



Greenhouse TPM/IPM Report
Central Maryland Research and Education Center
Ellicott City, Maryland

July 15, 2026

University of Maryland Extension:

Laura Nixon - Extension Specialist, IPM and Entomology, Central Maryland Research and Education Center
Ginny Rosenkranz - Extension Educator, Wicomico/Worcester/Somerset Counties
David Clement - Plant Pathology, Central Maryland Research and Education Center
Ana Cristina Fulladolsa - Plant Pathologist, Director of the Plant Diagnostic Lab
Andrew Ristvey - Extension Specialist, Wye Research and Education Center
Suzanne Klick - Ag Technician Lead, Central Maryland Research and Education Center
Sheena O'Donnell - Ag Technician, Central Maryland Research and Education Center

Penn State Extension:

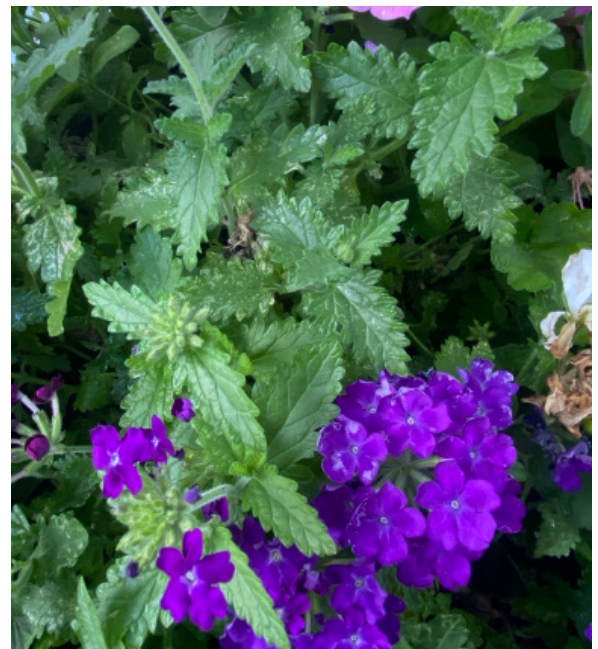
Patricia Prade - Extension Entomologist, Horticulture, Lehigh County Extension Office
Krystal Snyder - Extension Educator, Horticulture, Northampton County Extension Office

When the Heat Rises, So Does Pest Pressure

Patricia Prade

The recent heat wave serves as a timely reminder that summer weather does not just stress plants, it can also create ideal conditions for many insect and mite pests. Higher temperatures often speed up pest development, increase reproduction, and shorten the time between generations, allowing populations to build rapidly. At the same time, heat and drought stress can make cut flowers more vulnerable to damage.

Hot, dry conditions are particularly favorable for spider mites and many thrips species, while aphids can also reproduce rapidly when temperatures are warm. However, extreme weather affects more than just pests. Heat can also influence biological control by reducing the survival, activity, and establishment of some natural enemies, as well as alter pesticide performance and change scouting priorities. It is important to keep these factors in mind when implementing an IPM program. For example, some commercially available biological control agents are sensitive to high temperatures and may have reduced survival or efficacy if released during the hottest parts of the day. Whenever possible, make releases during the cooler morning or evening hours and provide favorable conditions for natural enemies to establish.



Verbena plant with heavy thrips damage on leaves and flowers

Photo: Patricia Prade, PSU

Flower of the Month

Krystal Snyder

July's flower of the month is Begonia Rex Spacestars™ 'Leda® (Rex 4696)' from Beekenkamp Plants. This is a great Rex type begonia that is excellent in the shade. It is fabulous on its own or in a combination and gets pink flowers later in the season.

To see this and more new flower varieties, register for next week's Flower Trial Field Day!

Begonia Rex Spacestars™ 'Leda® (Rex 4696)' is excellent in the shade

Photo: Krystal Snyder, PSU



Snapdragon plume moth (*Stenoptilodes antirrhina*, formerly *Platyptilia antirrhina*)

Holly Greenberg, UME

Last week, a greenhouse grower in Harford County found snapdragon plume moth larvae boring into the stems of their snapdragons. These moths are a common pest in western states, including California and Oregon. These larvae likely originated from the West Coast and were transported to MD through shipped plant material.

This species overwinters as adults and begins laying single eggs in the spring. On snapdragons, eggs can be found on open flowers and the bottom of leaves. The eggs hatch after 2-4 weeks, and the early larval instars act as leafminers, harming the foliage of the plant. As they develop, they bore into the growing buds and stems for an additional 3-5 weeks. The borer damage impacts the plant's ability to perform normal processes, decreasing yield and marketability. The adults are a muted brown color with a long body, a T-shaped wingspan, and thin legs. Due to their poor flying skills, the moths typically remain close to their host plant.



Damage from the Snapdragon plume moth larvae boring into the stem of a Snapdragon.

Photo: Andrew Kness, UME



The larval stage of the Snapdragon plume moth found boring into a stem

Photo: Andrew Kness, UME

It is recommended to prune out visibly damaged areas to confirm and remove the developing caterpillars. If damage is persistent, you can follow with an application of a targeted systemic such as chlorotraniliprole which is suitable for bloom time or cyantraniliprole (Mainspring) which should not be sprayed directly before or during bloom.

Reports from a Dahlia Field

Laura Nixon

This month, we have been spending a lot of time at a Dahlia grower conducting research. Dahlias are one of our most popular and high value cut flowers, and they are attractive to a range of insects, both pests and beneficials. At the end of this article, I will recommend some biorational spray options for management of a variety of damaging pests.

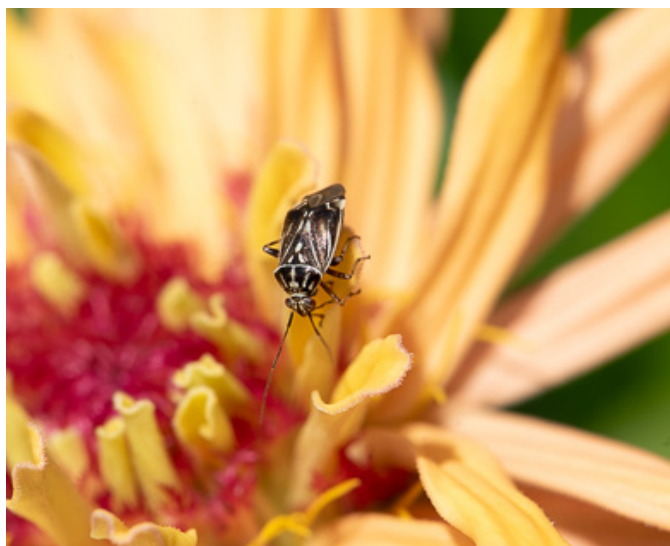
Early in the season before blooms started, we saw this chewing damage on the plant foliage (right). This is likely from grasshoppers, but the damage was not widespread. Grasshopper populations benefit from warm, dry spring weather, which is conducive to egg hatch and development. As mentioned in last month's report, 2026's spring weather tended towards chilly, with fluctuating temperatures. So, we have not seen grasshoppers in huge numbers or feeding on blooms.

Tarnished plant bug is actually the focus of our Dahlia research this year (keep your eyes peeled for a report on this in the fall). Tarnished plant bugs are most often referred to as a vegetable pest, but in the cut flower world, this is a very common pest on field grown flowers. Tarnished plant bug has piercing sucking mouthparts, which they insert into the developing flower bud. This feeding damage can present as deformed blooms and/or brown patches on the petals. This species overwinters as adult bugs, which emerge in the spring and immediately begin feeding; we can see between 2 and 4 generations of this insect per year. The juvenile nymphs also feed from the plant, which means tarnished plant bug is a season long pest. As such, it is important to scout for this insect and treat your plots regularly if tarnished plant bug is present. By the time you observe damage, many of your Dahlia blooms will already be un-harvestable.



Chewing damage on Dahlia leaves

Photo: Suzanne Klick, UME



An adult tarnished plant bug

Photo: Suzanne Klick, UME



This Dahlia bloom is deformed from tarnished plant bug feeding on the developing bud

Photo: Suzanne Klick, UME

On many blooms in this particular Dahlia field, we are seeing this very uniform chewing damage that takes off just the tips of nearly every petal in the flower. Logically, we think this is chewing occurring as the bloom is opening and the insect can only access the very edges. Since this damage is small in size, but big in scale (across the field), we are investigating what it could be. It seems likely to be some form of caterpillar damage. We have seen a few different caterpillars on the Dahlias, all of which were chewing on the petals or burrowing into the developing buds. We are not sure which is the exact culprit of this particular damage.

It's not all doom and gloom in the insect world. The Dahlias also have an abundance of predatory insects such as minute pirate bugs (*Orius insidiosus*) and some predatory thrips. Predatory thrips are larger than the pest species, with more pronounced forelegs. The abundance of these species is likely the reason for a lack of pest thrips and aphids in this Dahlia field!

Control options

Pest control in cut flowers can be complicated for two reasons: many insecticides are not labelled for this crop type due to the diverse nature of the plants present and many insecticides cannot be applied during bloom. As such, I'm going to suggest some biorational insecticides which can be useful for treating the aforementioned pests in cut flower plots. This is not a complete list, but some of the common products and how they can be used!

- *Beauveria bassiana* (e.g. Botanigard, BioCeres) is an entomopathogenic (insect killing) fungus. The living fungus infests and kills target insects. This can be used to treat grasshoppers, plant suckers (including tarnished plant bug and aphids), and chewing caterpillars and beetles.
- *Bacillus thuringiensis* or Bt is a bacterial insecticide which is particularly good for controlling caterpillars. Timing is everything, and Bt is best applied when caterpillars are small. This method also requires direct contact.
- Azadirachtin (e.g. AzaGuard, Azatin) is an insect growth regulator; when ingested this chemical affects the insect growth and prevents them from developing. Azadirachtin is broad spectrum and can be used regularly for most pests. However, it should be applied in the evening when bees aren't active to avoid non-target effects.
- Entomopathogenic nematodes (insect killing) can



Dahlia bloom with uniform damage to the petals

Photo: Suzanne Klick, UME



A looper caterpillar found on a Dahlia bloom. Only one was observed and so it can be hand-picked from the plant without further issue

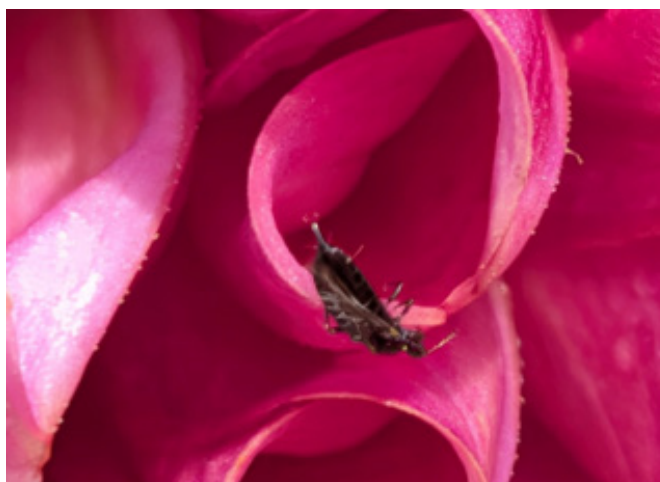
Photo: Laura Nixon, UME



We have found several of these caterpillars on and inside of developing Dahlia buds, a potential culprit for the widespread chewing damage. We are rearing these to see what they grow into

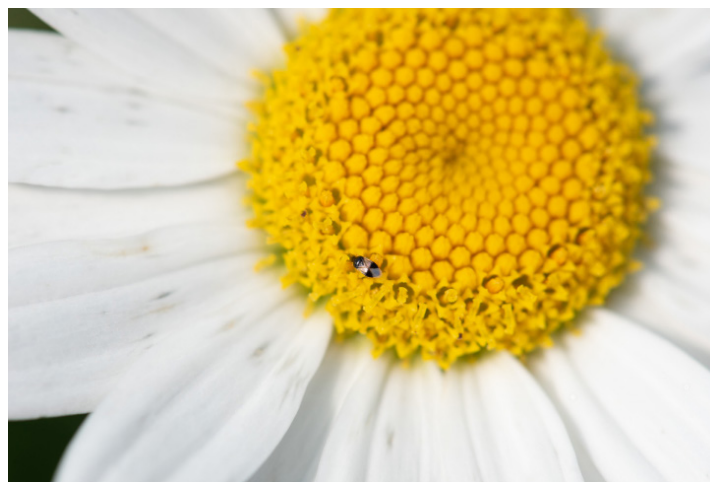
Photos: Holly Greenberg, UME

be found as a range of commercially available products. Different species and strains have different target pests. Nematodes do best with pests that have a ground dwelling life stage as the nematodes are happiest when drenched into the soil. Juvenile nematodes infect target insects and reproduce inside the insect, killing it within a few days.



Predatory thrips prowling around a Dahlia bloom, likely a *Franklinothrips* species

Photos: Suzanne Klick, UME



Minute Pirate Bug, or *Orius insidiosus*, on a flower

Photo: Suzanne Klick, UME



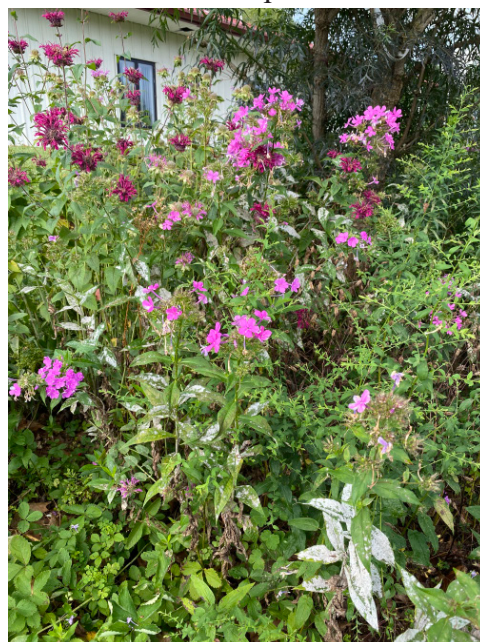
Greenhouse and Cut Flower Powdery Mildew Management

David L. Clement

Mid-summer is the time when we begin to see the powdery mildew diseases in our greenhouse and cut flower ornamentals. Disease is likely when we have high relative humidity with normal summer temperatures. The disease is common in crowded plantings where air circulation is poor and in damp, shaded areas. Young succulent growth is more severely affected than older tissues. However, unlike other fungi, the powdery mildew fungi can infect when very little moisture, or moderate relative humidity is present. Powdery mildews are host-specific, so the fungus attacking your phlox will not spread to your monarda, or sunflowers.

Even though the plant symptoms are identical there are several powdery mildew genera. The first obvious symptoms are the whitish growth that occurs mainly on the upper leaf surfaces and stems. The mycelial growth is mostly on the surface of the plant. Powdery mildew fungi obtain nutrients from infected plants through haustoria that penetrate the epidermal layer of cells. Powdery mildew infection may cause distortion and a reduction in leaf size. Infected leaves may become distorted, turn yellow, and fall prematurely.

Winter survival occurs in structures called chasmothecia, that have specialized appendages, on the plant or fallen leaves. In the spring, these structures produce spores that initiate primary infections on susceptible hosts. Secondary conidia are produced from these initial infections and



Powdery Mildew on Phlox

Photo: Suzanne Klick, UME

cause repeated infections. Spores produced on over wintered mycelium can also start spring infections.

Management

Powdery mildew infection can be managed very effectively by planting resistant cultivars when available. Since powdery mildews prefer humid conditions, it is often recommended to prune, or thin crowded plants to help increase air flow to reduce humidity around leaves. Late summer application of nitrogen fertilizer should be avoided to limit production of succulent tissue, which may be susceptible to powdery mildew infection in the fall. Water early in the day so that the relative humidity will be lower by evening.

There are many registered fungicide options for powdery mildews including horticultural oils, bicarbonates, biological products and synthetic choices. If plants are rapidly growing and producing new foliage it may become necessary to use the shortest the time between fungicide applications according to label directions. However, once mildew growth is moderate to severe, it generally is too late for effective control with fungicides.

Biorational chemistries for preventative mildew management include Milstop (potassium bicarbonate), strains of *Bacillus subtilis* (Rhapsody, or Serenade), horticultural and neem oils, and copper formulations such as Phyton-27. Synthetic chemistries for preventative mildew management include Eagle (myclobutanil) (3), Terraguard SC (triflumizole)(3), Tourney 50WG (metaconazole)(3), Postiva (difenoconazole and pydiflumetofen)(3/7), Avelyo (mefentriuconazole)(3), Pageant Intrinsic (pyraclostrobin and boscalid)(11/7), PalladiumWDG (fludioxonil)(12/9), Mural (azoxystrobin and benzovindiflupry)(11/7), Orkestra (fluxapyroad and pyraclostrobin)(11/7) and Broadform (flupyram and trifloxystrobin)(7/11).

The numbers indicate the FRAC codes. Products need to be rotated between codes to prevent resistance within the mildew species.



Once mildew growth is moderate to severe, it is generally too late for effective control with fungicides

Photo: Suzanne Klick, UME

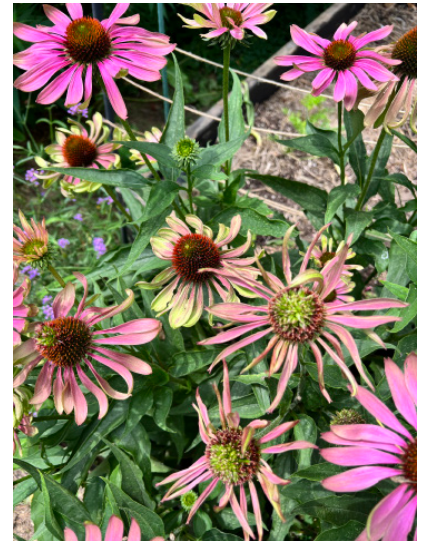
Always Remove Aster Yellows -infected plants

Sheena O'Donnell

Aster Yellows is a systemic plant disease that is caused by a phytoplasma (*Candidatus Phytoplasma asteris*), spread by the aster leafhopper (*Macrostelus quadrilineatus*), and is incurable. The leafhopper does not overwinter here; it rides the winds up every spring from the south. *M. quadrilineatus* is also not born with the disease-causing pathogen - it must acquire it through feeding on an infected plant. Symptoms can take a long time (weeks) to show up in an infected plant, and have a wide range of presentations. Depending on plant species, symptoms include: yellowing of leaves and stems; stunted, malformed, or abnormally dense growth; chlorosis; bleaching of leaves; witch's brooms. On *Echinacea* spp. it shows up most obviously as witch's brooms on blooms and deformed flower petals, which is what this Montgomery County grower noticed on their *Echinacea* 'Green Twister'. Although this specific cultivar does typically have twisted flower petals with green undersides, stippling damage on the leaves (evidence of leafhopper feeding) and the witch's brooms in the centers of the flowers were dead giveaways.

Even though the common name is ‘aster’ leafhopper because of the pathogen it transmits, it is very important to know that this leafhopper also feeds on many (300+) other herbaceous plant species including other cut flowers, bedding plants, and some naturally occurring plants or weeds. For this reason it is important to control weeds close to your growing area, and remove all infected plants as soon as possible. Do not discard plant material haphazardly, either - remove it from the area and destroy it.

Unfortunately, because of the complicated ecological activity of this disease, the best recommendation for control is just to exclude and remove. Scout plants for the leafhopper, prevent heavy feeding, and remove infected plants immediately to prevent spread to neighboring plants. Although this grower removed the affected plant immediately, they will still have to scout the remaining plants for leafhopper damage and disease symptoms.



Normal flowers (top) next to afflicted flowers (bottom)

Photo: Sheena O'Donnell, UME



Healthy *Echinacea* ‘Green Twister’

Photo: Sheena O'Donnell, UME



Stippling damage caused by leafhopper feeding

Photo: Sheena O'Donnell, UME



Submitting Content: Help Us Help You

If you see anything of note, like:

- High or rapidly increasing numbers of a certain pest
 - A fun/interesting new cultivar or crop
 - Anything out of the ordinary, really
- ...we would love to know!

We are always happy to receive submissions for potential newsletter content to help growers in the area. **We will respect your privacy OR give you credit, whichever you prefer.**

Email submissions & photos to:

Suzanne Klick - sklick@umd.edu

Laura Nixon - lnixon1@umd.edu

CONFERENCES

Join us for the 2026 Penn State Flower Trials Field Day!

Thursday, July 23, 2026
at the Southeast Agricultural Research and Extension Center in Manheim, PA

This annual event provides an opportunity to evaluate nearly 1,000 varieties of annuals and perennials, learn about the latest plant introductions, and connect with breeders, growers, retailers, landscapers, and other green industry professionals. Attendees can also visit with exhibitors and sponsors and earn pesticide recertification credits. Sponsor and Exhibitor opportunities available.

For registration and event information, visit the link below:
[Penn State Flower Trials Field Day](#)

IPM Scouts' Diagnostic Session

Wednesday, July 22, 2026
12:30 - 3:00 PM
at CMREC in Clarksville, MD

This session is a great opportunity to bring plant samples with problems you need identified. Entomology, plant pathology, and horticulture extension specialists will be available to look at samples under the microscope and answer questions. There will be short presentations on tarnished plant bugs and another timely insect pest.

[Link to register here](#)

Biopesticide Basics Webinar

Monday - Tuesday, August 3 - 4, 2026
12:00 - 1:30 PM
Location: Digital

[Link to register here](#)

Entomology 102 Webinar

Tuesdays: September 1 - October 13, 2026
1:00 - 2:15 PM
Location: Digital

[Link to register here](#)

Stanton A. Gill Symposium: A Focus on Biological Control

Tuesday - Wednesday, August 4 - 5, 2026
at CMREC in Clarksville, MD

This event is open for limited registration. Day 1 is a full day, and includes speakers on biological control topics. Day 2 is a half day, and includes hands-on learning opportunities.

For registration and event information, visit the link below:

[Stanton A. Gill Symposium Registration](#)

The poster features a collage of circular images showing various biological control agents: a green beetle, a ladybug, a parasitic wasp, a nematode, and a green lacewing. The text is arranged in a clean, professional layout with a teal header and footer.

JOIN US FOR THIS TWO DAY EDUCATIONAL EVENT

University of Maryland Extension and Maryland Nursery, Landscape and Greenhouse Association present

Stanton A. Gill SYMPOSIUM: A Focus on Biological Control

August 4 and 5, 2026
Central Maryland Research and Education Center
4240 Folly Quarter Road, Elllicott City, MD 21042

But Before we go... Some Bouquets for Inspiration (or just for fun)

Angela Burke from Raemelton Farm has been growing a cut flower plot, and sent us some photos from a recent “arrange your own bouquet” party.

Thank you, Angela!



CONTRIBUTORS:



Laura Nixon

Extension Specialist, UME
Lnixon1@umd.edu



Patricia Prade

Extension Entomologist, Penn State
Extension
prade@psu.edu



Krystal Snyder

Horticulture Extension Educator, Penn
State Extension
kls6590@psu.edu



David Clement

Plant Pathologist, UME
clement@umd.edu



Ginny Rosenkranz

Principal Agent Associate,
UME
rosnkranz@umd.edu



**Ana Cristina
Fulladosa**

Plant Pathologist, UME
acfulla@umd.edu



Andrew Ristvey

Extension Specialist, UME
aristvey@umd.edu



The information given herein is supplied with the understanding that no discrimination is intended
and no endorsement by University of Maryland Extension is implied.
Read labels carefully before applying any pesticides.



University programs, activities, and facilities are available to all without regard to race, color,
sex, gender identity or expression, sexual orientation, marital status, age, national origin, political
affiliation, physical or mental disability, religion, protected veteran status, genetic information,
personal appearance, or any other legally protected class.