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### Corrections to July 19, 2023 IPM Report

There were incorrect references to hollies in the July 19th report. A [corrected report](#) is posted online.

### Sunflower Moth Activity

Check echinacea, dahlias, and sunflowers and for damage and larvae of the sunflower moth. Plant hosts include many plants in the Asteraceae. This caterpillar bores into flower heads and feeds on receptacle tissue and seeds. Look for frass and webbing in the flower heads. The injury caused by larval feeding provides infection sites for *Rhizopus* head rot that can lead to complete yield loss. There are several overlapping generations throughout the summer.

**Control:** *Bacillus thuringiensis* on early instar larvae or Conserve.



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**Dahlias are one of the crops to monitor for sunflower moth caterpillars.**

### More Caterpillar Activity

Two other caterpillars active at this time of year that can be a problem on greenhouse crops are imported cabbageworms and variegated fritillary caterpillars. Look for cabbageworms on cabbage and kale crops. The adult is a day-flying cabbage white butterfly. Adults are active from spring through fall. They lay eggs on cabbage and kale and the feeding by their larvae can be significant.

**Adult cabbage white butterflies are active from spring through fall.**



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Variegated fritillary butterflies are also active now. The caterpillars can be found feeding on fall pansy crops. Look for the butterflies flying around pansy crops looking for places to lay their eggs.

**Control:** Bt can be used for early instar caterpillars. Conserve is another control option.



**If you see irregular holes in cabbage leaves, look on the undersides for imported cabbageworm caterpillars.**



**Variegated fritillary butterflies nectar at a variety of flowers; caterpillars commonly feed on *Viola* plants.**

### **Aster Yellows in Echinacea**

By: David Clement and Karen Rane

We've had a number of inquiries about Echinacea's with abnormal flower development and color. Flower symptoms include stunted greenish-white ray flower petals, and often green leafy growths protruding from the blossom centers. This problem is caused by aster yellows which belongs to a group of plant pathogens that are called phytoplasmas. This group is related to bacterial pathogens however; their cells have flexible membranes and have no cell walls making them pleomorphic in shape. They are single celled and reproduce by fission like bacteria. They are intracellular parasites and are non-motile. They are spread through the plant inside the phloem. The aster yellows pathogen is spread to ornamentals by phloem-feeding leafhoppers, primarily the aster leafhopper, *Macrostelus quadrilineatus* formerly *fascifrons*. Aster yellows can infect over 300 species of woody and herbaceous ornamentals, vegetables and weeds in 38 plant families as well as a number of grain crops.

This phytoplasma is transmitted when infected leafhoppers feed on the phloem of an infected plant such as a weed host. Leafhoppers acquire the pathogen, but there is an incubation period, sometimes referred to as a latent period, which may take 2-3 weeks, where the pathogen multiplies within the leafhopper, and then moves to the salivary glands. Only then is the leafhopper capable of transmitting the pathogen to another plant. After feeding, it can take 10 days to 3 weeks, depending on temperature and plant species for the appearance of plant symptoms.



The aster leafhopper can overwinter in the egg stage in Maryland that can result in mid to late season infections. Frequently, however this insect also begins developing down south early in the spring where they build up large populations. These southern adults will then migrate on the prevailing winds and jet streams that frequently move northward in the spring. Depending on weather and wind patterns these insects may arrive earlier in the season ready to transmit the disease.



#### **Management:**

Infections are systemic throughout the plant and therefore plants are not “cured” by removing symptomatic flowers. Promptly remove infected plants when symptoms are first noticed to prevent spread throughout the rest of the planting. Weed hosts such as wild carrot, field daisy, dandelion, thistles, ragweed, marestail, and pineappleweed which are often symptomless should also be removed where possible since they can serve as symptomless reservoirs for future infections. Monitor susceptible plants frequently for symptoms and destroy any that appear to be diseased. Early detection and prompt removal of infected plants may help reduce the spread of the disease.

**Aster yellows can infect over 300 species of woody and herbaceous ornamentals, vegetables and weeds in 38 plant families as well as a number of grain crops.**

**Photos: David Clement, UME**

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