887-8090.
- 14 Aug.** [Fall Pasture Field Day](#). 6-8:30pm. Western MD Research & Education Center, Keedysville. Free. Register at agrev@umd.edu or call (301) 432-2767.
- 14 Aug.** Women in Ag Webinar: [Farm Liability Insurance & Farm Business Structures](#). 12pm. Free. Register [online](#).
- 15 Aug.** [Horticulture Twilight Tour](#). 5-8pm. Western MD Research & Education Center, Keedysville. Free. Register [online](#) or call (301) 432-2767.
- 17 Aug.** Harford County Farm Bureau Picnic. 6pm. Clear Meadow Farm, White Hall.
- 22 Aug.** [4R Field Day](#). 9:30-2:30 pm. Willard Agri-Service, Greenwood, DE. Free. Register [online](#).
- 22 Aug-2 Sept.** [Maryland State Fair](#).
- 27 Aug.** [The Mill Crop Showcase](#). 8am. Clear Meadow Farm, White Hall. Free. Register [online](#) or call (800) 993-3300 by **August 19**.
- 28 Aug.** Women in Ag Webinar: [Boost Your Email Newsletter Open Rates](#). 12pm. Free. Register [online](#).
- 8 Sept.** Harford Soil Conservation District 75th Anniversary Celebration. 2-6pm. Swan Harbor Farm, Havre de Grace. \$25 adult, \$12.50 kids, free under 5 years old. Register by **August 23** by calling (410) 638-4828 or e-mail leslie.zink@maryland.gov.
- 20 Sept.** [UMD Institute of Applied Ag Open House](#). 9:30-12pm. College Park. Free. Register [online](#) or call (301) 405-4686.

August 2019