



**Greenhouse TPM/IPM Bi-Weekly Report**  
**University of Maryland Cooperative Extension**  
**Central Maryland Research and Education Center**

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**July 10, 2009**

**Cut Flower Farm Tour, July 27, 2009**

Locations: Farmhouse Flowers and Plants (Brookeville) and  
Plantmasters (Laytonsville)

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**Daylily Rust, by Penny Wolkow**

The recent introduction of a new disease has complicated the nearly trouble-free reputation of daylilies. Daylily Rust, caused by the fungus *Puccinia hemerocallidis*, produces yellow spots or streaks on leaves and scapes, with raised pustules commonly on the undersurface releasing infectious orange spores. The frequently seen Daylily Leaf Streak, caused by the fungus *Aureobasidium microstictum*, begins with water-soaked brown spots usually beginning at the top of the leaf. As these work their way downward, they lengthen into brown streaks with yellow borders. A quick way to confirm Daylily Rust as the problem is to wipe a clean white tissue over the leaf lower surface – an orange stain indicates the presence of the rust spores. A severe infection on susceptible varieties may result in withering and death of the leaves, but the crown and roots are not involved.



**Daylily Leaf Streak**



**Daylily Rust**

As with other rusts, *P. hemerocallidis* has a life cycle that features two hosts, though it requires only the daylily to survive asexually from year to year. On daylily, the fungus produces two kinds of infectious spores – the orange urediospores, spreading disease during the growing

season to other daylilies, and the darker, thicker-walled teliospores. These can survive the winter and infect the alternate host to complete the life cycle with the sexual stage. The alternate host is *Patrinia*, a perennial with fern-like leaves and bright yellow umbels, sometimes used as a filler for border plantings. No infection of *Patrinia* has been observed in the US, however, and the fungus can infect other daylilies without infecting the alternate host. Reports that *Hosta* can act as an alternate host have not been verified.

On daylily, disease spread is favored by warm temperatures and high humidity. Cloudy rainy weather is best. Poor air circulation and overhead watering at night should be avoided. Spores can spread by wind, windblown rain, or mechanical transfer by clothing or tools, for example.

### Management

Select varieties that are more resistant. The following list is from the Texas Cooperative Extension, Texas A & M University, April, 2004.

#### Susceptible

Pardon Me  
Ming Toy  
Russian Rhapsody  
Always Afternoon  
Mary Todd  
Pandora's Box  
Strawberry Candy

#### Moderately Susceptible

Prelude to Love  
Gertrude Condon  
Happy Returns  
Stella D'Oro  
Joan Senior  
Butterflake  
Wilson's Yellow  
Star Struck  
Crystal Tide

#### Least Susceptible

Mini Pearl  
Little Business  
Butterscotch Ruffles  
Mac the Knife  
Yangtze  
Holy Spirit

Destroy infected leaves and those of nearby plants. Remove shoots as close to the ground as possible. Fungicide sprays can be used when new growth emerges. In the fall, remove foliage from all plants and destroy or compost these (hot compost temperatures will eradicate the urediospores). If you are planting newly purchased daylilies in the spring, prune them back to remove possible inoculum from your landscape.

Fungicides available to commercial growers for managing this disease include azoxystrobin (Heritage), propiconazole (Banner Maxx), myclobutanil (Systhane), thiophanate methyl (Cleary's 3336 and others) or flutolanil (Contrast). Follow all label directions.

### Powdery Mildew

We are seeing powdery mildew show up this week on various herbaceous plants. Powdery mildew can be easily seen as a white coating on the upper and lower leaf surfaces. The over-wintering stage of the fungus, small dark structures which resemble coarsely-ground pepper, are produced on the white patches. Infected foliage, shoots and flowers may be distorted, cupped or curled.



**Management:** Mildew resistant varieties should be selected whenever possible. If highly susceptible varieties are to be grown, then some sprays may be needed to maintain an attractive appearance. The “soft” chemicals include baking soda (MilStop) and oil at summer rates. Once mildew appears, a systemic is probably the best choice- Strike, Terraguard, Heritage, or Compass.

### **Corn Earworm**

We received samples of corn earworm larvae this week. The larva of this moth mainly damages corn ears, but it has been reported to also damage several species of vegetables, cut flowers, and herbaceous perennials. We saw larvae boring into the stems of cardinal flower (*Lobelia cardinalis*) in late July 2007. A characteristic of the larva is a prominent, raised black spot on the body with short spines projecting from the center.

**Control:** When adult activity is high, an application of Conserve or a synthetic pyrethroid like acephate (Orthene) will control larvae before they bore into the stems



### **Lady Bird Beetles**

Lady bird beetle adults and larvae are predators of various small insects including aphids, caterpillar and beetle eggs, and scale. Look for the various stages on plants in the greenhouse and landscape.



**Larva**



**Pupa**



**Adult**

The information given herein is supplied with the understanding that no discrimination is intended and no endorsement by Maryland Cooperative Extension is implied. Read labels carefully before applying any pesticides. Photographs are by Suzanne Klick, Stanton Gill and Shannon Wadkins unless stated otherwise.

***Aphidoletes* – A predatory midge**

On a population of aphids found on asters in the landscape last week, there were also predatory midges (*Aphidoletes aphidimyza*) feeding on the aphids. These predators can sometimes be found in greenhouses or ordered from a supplier and released as a biological control organism. This midge will strike an aphid at the leg joint to paralyze it and then it will suck out the contents of its prey. The shriveled, dark remains of aphid bodies can be found stuck on the stems and leaves. This midge does not consume all of the aphids that it kills. Adult midges are very good at locating aphid colonies for laying their eggs. Adults feed on honeydew.



**Goldenglow aphids and predatory midge; dead aphids are also present**



***Aphidoletes* midges and dead aphids**