

Farm News

Spring 2023

March

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Daffodils are blooming, wheat and barley have broken dormancy and greened up, and spring like temperatures abound. I was curious how warm this winter has been compared to the past. In order to compare this winter with others, I used a tool called average growing degree days (GDD).

Growing degree day calculations provide an estimate of the average number of hours of heat units that have accumulated above a given base temperature over time. Growing degree days use a formula based on the high, low and a base temperature. GDD is calculated daily and added over a specific time, in this case each day since January 1, 2023. The formula is the average daily temperature minus base temperature. Expressed another way, it is the (max. daily temperature + min. daily temperature) / 2 - base temperature. If the result is a negative number, assume 0 GDD for that day. The base temperature you use depends upon the pest or plant you are predicting. For most summer crops, a 50°F base is used. For cooler season pest or crops, a 40°F base temperature is used. For example, using a base temp of 50°F, if we experience a day with a high temperature of 70°F and low temperature of 45°F then the GDD for that day would be $(70 + 45) / 2 - 50 = 7.5$ GDD.

GDD's are very useful for predicting crop development or emergence of certain pest or diseases. For example, corn requires between 65-80 GDD's from planting to emergence, 1135 GDD's to tassel, 2200 GDD's to dent stage and around 2700 GDD's to plant maturity using a base temperature of 50°F. Onion, cabbage and corn maggot emergence occurs around 360 GDD using a base temperature of 40°F.

So, back to the original question-how warm has it been. In 2023, we have accumulated 394.1 growing degree days as of March 8th using a 41 degree base temperature. This is 43 days ahead of the 30 year average and 22 days ahead of 2022. So, it certainly has been warmer this winter, at least so far. If the pattern continues, we will have a very early spring. However, it is only March, and we could still be in for some cold temperatures. After all the historic frost-free date for St. Mary's County is April 11th when there is a 50 % probability of temps not falling below 32°F. We have to wait until April 25th to reach a 90% probability of temps not falling below 32F. Many will remember that we had a frost event in many parts of the county on May 11th 2020.

By the way, sweet corn and onion maggot adults emerged about 1 week ago-just when the GDD formula predicted. Another pest that is emerging earlier than normal and need to be watched is the cereal leaf beetle. Cereal leaf beetles overwinter as adults and emerge in early spring to begin laying eggs on small grains. These eggs hatch and larvae (small orange to yellow bodies covered with a black slime-just like a small slug) will feed on wheat leaves. Cereal leaf beetles are active in Virginia now and will soon emerge here in Southern Maryland. The threshold for spraying is 25 eggs or small larvae per 100 tillers.



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In this issue, you will find notice of several upcoming events before the busy spring planting season begins. For those who have not earned pesticide credits, the last in-person pesticide training will occur on March 23rd from 5-7 pm at the St. Mary's Ag Service Center. In collaboration with MDA, we are also hosting a Rabbit and Poultry Production, Slaughter and Processing Training on April 11th at the Barns at New Market in Charlotte Hall. If you wish to become certified to process poultry on-farm for sale at farmers markets or other venues, you should plan to attend. As you plan your weed control program, be sure to review the weed control update published by Penn State. If you have herbicide resistant weeds like Palmer amaranth, common ragweed, Italian ryegrass or marehail, feel free to give me a call to go over herbicide programs and trait platforms best suited to your situation. For produce growers, please see the summary report of the last 3 years of grafted watermelon trials for fusarium wilt management and an article on how to choose the right sweet corn variety for worm control. We also included several agricultural updates on the Barns at New Market, land preservation, crop budgets, spotted lanternfly quarantine expansion and additional upcoming meetings.

As we prepare for another growing season and the return of longer days filled with sunshine, I wish you a productive and fulfilling spring. -- Ben

Private Pesticide Recertification Meeting Notice

Thursday, March 23, 2023, 5-7 pm
St. Mary's Extension Office
26737 Radio Station Way
Leonardtown, MD 20650

We will be holding Pesticide Recertification training on Thursday, March 23rd at the St. Mary's County Extension office from 5:00-7:00 p.m. The training will also provide certification for the use of paraquat.

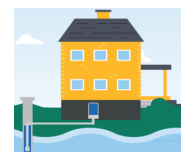
This is the last in-person training for pesticide recertification credits in St. Mary's.

Farm Well & Drinking Water Webinar

Private wells for drinking water are a valuable resource to a home and the water's quality is important for good health. Well owners are responsible to maintain the well and test the water quality to ensure the water is safe to drink. Learn how to ensure quality water for you and your family.

Learn About:

- Aquifers and wells
- Water quality and health risks
- Protecting your well and water
- Do you need treatment?



To Register: <https://tinyurl.com/mrx6m4bc>

UPCOMING EVENTS

Online Recertification Training

If you would like the opportunity to learn from home, yet still be engaged, then be sure to enroll in one of our online recertification trainings.

These ZOOM recertification trainings will be live via the internet directly from the University of Maryland. ZOOM is a student interactive system that will document your attendance. To participate in a live ZOOM session, a high speed cable or satellite internet connection is required.



Online Private Pesticide Applicator Recertification

April 4, 2023
6:00- 8:00 PM

The session will focus on pesticide use and related topics for all field crops, fruits and vegetables. Private Pesticide Applicator Recertification credit will be awarded for full 2-hour session participation. Registration by April 3rd is required in order to receive ZOOM login instructions.

Online Nutrient Applicator Voucher Recertification

April 11, 2022
6:00-8:00 PM

This session will focus on fertility and production related topics for all field crops, fruits and vegetables. Nutrient Applicator Voucher Recertification credit will be awarded for full 2-hour session participation. Registration by April 10th is required in order to receive ZOOM login instructions.

For more information or to register please visit <https://extension.umd.edu/locations/anne-arundel-county/agriculture-food-systems/upcoming-programs>.

Poultry Slaughter and Processing Workshop ***April 11, 2023***

Maryland Department of Agriculture, in collaboration with University of Maryland Extension will host a Rabbit and Poultry Production, Slaughter and Processing Workshop on April 11, 2023 at the Barns of New Market in Charlotte Hall. This training is required for farmers who wish to slaughter poultry and sell that poultry at locations off of the farm. To register, call the St. Mary's Extension office at 301-475-4484.

Federal law allows the slaughter/processing for intrastate sale of rabbits and 20,000 poultry of a producer's own production annually without continuous inspection by USDA/FSIS. The Maryland Department of Health and Mental Hygiene's regulations do not consider rabbits and poultry slaughtered under these exemptions to be an approved source so they can only be sold directly to consumers on the farm. Producers that participate in Maryland's new voluntary program and receive certification will be considered an approved source by DHMH and can sell anywhere intrastate (restaurants, retailers, farmer's markets). Both parts and whole poultry and rabbits certified by this program are allowed to be sold. Meat cannot be ground.

The program requires: one person from each facility to attend MDA training, follow basic requirements of the program and access by MDA to conduct inspections. Producers that are not following the requirements at time of inspection will be notified of the non compliances, given time to make corrections, and subject to a follow-up inspection by MDA. Product that is not in compliance may be retained and disposal required if adulterated or corrections cannot be made. Continued failure to meet the basic requirements or denial of access to MDA for inspection will be grounds for certification revocation. Participation in this program does not guarantee compliance with other federal, state or local requirements (ex. Zoning, Environmental)

New Agronomy Guide Available

The *Agronomy Guide*, which is the premier agronomy reference for Mid-Atlantic grain crop production, has been updated and is available for purchase online: extension.psu.edu/agronomy-guide. Use the code below for a 25% discount. I also have a few hard copies at the Extension office available for purchase. Contact Andy if you're interested.

Ag Law Landowner Series

The Department of Agricultural and Resource Economics (AREC) will host five webinars via zoom every Friday starting on Friday, March 31st, and ending on Friday, April 28th. The free webinars will cover those legal issues that Maryland landowners may face. A grant funds the program through the Northeast Risk Management Education Center. The webinars will feature Paul Goeringer, a Senior Faculty Specialist and Extension Specialist in agricultural law. He will address leasing, landowner liability issues, right-to-farm law, fencing laws, livestock liability, and estate planning. As well as additional feature speakers Tim Bishton with Crow Insurance Agency, Stephanie Brophy with Dulany Leahy Curtis & Brophy LLP, and Brooke Schumm with Levin Gann, P.A.

“These webinars will be a great opportunity for landowners and other professionals in rural areas to learn about some of the basic legal issues that many deal with daily. They can understand their rights and responsibilities whether they are involved in agriculture or own land in a rural area,” said Goeringer. Each webinar will begin at 12:00 p.m. and run to 1:30 p.m. The dates and topics are:

- March 31: Negligence, Livestock, and Guests on Farmland
- April 7: Fencing and Right to Farm
- April 14: Agricultural Leasing
- April 21: Understanding Insurance
- April 28: Working with an Ag Law Attorney

Participants will receive copies of Extension fact sheets and other valuable documents as a part of the workshop series. For more information, please get in touch with Paul Goeringer at lgoering@umd.edu.

Click here to register: <http://bit.ly/3I7CfRG>

This is material is based upon work supported by USDA/NIFA under Award Number 2021-70027-34693.

Farm Bureau Scholarship

Maryland Farm Bureau (MDFB) is giving back to its members and students of the community by offering five \$2,000 scholarships for the 2023-2024 academic year. Applicants must be high school seniors starting college in the fall of 2023 or full-time college students at any accredited community college or four-year institution. Applicants, or their parents/guardians, must be members of Maryland Farm Bureau.



Three of the scholarships will be awarded to students pursuing academic disciplines in food, agriculture and/or natural resources. The remaining two scholarships are open to students in any academic discipline.

Scholarship recipients will be selected by a designated committee of Maryland Farm Bureau. Students must apply online via the [official application website](#). The application includes the following essay question to be answered by each applicant:

How can Farm Bureau effectively support young farmers and ranchers to successfully prepare for an ever-changing economy and increasing infrastructure challenges? Provide two examples, including one local program or initiative you have been a part of or been made aware of.

Online applications must be submitted by **March 24 at 10:59 p.m.** For more information or to apply, visit the [official application website](#).

St. Mary's County Agricultural, Seafood and Forestry Advisory Board

Members Needed! We need representation from those involved in farming, forestry and aquaculture to support and advocate for the betterment of these industries in St. Mary's County. Step up and let your voice be heard.

The Agricultural, Seafood and Forestry Board meets the second Thursday of every other month at noon in the Conference Room of the Agriculture Service Center. If you are interested in applying, please contact the St. Mary's County Office of Economic Development- Agriculture Division at 240-309-4021. You may apply directly here: <https://stmarysmd.granicus.com/boards/forms/199/apply>

The purpose of the Agricultural, Seafood and Forestry Board is as follows:

1. To identify and implement activities aimed at preserving agriculture and seafood harvesting as prosperous components of the County's economy;
2. To promote the agriculture, aquaculture, seafood and forestry industries of the county;
3. To provide a permanently established forum for the discussion of public policy issues related to concerns of agriculture, aquaculture, seafood and forestry;
4. To advise the Commissioners of St. Mary's County on issues related to agriculture, aquaculture, seafood and forestry;
5. To make recommendations regarding effectively protecting land in the Rural Preservation District that is of great agriculture and/or environmental value;
6. To perform the duties enumerated in §2-504.1 of the Agriculture Article of the Annotated Code of Maryland.

To perform the duties enumerated in Chapter 254 of the Code of St. Mary's County, Maryland, as amended from time to time.

UMD Extension Internships

The University of Maryland Extension (UME) is seeking undergraduate student applicants interested in careers in agriculture.

Applications are open for the 2023 Creating Leadership and Professional Development Through Extension Internships Program. The deadline is 11:59 pm (EST) Friday, March 17th. If you have students interested in a career in Extension or agriculture industries and want to learn more about Extension, applied research, and community outreach, while gaining professional development, leadership skills, job experience, and pay, please encourage them to apply. This internship is a great experiential learning opportunity for students seeking a degree or professional certification in agriculture, natural sciences, biological sciences, environmental education, and related programs. We prioritize students enrolled in a two-year program and sophomores and juniors enrolled in a four-year degree program. This is a paid internship!

For more information, including the application, visit <https://go.umd.edu/extensioninternships>.
Program Contact: Shannon Dill, Extension Educator - AgFS, (410) 822-1244 | sdill@umd.edu

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This institution is an equal opportunity provider.



Grain Market Update—January USDA WASDE Summary Analysis

Dale Johnson, UMD Farm Management Specialist

Corn - This month's 2022/23 U.S. corn outlook is for lower exports and larger ending stocks. Exports are reduced 75 million bushels reflecting the poor pace of sales and shipments to date despite relatively competitive U.S. prices. With no other use changes, ending stocks are up 75 million bushels from last month. The season-average corn price received by producers is lowered 10 cents to \$6.60 per bushel based on reported prices to date. Ending stocks-to-use ratio increased from 9.1% in February to 9.7% in March.

Soybeans - U.S. soybean supply and use changes for 2022/23 include higher exports, lower crush, and reduced ending stocks compared with last month's report. Soybean exports are raised 25 million bushels to 2.02 billion based on higher-than-expected shipments through February. Soybean crush is reduced on a small reduction in domestic soybean meal disappearance combined with a higher extraction rate. With higher exports more than offsetting lower crush, ending stocks are reduced 15 million bushels to 210 million. If realized, ending stocks would be the lowest in seven years. With relatively strong domestic demand for soybean oil limiting export competitiveness, U.S. soybean oil exports are reduced 200 million pounds to a historically low 500 million. Higher domestic use and reduced production are offsetting, leaving soybean oil stocks unchanged this month. Ending stocks-to-use ratio decreased from 5.2% to 4.8%, the lowest since the 2012/13 marketing year.

Wheat - The 2022/23 U.S. wheat supply and demand outlook is unchanged from last month. The projected season-average farm price remains \$9.00 per bushel.

What's New for Agronomic Weed Control in 2023

By: Dwight Lingenfelter Extension Associate, Weed Science,
John Wallace, Ph.D. Assistant Professor, Department of Plant Science

Product/Label/Pipeline Updates And News Items

As in the recent past, there are no new herbicide products with unique modes of action that will be registered for use in our area anytimesoon. Otherwise, here are some newer product premixes, revised formulations of existing active ingredients, and tradenames to consider:

BASF is in the process of working on two new herbicide products. **BAS 851** will be a premix of saflufenacil (Sharpen) + a new PPO (group14) herbicide for PRE burndown and residual activity on broadleaf weeds in **soybean**. It is expected to be launched in 2025. In addition, they are developing a **new corn premix** of existing active ingredients for use PRE and early POST in **corn**. This product will provide residual control of annual grasses and large- and small-seeded broadleaves. It is expected to be registered by 2024.

Kyro 3.07CS (acetochlor [Warrant] + topramezone [Impact] + clopyralid [Stinger]; groups 15, 27, 4; Corteva) is an encapsulated formulation and provides foliar and some residual control of annual grasses & broadleaves when applied POST up to 24" tall **field corn**. Application rates range from 35-60 fl oz/A. It will likely be tank-mixed with glyphosate or atrazine to broaden the control spectrum. This product is registered but only limited quantities will be available for the 2023 growing season.

Maverick 2.04SC (pyroxasulfone [Zidua] + mesotione + clopyralid; groups 15, 27, 4; Valent) has a wide application window from pre to 18" tall corn and provides foliar and residual control of many annual grasses & broadleaves at 14-32 fl oz/A; can be tank-mixed with atrazine and other products. It is fully registered and will compete with products like Resicore XL, SureStart II, and Acuron.

ProClova (florpyrauxifen (aka Rinskor active) + 2,4-D; group 4; Corteva) will be labeled for use in **grass pastures** and **hayfields** to control or suppress many broadleaf weeds such as: ironweed, cocklebur, wild carrot, buttercup, biennial thistles, ragweeds, plantain, poison hemlock, dandelion, marehail, horsenettle, and others. It is safe on forage grasses AND does not kill white clover. The typical rate will likely be 24 fl oz/A. It has no grazing restrictions and does not have issues with herbicide residues in manure and hay like Milestone or GrazonNext products. ProClova registration might occur in 2023, if so, product launch will happen quickly.

Resicore XL 3.26CS (Corteva) is a reformulation of Resicore (acetochlor, mesotrione, and clopyralid) and the old formulation will be phased out. Resicore XL can be used in field corn (PRE or POST). The major change is the switch to encapsulated acetochlor for better crop safety and improved handling. This allows for a wider application window up to 24" tall corn (the original Resicore label was up to 11" corn). The typical rate is 2.5 qt/A on medium soils. This product can be tank-mixed to broaden weed control spectrum.

Reviton 2.83SC (tiafenacil (aka Tergeo); group 14; Helm) can be used in a burndown program before **field corn, soybean, or wheat**. Corn or wheat can be planted immediately after application; wait 7 days to plant soybean if using 2-3 fl oz (0 days at 1 fl oz). and at least 4 months to plant other crops. It has a low use rate (1 to 3 fl oz/A) and can be tank mixed with other herbicides esp. glyphosate. MSO or COC plus AMS must be added to the spray solution. Reviton is similar to Sharpen and is less active on marehail but has better activity on field pansy/violet, primrose, and some grasses compared to Sharpen.

Roundup PowerMAX3 (Bayer) is a newer, high load (4.8 lb ae), unique adjuvant, **glyphosate** formulation. Since it is a higher load product, the rate structure has been modified. PowerMax3 at 20 fl oz = 22 fl oz of PowerMAX (0.75 lb ae/A). The original PowerMax formulation is being phased out.

Tendovo 4.14ZC (s-metolachlor [Dual Mag.] + metribuzin + cloransulam [FirstRate]; groups 15, 5, 2; Syngenta) will primarily be used as a burndown product with some residual. It can be tank mixed with other herbicides. Its use rates will be 1.5 – 2.1 qt/A on medium soils and will provide residual control of many annual grasses and broadleaves. It is registered for use in our area.

TriVolt (isoxaflutole + thienencarbazone + safener [Corvus] + flufenacet [old Define]; groups 27, 2; 15; Bayer) can be applied from PRE to V2 corn growth stage and provides residual control of many annual grasses & broadleaves. The typical use rate is 20 fl oz/A. It is currently registered for use in field corn.

Atrazine EPA review

Atrazine again is being reviewed by the US EPA. One of the main issues is the aquatic ecosystem concentration equivalent level of concern (CE-LOC). Currently, the level is at 15 parts per billion (ppb), but it has been proposed to reduce it to 3.4 ppb. If this proposal passes, atrazine product labels would be changed so the maximum use rate would be reduced, and the herbicide would not be allowed to be sprayed under certain situations. In addition, a picklist of mitigation options may have to be used. If these label changes do indeed occur, it could have serious negative impacts on corn, sorghum, and sugarcane farmers and on many acres. However, these measures likely won't be implemented until the 2024 growing season if the changes occur. Stay tuned for further information.

Paraquat training information

Anyone handling and using products containing paraquat (i.e. Gramoxone and all other generic formulations) must now complete an **EPA-mandated training** before application. The training must be repeated every three years. The EPA-required video training is online (users must create an account with username and password). A non-web-based training format is also available. Refer to the EPA website for more information and frequently asked questions. In addition to the training, EPA requires that paraquat products be contained in a **closed system**. Over the upcoming years manufacturers will begin placing special lids on jugs and tanks that require a specific adaptor/receptacle on your sprayer tank. Stay tuned for more details about these lids/adaptors. (<http://usparaquattraining.com>) (<https://www.epa.gov/pesticide-worker-safety/paraquat-dichloride-training-certified-applicators>)

Newer soybean technologies

XtendFlex and Enlist E3 soybean technologies are being used often in our area and around the country. In general, while the XtendFlex soybean acres continue to have a strong base, more farmers are opting for Enlist E3 varieties for various reasons. In some parts of the Mid-Atlantic region, 70% or more of the acres will be planted to E3. Keep in mind that if you plan to use registered dicamba-based herbicides (e.g., Xtendimax, Engenia) in XtendFlex varieties, you must complete the annual dicamba training. If you plan to use Enlist One or Duo in the E3 system, currently no training is required.

Newer sorghum technologies

A few newer herbicide resistant sorghum technologies coming to the market, here is a brief overview of each. Keep in mind other herbicides will need to be included to broaden the weed control spectrum.

- **Double Team** from S&W Seed Company is a non-GM variety and is tolerant to **FirstAct** from Adama which contains quizalofop for post grass control; tankmix for other weeds.
- **igrowth** system from Alta Seeds and Advanta is also a non-GM variety but is tolerant to **ImiFlex** from UPL which contains imazamox and provides post control of annual grasses and certain broadleaves.
- **Inzen** sorghum from Pioneer has been available for a few years is also a non-GM variety and is tolerant to **Zest WDG** from Corteva which contains nicosulfuron for post control of annual grasses and certain broadleaves.

Some of these are starting to be marketed in our region so check with one of these dealers for availability.

Herbicide supplies and the 2023 growing season

Again, this year, there is a lot of speculation about potential herbicide shortages and price increases on some products for the 2023 growing season. Overall, it does not seem as grim as last year, but indications are that supplies of glyphosate (Roundup, others) and metribuzin should be adequate but likely not back to levels and costs prior to the pandemic. Products such as glufosinate (Liberty, others), metolachlor (plus other group 15 herbicides), atrazine, dicamba, and 2,4-D might be in shorter supply and with higher prices.



Therefore, it is beneficial to consider alternative options if your first choice of herbicide(s) is not available. Also, some products that are packaged in smaller sizes (e.g., 2.5-gallon jugs) might be limited but other sizes such as totes should be more readily available. Furthermore, with volatile supply chain issues involving many aspects of production these days, some are asking if it is wise to purchase bulk inventory of herbicides and/or other pesticides. The short answer is yes, if it makes sense economically, it could be a good idea to start making purchases on some of these inputs. Begin now by working with your dealer to discuss these issues. The intent is not to stockpile products but to have a modest supply for use during the upcoming growing season. However, you must keep in mind appropriate storage parameters, namely issues regarding freezing of pesticide products during the winter months. In general, pesticides are best stored between 40-90°F.

Considerations when buying generic herbicide alternatives

There are more companies producing generic or post-patent products. In many cases, these generics can be quality products and most costless than name brands. Many of these products can be purchased at agrochemical dealerships or online. It is best to find generic alternative by asking/searching for products by chemical name or active ingredient (e.g., glyphosate, metolachlor, dicamba, etc.). But you must READ the LABEL and be cautious of certain factors that may differ from the original product. The product formulation may not have equivalent amounts of active ingredients; therefore, rates may be different. Unlike the original, some generics may not be labeled for use on all the crops or for certain applications. The generic product's quality with respect to mixing, spraying, and other traits may be inferior to the original. Also, be aware of "fly-by-night" companies or offers that promise too much; this might be especially true for online purchases. Furthermore, most generic brands won't include field services or warranties if application fails. Therefore, **be cautious** and consider all factors when looking at generic herbicide alternatives, especially guarantees for re-sprays on product failures.

2022 Drought and Weed Management Issues

In some parts of the state/region, drought was an issue this past season. Dry weather can impact weed control in various ways. In some cases, if lack of rainfall in the spring didn't incorporate residual herbicide into the soil or some foliar products were sprayed onto larger weeds with thicker waxy leaf surfaces during dry weather, then poor weed control occurred. On the other hand, if early rains provided good incorporation of residual herbicides and the post applications were sprayed when weeds were small, then weed control tended to be very good since not many weed seeds germinated during the droughty period. In most situations and to protect crop yield, it is always best to use 2-pass programs that include both effective residual herbicides at planting followed by timely post herbicides later in the season.

Drought can also impact herbicide degradation especially if enough moisture is not available to adequately cause soil microbe activity and chemical reactions to occur in order to breakdown herbicides. Under severe drought conditions, some herbicide residues might linger causing issues with crop establishment this spring. In most cases, these negative effects will be noticed on headlands where herbicide applications may have overlapped or on fields where herbicides were applied later in the season. In general, herbicides of concern include, atrazine, mesotrione, chlorimuron, prosulfuron, fomesafen, imazethapyr, and a few others. It is always best to refer to the product label to determine adequate crop rotation intervals.

EVALUATION OF GRAFTED WATERMELON FOR FUSARIUM WILT MANAGEMENT

Ben Beale*-Extension Agent, St. Mary's County

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Haley Sater-Extension Agent, Wicomico County

*University of Maryland Extension-St. Mary's County; P.O. Box 663 Leonardtown MD 20650

Introduction: Fusarium Wilt, caused by the soil borne pathogen *Fusarium oxysporum* f. sp. niveum is becoming more problematic in seedless watermelon production in Southern Maryland. Unfortunately, there are few effective management options for this soil borne disease. New races of fusarium wilt are now present in the area that can overcome traditional cultivar resistance.

Effective fungicides are limited and do not provide season long control at labeled rates. In many cases, once a field is infested with fusarium wilt, watermelon production is no longer a viable option. A technique that has been effective in other areas is grafting of susceptible cultivars onto fusarium resistant rootstocks of interspecific hybrid squash or citron species. Watermelon grafting is more difficult than tomato grafting and is normally done by outside companies who specialize in the technique. During the 2020 and 2021 growing season, a field research and demonstration trial was conducted at several farms with a history of fusarium wilt to evaluate the efficacy of grafting for fusarium management. A second study was undertaken in the 2022 growing season to evaluate the optimum plant population for grafted watermelon.

Fusarium Wilt Management 2020-2021

Methods: Grafted plants of the seeded cultivar *Jubilee* were used as the pollinizer cultivar and grafted plants of the cultivar *Fascination* were used as the seedless cultivar. Tri-Hishtil (25 School House Rd, Mills River, NC 28759 (P) 828-620-5020), a commercial firm in North Carolina specializing in grafting donated the plants for the trial. Both Jubilee and Fascination scion were grafted together an interspecific squash rootstock or a "Carolina Strongback" Citron rootstock. Non-grafted Jubilee and Fascination plants were planted at four or five replications (locations) throughout the field and flagged for later comparison. Each farm used conventional management practices, including black plastic mulch, drip irrigation, and fertigation. Each site used different in-row and between row spacing. A total of seven sites with a history of fusarium wilt participated in the trial.

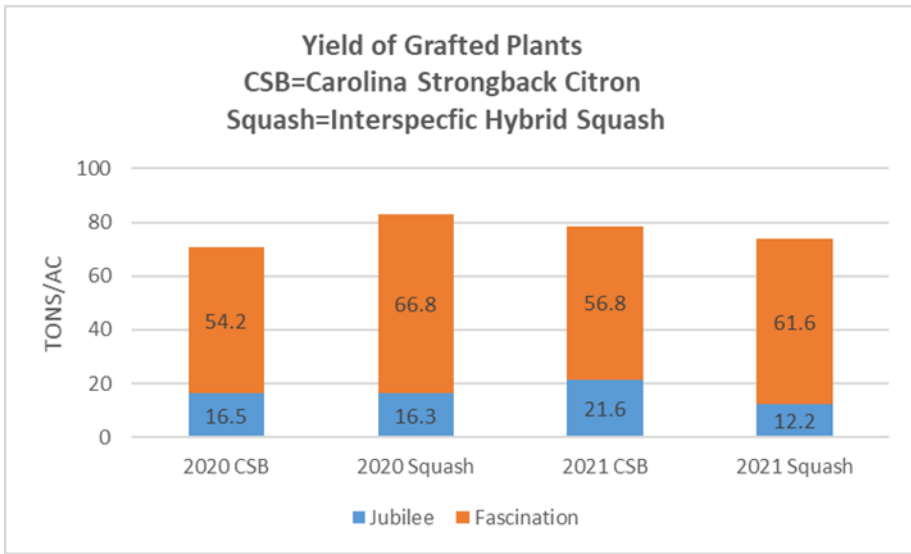
The 2020 season was not favorable for main season watermelon production. Heavy rains began in July and continued with the remnants of Hurricane Isaias bringing up to 12 inches of rain over the region in early August. Rains continued through the harvest period. Rain totals for the season were recorded at 80.26 inches, a record for the year and far beyond the normal of 45 inches. As a result of the extremely wet season, *Phytophthora* fruit and root rot was wide spread, particularly on two of the farms with heavier Beltsville silt loam soil. The third location was located on sandy loam soil and did not exhibit heavy *phytophthora* losses through most of the field. The 2021 season was favorable for main season watermelon production. *Phytophthora* fruit and root rot was present on one location toward the end of the season. Yield data presented focuses upon the farm with minimum *phytophthora* pressure.

Grafted and non-grafted plants were examined throughout the season. Data on root viability, root knot nematode presence and vine condition were recorded. At harvest, 3 plants of each cultivar/rootstock combination from each replication were evaluated for viable root count, vine condition, root knot nematode presence and other comments. Yield data from plants grafted to Citron and plants grafted to interspecific squash was collected on 2 dates. Fruit was picked and weighed individually. Yield was collected from three representative areas throughout the field. Misshapen or non-marketable immature small fruit were not tallied in total yield. Fruit quality data was also collected at this site from a representative subsample of fruit harvested during yield evaluation. These fruit were quartered and data including fruit weight, rind thickness, fruit length and width, pH, Brix and comments on taste and other fruit features such as hollow heart or pips was recorded.

Summary of Results: In both years, plants of either cultivar grafted to either interspecific squash or citron rootstock performed better than non-grafted plants in terms of viable roots present at harvest and vine condition. Fusarium Wilt was confirmed in non-grafted plants after vine run. Grafted plants did not exhibit any symptoms of Fusarium Wilt throughout the season at any location. However, grafted plants were susceptible to *phytophthora* root and fruit rot. Foliar disease including powdery mildew and gummy stem blight were also present on grafted and non-grafted plants. On average across all three sites, the Fascination plants grafted to either the citron or hybrid squash rootstocks exhibited 96.7% healthy viable roots at harvest compared to only 6.7% healthy viable roots for Fascination own-rooted plants. On average across all three sites, the Jubilee plants grafted to citron had 69.2 % healthy roots and plants on hybrid squash rootstocks exhibited 74.4% healthy viable roots compared to only 7.7% healthy viable roots for Jubilee own-rooted plants.

Root Knot Nematodes (RKN): Plants were evaluated at harvest for root galling with a value of 0 being no galling present and 100 being severe infestation with all root stems affected. Root knot nematode was only present on one farm with sandy loam soil. The plants from either rootstock on the farms without nematodes present did not show RKN symptoms. However, on the infected farm, the interspecific squash rootstock exhibited severe root galling, with an average rating of 100 for Fascination and 75 for Jubilee.

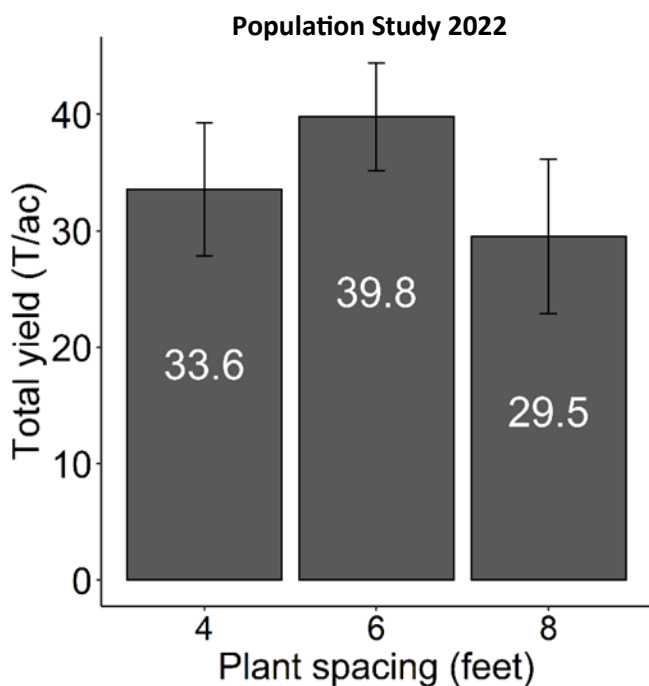
The Citron rootstock did not exhibit any root galling with an average rating of 0. In terms of yields, both rootstocks performed well. One explanation may be the high level of attention and management for this field with fertigation and irrigation conducted as needed on a daily basis. Even with severe galling, interspecific squash were able to take up needed water and nutrients to achieve high yields.



Yield- We are reporting yield data from one farm with consistent yield over both years and only small losses due to phytophthora fruit rot. In 2020, the average yield of the citron rootstock was 78.3 tons per acre whereas the average yield of the interspecific squash rootstock was 73.8 tons per acre. In 2021, the average yield of the citron rootstock was 70.1 tons per acre whereas the average yield of the interspecific squash rootstock was 83.1 tons per acre. Differences in yield between rootstocks were not statistically significant. Own rooted plants did not maintain viable

root systems and thus yield data was not collected either year. Losses were near 100% for own-rooted plants both years. The other consequence of poor root systems is the vines from grafted plants eventually “overran” the non-grated plants in the fields.

In summary, plants grafted to either rootstock yielded well and showed excellent resistance to Fusarium Wilt. The Carolina Strongback rootstock showed excellent resistance to root knot nematode, while the hybrids squash rootstock did not. Grafting is a considerable expense and provided no protection for phytophthora fruit rot or for any of the many foliar diseases such as gummy stem blight, anthracnose or powdery mildew.



During the 2022 season, a population study was conducted at two locations—one at a private farm in St. Mary’s County and the other at the UMD Lower Eastern Shore Research and Education Center (LESREC). Both sites had a history of watermelon fusarium wilt. Seedless Fascination watermelon plants grafted to Carolina Strongback (CSB) citron rootstock were planted at each location with plant spacing of 4ft, 6ft and 8ft between plants and row spacing of 54 to 60 inches. Plots were intensively managed utilizing black plastic mulch, drip tape, fertigation and crop protectants as needed. Each site utilized a complete block randomized design with four replications. The study utilized SP-6 pollenizer plants grafted to CSB rootstock. Data on yield, fruit size, fruit quality and canopy cover was collected.

Summary of Results: The six foot spacing resulted in the highest yields and the highest fruit count at both sites. While this is only one year’s worth of data and yields were below average due to the growing season, it appears that the 6 foot spacing is ideal for grafted watermelon. This spacing requires considerably less plants than conventional watermelon spacing. The

study also found that fruit size also increased with greater plant spacing, as was expected .

The Barns at New Market

The Barns at New Market has proven to be a lucrative outlet for local businesses in year one; with eleven of the fourteen spaces leased in the seasonal building and all businesses continuing to report a year over year increase in sales. The seasonal market opened on April 6, 2022 and was operational Monday through Saturday from 9AM to 4PM. All businesses with a direct marketing presence at the Charlotte Hall Library relocated operations to The Barns at New Market; selling fruits, vegetables, baked goods, bedding plants, hanging baskets, beer, wine, hard cider, honey, and meat. It became obvious very early that the market would need additional parking. DPW&T and DED quickly mapped out a plan to adjust parking to increase traffic flow and secured Rural Maryland Economic Development Funds (RMEDF) to expand parking. Parking expansion is expected to be complete by June 2024.

On October 10, 2022, a part-time employee was hired to serve as The Barns at New Market manager. The value-added building was opened on November 4, 2022, for a holiday market. The holiday market operated Saturdays from 9AM to 4PM with 26 small businesses participating. Locally made crafts, wreaths, poinsettias, nursery items, fruits, vegetables, canned goods, meat, baked goods, seafood, soap, and honey were sold during the holiday market. A local food truck was on site most Saturdays.

It is estimated that 200 customers shopped the holiday market each week, representing an average of 160 transactions per Saturday.

On January 14, 2023, the value-added building opened to host a winter market. The winter market is open on Saturdays from 10AM to 2PM. Locally made crafts, fruits, vegetables, canned goods, meat, baked goods, seafood, soap, and honey are being sold at the winter market. To date, 21 small businesses have participated in the winter market.

The first and second Saturdays of the winter market, sales were estimated to be over \$5,000 and \$5,500. The market manager has been very successful in activating the space. The market now has a waiting list of small businesses that want to participate.

The value-added building is also being used for agriculture related educational meetings during the week. The MD Cooperative Extension Service has held a meeting with the Environmental Protection Agency and the Master Gardeners. Colonial Farm Credit held a meeting with young farmers to discuss the requirements for agricultural loans, a follow up meeting is planned, with the Farm Service Agency and Maryland Agriculture Based & Resource Based-Industry Development Corporation to assist young and beginning farmers with financing options. The Southern States Cooperative has requested the use of the building for educational meetings regarding crop production and the horse industry. DED is also working with Maryland Department of Agriculture to host the annual farmer training meeting for Women, Infant and Children and Senior coupons in the value-added building.

DPW&T has worked tirelessly to navigate supply chain disruptions that delayed completion of the commercial kitchen. The value-added building has been approved by the Health Department as a low priority food facility. The commercial kitchen is complete and is being reviewed by the Health Department. There is interest from new and existing value-added food producers in using the kitchen. The goal is for the kitchen to be used primarily for small business(es) to add value to locally grown agricultural products. A RMEDF grant has been secured to expand the septic to handle high fat food waste, like ice cream. The best available technology is expected to be in place by the end of calendar year 2023.

The existing operational structure with one part-time county employee has returned much success in year one. For The Barns at New Market to start hosting quarterly agricultural events and become a destination for visitors to the County, additional support is needed. DED recommends continuing to add resources in a measured way, to capitalize on the asset and fully activate The Barns at New Market.



Choosing Bt Sweet Corn Varieties

Alan Leslie, Agriculture Agent
University of Maryland Extension, Charles County

When selecting sweet corn seed varieties this year, you may want to consider selecting some of the genetically modified Bt hybrids that have built-in resistance to different insect pests. Bt sweet corn varieties have been genetically engineered with genes from the bacterium *Bacillus thuringiensis* (aka “Bt”), which produce proteins that are toxic to different insect pests. In the laboratory, there have been hundreds of different insecticidal proteins identified from Bt, but only about a dozen have been successfully introduced to corn, and only a handful of those traits are available in sweet corn varieties.

The insecticidal proteins or “traits” available in sweet corn fall into two different categories: the “Cry” proteins, which stands for crystalline proteins and the “Vip” proteins, which stands for vegetative insecticidal proteins.

Further, when each of these traits were introduced to the corn genetics, this introduction becomes patented under a trade name used for marketing. The Cry1Ab protein was the earliest trait introduced to sweet corn, and is marketed under the trade name Agrisure CB/LL. At the time it was released, Cry1Ab provided 100% control of caterpillar pests like European corn borer and corn ear worm (Fig. 1). Since then, corn earworm has become widely resistant to this protein, though it still provides 100% control of European corn borer. The Cry1Ab protein is still available in Syngenta’s Attribute I series of seeds.

Other Cry proteins that are available in sweet corn are Cry1A.105 and Cry2Ab2, which are also active against caterpillars, and Cry3Bb1, which is active against some beetles, mainly corn rootworm. Cry1A.105 and Cry2Ab2 were introduced to the corn genome at the same time, and are marketed as Yieldgard VT Pro, while Cry3Bb1 was introduced separately and is marketed as Yieldgard Rootworm. These three traits are all available together in the Seminis Performance series. Although these varieties have multiple traits targeting caterpillar pests, they do not provide effective control of corn earworm. The only Vip protein available in sweet corn as the Vip3A trait, which is marketed as Agrisure Viptera. Vip3A provides excellent control of corn earworm and other ear-feeding caterpillars, but does not control European corn borer. For that reason, the Vip3A trait is included along with the Cry1Ab trait in Syngenta’s Attribute II and Attribute Plus series to provide the full range of control of caterpillar pests. Field trials with these varieties provided 100% control of ear feeding caterpillars with no insecticide applications.

The Attribute II and Attribute Plus varieties of sweet corn are significantly more expensive than conventional varieties that do not include these Bt traits. However, if corn earworm is evading your current spray program, especially in mid-late summer when moth pressure is especially high, it may be worth trying some of these GMO varieties that offer full protection from ear-feeding pests. It is worth noting that none of the Bt traits will control stink bugs or sap beetles, so insecticide sprays may still be needed to manage these pests, though these pests can typically be managed with a single insecticide application. If you are considering buying Bt sweet corn seed this year, below is a useful table (next page) that summarizes all of the varieties that are available, the pests they control, and the herbicide tolerance included in the package.



Figure 1. Corn earworm feeding on sweet corn ear. Photo: Eric R. Day, Virginia Polytechnic Institute & State University, Bug-

This table is also available at: https://agrilife.org/lubbock/files/2020/02/2020_BtTrai_Table_Sweet.pdf.

The Handy Bt Trait Table - Sweet Corn Production

The latest version of the table is always posted at <https://www.texasinsects.org/bt-corn-trait-table.html>

For questions & corrections: Ben Phillips, Michigan State University (phill406@msu.edu)

Contributor: Pat Porter, Texas A&M University (web site host)

New February 2020

Corn 'events' (transformations of one or more genes) and their Trade Names

Trade name for trait	Event	Protein(s) expressed	Primary Insect Targets, <i>Herbicide Tolerance</i>
Agrisure CB/LL	Bt11	Cry1Ab + PAT	corn borer + <i>glufosinate</i>
Agrisure GT	GA21	EPSPS	<i>glyphosate</i>
Agrisure Viptera	MIR162	Vip3Aa20	broad caterpillar control, except for corn borer
Roundup Ready 2	NK603	EPSPS	<i>glyphosate</i>
Yieldgard Rootworm	MON683	Cry3Bb1	rootworm
Yieldgard VT Pro	MON89034	Cry1A.105 + Cry2Ab2	corn borer & several caterpillar species

Abbreviations used in the Table

RR Roundup Ready / glyphosate-tolerant

LL Liberty Link / glufosinate-tolerant

CR corn rootworm

BCW black cutworm

CEW corn earworm

ECB European corn borer

FAW fall armyworm

SCB sugarcane borer

SWB southwestern corn borer

TAW true armyworm

WBC western bean cutworm

Bt Sweet corn packages & associated varieties in alphanumeric order	Bt protein(s)	Marketed for control of:											Resistant populations	Herbicide protein(s)	Herbicide Tolerance		
		B	C	E	F	S	S	T	W						RR	LL	
		C	E	C	A	C	W	A	B	C	R						
<u>Seminis Performance Series</u> Anthem II, sh2, bicolor Anthem XR II, sh2, bicolor Devotion II, sh2, white Obsession II, sh2, bicolor Passion II, sh2, yellow Temptation II, se, bicolor SV9010SA, sh2, bicolor SV9012SD, sh2, yellow SV9014SB, syn, bicolor	Cry1A.105 + Cry2Ab2 + Cry3Bb1	x	x	x	x	x	x						x	CEW	EPSPS	x	
<u>Syngenta Attribute I Series</u> BC0528, syn, bicolor BC0805, syn, bicolor BC0822, syn, bicolor BSS0977, sh2, bicolor BSS0982, sh2, bicolor GH0851, syn, yellow GSS0966, sh2, yellow WH0809, syn, white WSS0987, sh2, white	Cry1Ab	x	x	x	x									CEW	PAT		x
<u>Syngenta Attribute II Series</u> Aspire, syn, yellow Milky Way, syn, white Protector, sh2, yellow Pursuit, sh2, bicolor Remedy, syn, bicolor	Cry1Ab + Vip3A	x	x	x	x	x	x	x	x						EPSPS + PAT	x	x
<u>Syngenta Attribute Plus Series</u> BSS0761, sh2, bicolor Patriarch, sh2, bicolor	Cry1Ab + Vip3A	x	x	x	x	x	x	x	x						PAT		x



NEWS RELEASE

www.mda.maryland.gov

Office of the Secretary 50 Harry S Truman Parkway Annapolis, Maryland 21401

FOR IMMEDIATE RELEASE

CONTACT: Jessica Hackett, 410-841-5888
Diane Chasse, 410-841-5889

Maryland Department of Agriculture Expands Spotted Lanternfly Quarantine Zone

ANNAPOLIS, MD (March 6, 2023) – The Maryland Department of Agriculture today expanded its [spotted lanternfly quarantine](#) to include the following counties: Allegany, Anne Arundel, Baltimore, Calvert, Caroline, Carroll, Cecil, Frederick, Harford, Howard, Kent, Montgomery, Prince George’s, Queen Anne’s, Talbot, Washington and Wicomico, as well as Baltimore City. This quarantine is effective immediately, and restricts the movement of regulated articles that might contain the spotted lanternfly in any of its life stages, including egg masses, nymphs, and adults.

“The spotted lanternfly continues to be a destructive invasive species that has negatively impacted agriculture operations throughout the mid-Atlantic region,” said MDA Secretary Kevin Atticks. “The department continues to take steps to expand the quarantine zone out of an abundance of caution as we remain vigilant in controlling the spread of this destructive insect.”

The original quarantine order from 2019 included Cecil and Harford counties, which have established spotted lanternfly populations. In early 2022 the quarantine zone was expanded to nine additional jurisdictions based on the confirmed existence of known spotted lanternfly populations in these areas. A map of the new quarantine zone is available.

Businesses, municipalities, and government agencies that require the movement of any regulated item within or from the quarantine zone must have a specialized permit. The permit may be obtained by taking a **free** online training course and exam through [PennState Extension](#). Examples of regulated articles include landscaping, remodeling, or construction waste; packing materials like wood boxes or crates; plants and plant parts; vehicles; and other outdoor items.

Managers, supervisors, or employees of a business or organization operating in the quarantine zone must receive the approved training and pass the exam to demonstrate a working knowledge and understanding of pest and quarantine requirements. Training of other employees, inspection of vehicles and products, and removal of living stages of spotted lanternfly must also be completed.

All spotted lanternfly permits for Maryland, Virginia, Pennsylvania, New Jersey, and Delaware are transferable and valid throughout the region.

The spotted lanternfly poses a major threat to the region’s agricultural industries as it feeds on over 70 different types of crops and plants, including grapes, hops, apples, peaches, oak, pine, and many others. Originally from Asia, the spotted lanternfly was first detected in Berks County, Pennsylvania in fall 2014. As a known hitchhiker, the spotted lanternfly has also spread to Connecticut, Delaware, Indiana, New Jersey, New York, Ohio, Virginia and West Virginia.

Those living within the quarantine zone are encouraged to be vigilant in containing the spread of spotted lanternfly. Sightings may be reported through MDA’s [online survey](#). Other informational materials are available on the program’s [website](#).

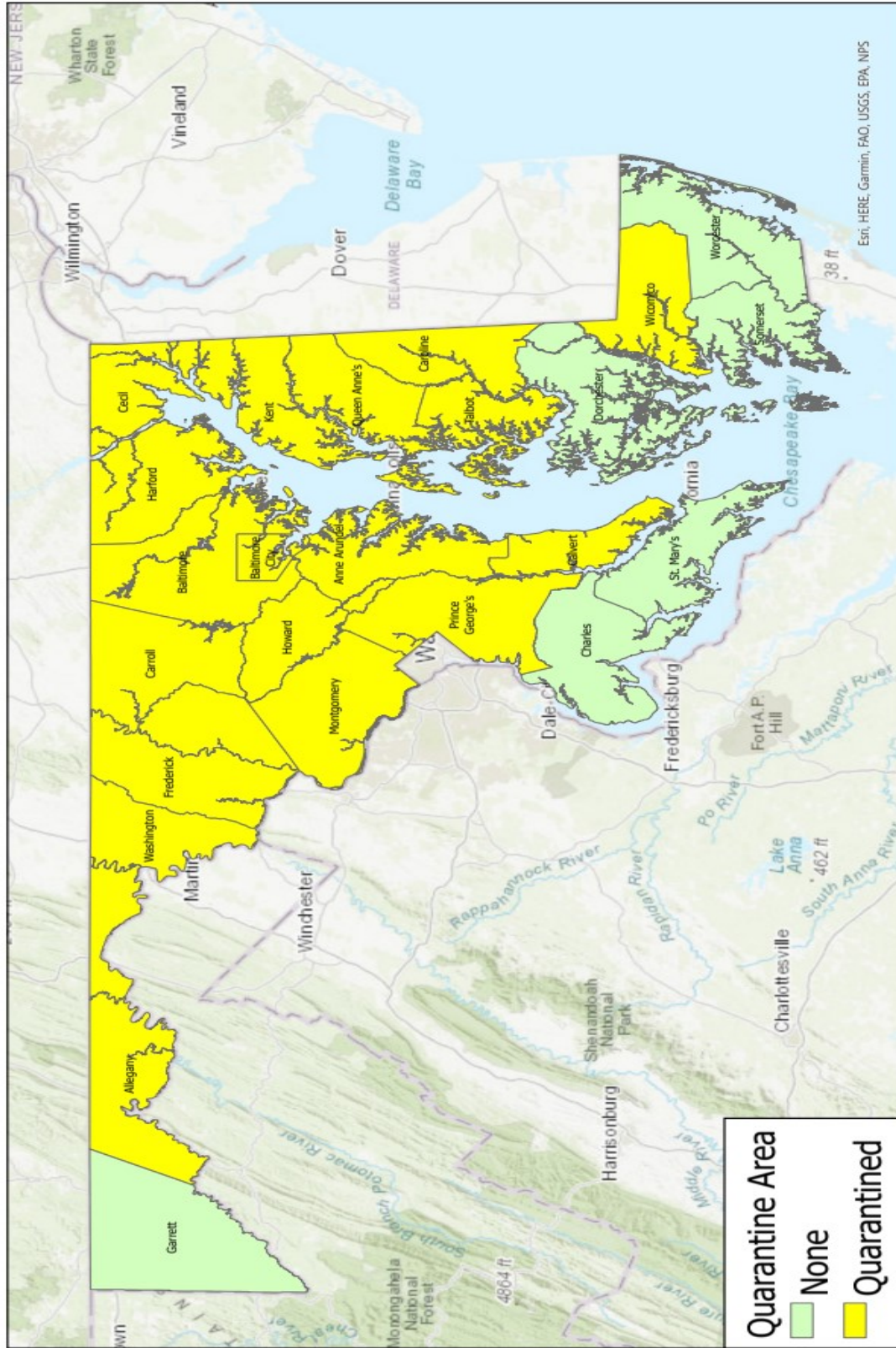
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Follow Maryland Department of Agriculture on Twitter
[@MdAgDept](#)



Spotted Lanternfly Quarantine

MD Dept. of Agriculture, Plant Protection and Weed Management



Esri, HERE, Garmin, FAO, USGS, EPA, NPS

Designed by: Kenton Sumpter -MDA- Created 2/23/2023

**All the best for a
Productive
Year**



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Agriculture & Natural Resources

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Nutrient Management Advisor
UME—St. Mary's County

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UME – St. Mary's County

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UME – St. Mary's County

UME St. Mary's County
26737 Radio Station Way,
Suite E-2
Leonardtown, MD 20650
TE: 301-475-4484

St. Mary's County Nutrient Management Program Update

*It's time to update
your Nutrient
Management
Plan...*



The Maryland Department of Agriculture announced that while the date of first manure applications remains March 1st, the application of commercial fertilizer to small grains could begin on February 15th. Although the calendar may say it is still winter until March 20th, the growing season is already underway for many farmers.

The end of winter and start of spring marks a very busy time here at the UME nutrient management planning office. If you still need a plan and have not yet contacted your nutrient management advisor please do so as soon as possible. While UME cannot guarantee a plan for spring 2023 at this late date, it is likely we can still write a plan to qualify your farm for the Maryland Cover Crop Program. Those of you just now starting the 2023 planning process should also be prepared to provide cropping information for the spring of 2024.

...call your Nutrient Management Advisor today!

Advisor's Name: Greg Simpson
Address: P.O. Box 663, 26737 Radio Station Way, Suite E-2,
Leonardtown, MD 20650
Phone: 301-475-4480
Email: simpson@umd.edu

UNIVERSITY OF
MARYLAND
EXTENSION



On the Lighter Side...

What do you get when a chicken lays an egg on top of a barn?

—An eggroll!

Why did the cabbage win the race?

—Because it was ahead!

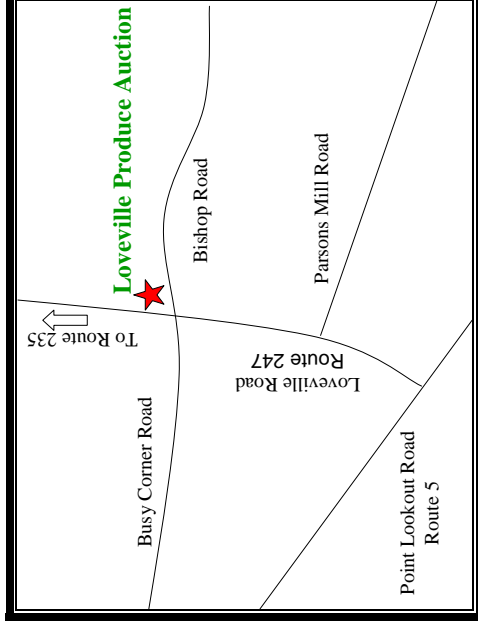
I used to never be able to use the wifi at my farm until I moved my router to the barn.

—Now I have a stable connection.

SELLER RULES

1. A permanent grower's number is required.
2. Seller must fill out consignment forms, listing seller number, name, address and type of items and quantity to be sold.
3. Seller will tag individual lots with tags provided by Loveville Produce Auction stating the seller number, item and quantity. **Each box must have Traceability Label attached.**
4. Unloading of produce is responsibility of GROWER/SELLER. No unloading on Sundays.
5. Payment period runs from Monday to Friday with checks available at the auction on the following Friday. There will be a \$10 charge on reissued lost checks. There will be a \$1.00 a day charge on small lots.
6. Any misrepresentation of produce will be cause for adjustment.
7. Selling of produce on grounds by the auction ONLY!
8. Produce of inferior quality may be rejected by the Loveville Produce Auction.
9. Standard uniform boxing required.
10. Out of Tri-County area consignors with permission only.
11. Produce raised in Tri-County area will be sold first.
12. 9% commission charged on all sales.
13. SELLER may not bid or declare "no sale" on their own produce.
14. By requesting GROWER/SELLER number, SELLER agrees to these terms and conditions.
15. Merchandise left on premises is subject to become Loveville Produce Auction property 30 minutes before next sale.

We are located at
40454 Bishop Road
Loveville, Maryland



LOVEVILLE PRODUCE AUCTION



Fresh Produce Picked Daily

2023

Located at 40454 Bishop Road
Loveville, Maryland

Mailing address:
Loveville Produce Auction
25641 Lone Spruce Lane
Mechanicsville, MD 20659



February 2023			
5	6	7	8
12	13	14	15
19	20	21	22
26	27	28	
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	17	18	
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MARCH 2023			
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APRIL 2023			
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	20	21	
	27	28	

MAY 2023			
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	31		

JUNE 2023			
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OCTOBER 2023			
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NOVEMBER 2023			
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DECEMBER 2023			
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	15	16	
	22	23	
	29	30	

Auction sales scheduled to begin
Mondays at 11:00 a.m.
Wednesdays and Fridays at 9:00 a.m.

Small Lot Auction to begin ½ hour
after regular auction starts.

Special Auctions scheduled to begin at 9:00 a.m.

Craft Auction - Saturday, May 6

Pumpkins Galore – Wednesday, September 27

Annual Buyer/Grower Meeting to be held on
December 8th – 9 am
at Dove Point Variety
25120 Dove Point Lane, Leonardtown, MD 20650

BUYER RULES

1. Cash or pre-approved checks only.
2. BUYER is to pay in FULL on day of auction.
3. A buyer's number must be obtained before bidding. Regular buyers will be given a permanent number.
4. Inspection of produce prior to purchase is responsibility of BUYER.
5. BUYER is responsible for produce after purchase.
6. BUYER agrees that Loveville Produce Auction serves as an agent of the seller only and is not responsible for accident, injury, or inferior products.
7. NO SALE OR RESALE OF PRODUCE ON GROUNDS, EXCEPT THROUGH THE AUCTION.
8. Any adjustments for produce rejected must be transacted prior to produce leaving Loveville Produce Auction.
9. ALL produce will be sold in the quantity stated on the tag of that lot. Splitting lots is managers' decision only.
10. By requesting BUYER number, BUYER agrees to these terms and conditions.
11. Merchandise left on premises is subject to become Loveville Produce Auction property 30 minutes before next sale.
12. No loading on Sundays.



Critical Updates for the 2022/2023 Mid-Atlantic Commercial Vegetable Production Recommendations (January 2023)

Chapter F. Horticulture

Beans Varieties

Lima Beans Emperor: 80 days, cold soil tolerance

Cole Crops Varieties

Broccoli Apollo (*spelling correction*)

Brussels Sprouts

Variety	Hybrid	Maturity
Marte	Yes	Early

Green Cabbage

Variety	F1	Maturity	Lbs	Shape	Use	Y	BR	TB	Thr	SH
Artost	yes	Early	3-6	Round	F, P	H		H		H
Capture	yes	Late	3-6	Round	F, P	H	M			
Checkmate	yes	Early	2-3	Round	F	H				H
Tiara	yes	Early	1-2	Round						

Cauliflower

Variety	F1	Color	Maturity	Season	Self-Wrapping
Toledo	Yes	White	Midseason	Fall	Yes
Twister	Yes	White	Midseason	Fall	Yes

Tomato Varieties

Market Tomatoes – Globe Tomatoes

Variety	Color	Season	Culture	Use	Disease Resistance	Plant Habit
Carrie	Red	Mid	Field	DM, LW	V, F, Asc, Tswv, Tylc	D
Carole	Red	Mid	Field, High Tunnel	DM, LW	F, Lb, N, TomvV, V	I
Patsy	Red	Mid	Field	DM, LW S	F, V, TSWV, Tylc	D
Rambler	Red	Early	Field	DM, LW, S	V, F, Asc, Tswv, GlS	D
Roadster	Red	Early	Field	DM, LW, S	V, F, Asc, Tswv	D
Thunderbird	Red	Mid	Field	DM, LW, S	Asc, F, V, GlS, Tylc	D

Other Corrections

Tomatoes Plant Tissue Testing N 2.8-4.0% (*page 413*)

Chapter F. Weed Management

Pesticide labels can be changed without notice. Users must find and read a current label before applications are made. The following updates on 24c labels, crops, and pre-packaged herbicides do not substitute for reading the approved label.

24c Labels

24c labels (also called state labels or special local needs [SLN]) are granted by individual states and are only allowed for the specific states that have received these labels.

Halex GT has a 24c label for DE only, allowing processing lima bean to be planted 10 months after application.

Command 3ME has a 24c label for lima bean in DE, MD, NJ, and VA. This label also allows lima bean to be planted 60 days following an application in a previous crop (i.e., processing peas), assuming the rate was not above 12 fl oz.

Crop Specific Weed Management Updates

Various Vegetable Crops

Shadow 3EC (clethodim) is labeled for use on various vegetable crops (see table below). Do not exceed 21.33 fl oz/A per season

Shadow 3 EC Rate (per Application) and Preharvest Interval (PHI)

Crop	Rate	PHI (d)
Asparagus	4 – 5.3 fl oz/A	1
Snap/lima bean, Potato, Sweet Potato	4 – 10.7 fl oz/A	30
Beets (Garden), Carrot, Celery, Cole crops (broccoli, Brussels sprout, cabbage, cauliflower, collards, kale, kohlrabi, mustard greens), Endive, Lettuce, Parsley, Spinach, Root Vegetables (horseradish, parsnip, turnip)	4 – 5.3 fl oz/A	30
Cucurbits (cucumber, cantaloupe, pumpkin, squash, watermelon)	4 – 5.3 fl oz/A	14
Fruiting vegetables (eggplant, peppers, tomato)	4 – 5.3 fl oz/A	20
Garlic, Onion (bulb)	4 – 5.3 fl oz/A	45
Leek, Onion (green)	4 – 5.3 fl oz/A	14
Pea (succulent shelled)	4 – 5.3 fl oz/A	21
Radish	4 – 5.3 fl oz/A	15
Strawberry	4 – 5.3 fl oz/A	4

Asparagus

Chateau EZ replaces Chateau WDG

Dual Magnum 24c label for use in DE has been extended until 9/20/2026; NJ has been renewed until 1/28/2027

Beans, Lima

Spartan Charge 24c label for use in DE on lima bean has been renewed until 12/31/2026

Dual Magnum 24c label for use in DE on lima bean as a postemergence application to extend residual control of grasses and pigweed species. Dual Magnum will not control any weeds that are emerged; emerged weeds should be removed with a herbicide application or cultivation.

If a preplant or preemergence application of Dual Magnum was made to the crop, a postemergence application may be applied provided the total amount of Dual Magnum does not exceed 2.0 pt/A.

Apply Dual Magnum postemergence only after the first trifoliate stage of the bean plant; earlier applications

may result in unacceptable crop injury. When Dual Magnum is applied over the top of lima bean, leaf spotting or speckling may be observed.

Command 24c label for use in NJ expired in 2022; renewal is pending.

Carrots

Dual Magnum 24c label for use in NJ has been renewed until 1/28/2027

Cole Crops

GoalTender 24c label for use in DE, NJ, and PA extends until at least 12/31/2023; includes postemergence applications to broccoli, cabbage, and cauliflower

Dual Magnum 24c for cabbage use in NJ has been renewed until 1/28/2027

Garlic

Chateau EZ replaces Chateau WDG

Leeks

Dual Magnum 24c label for use in NJ has been renewed until 1/28/2027

Zidua SC has been labeled as a postemergence application to extend residual control. Not labeled for coarse-textured soils

Onions

Dual Magnum 24c label for use in NJ has been renewed until 1/28/2027

Dual Magnum 24c label for use in PA expires on April 28, 2023; renewal is pending

Zidua SC has been included in the full label and does not have an expiration date

Peppers

Dual Magnum 24c label for use in NJ has been renewed until 1/28/2027

Dual Magnum 24c label for use in PA expires on April 28, 2023; renewal is pending

Potatoes

Chateau EZ replaces Chateau WDG.

Spinach

Dual Magnum 24c label for use in NJ has been renewed until 1/28/2027

Dual Magnum 24c label for use in PA expires on April 28, 2023; renewal is pending

Summer Squash

Reflex 24c label for use in NJ expired in 2022; renewal is pending

Tomato

Authority MTZ and Preview 2.1 are two prepackaged mixtures of sulfentrazone plus metribuzin, labeled for transplanted processing tomatoes only; **preplant application only**. Ratio of metribuzin and sulfentrazone differ for these two products, see table below. Local research has shown potential injury with sulfentrazone. These rates of sulfentrazone will not provide extended residual control.

Reglone 24c label (NJ only) has been extended until 12/31/2025. Use in tomatoes for row middle weed control and desiccation

Reflex 24c label for use in NJ expired in 2022; renewal is pending

Watermelon

Reflex 24c label for use in NJ expired in 2022; renewal is pending

Pre-Packaged Herbicides Recently Released for Various Vegetable Crops

Trade Name	If You Apply (per acre)	Applied (ai per acre)	Equivalent to a Tank Mixture of These Products (per acre)
Authority MTZ 45DF	8 oz	0.13 lb metribuzin 0.09 lb sulfentrazone	2.8 oz metribuzin 75DF 3.3 fl oz Spartan Charge 3.5EC
Boundary 6.5L	2 pt	1.24 lb S-metolachlor 0.314 lb metribuzin	1.3 pt Dual Magnum 7.26EC 10 fl oz metribuzin 4L
Calibra 3.1ZC	2.4 qt	0.168 lb mesotrione 1.67 lb S-metolachlor	5.36 fl oz Callisto 4SC 1.7 pt Dual II Magnum 7.64 EC
Coyote 3.67SC	2 qt	0.168 lb mesotrione 1.67 lb S-metolachlor	5.36 fl oz Callisto 4SC 1.75 pt Dual II Magnum 7.64 EC
Empyros 3.82E	1.4 qt	0.035 lb tolpyralate 1.3 lb S-metolachlor	1.3 fl oz Shieldex 3.3SC 1.3 pt Dual II Magnum 7.64 EC
Moccasin MTZ 52DF	3 pt	1.25 lb S-metolachlor 0.419 lb metribuzin	1.3 pt Dual Magnum 7.26EC 13.4 fl oz metribuzin 4L
Preview 2.1 3.35SC	10 fl oz	0.17 lb metribuzin 0.09 lb sulfentrazone	5.4 fl oz metribuzin 4L 3.3 fl oz Spartan Charge 3.5EC
Restraint 6.5EC	30 fl oz	0.02 lb tolpyralate 1.5 lb acetochlor	0.85 fl oz Shieldex 3.3SC 1.7 pt Harness 7E

Chapter F. Insect Management

1. A new liquid formulation of Assail is now available, Assail 30SC.
2. Please note in the following correction to the **sweet corn** aphid control section that Assail 30G and 30SC are the only 4A neonicotinoids labeled.
3. **Tomatoes:** please be aware that russet mites are an occasional tomato pest, particularly of greenhouse and high tunnel production. We will be adding them in the next guide edition.
4. **Cole Crops:** If you have experienced resistance issues with diamondback moth, be aware that Dibrom 8 EC (naled) is labeled at 1 pt/a, 1 d PHI, 48 h REI. Please note that it is highly toxic and very disruptive to biological control agents.
5. **Cole Crops:** In addition to swede midge, Senstar is labeled also for whitefly.
6. **Sweet Corn, Potatoes, Sweet Potatoes:** Nurizma (broflanilide) is now labeled for in-furrow application targeting rootworms, seedcorn maggot, white grubs, and wireworms. This represents a brand new IRAC mode of action group.