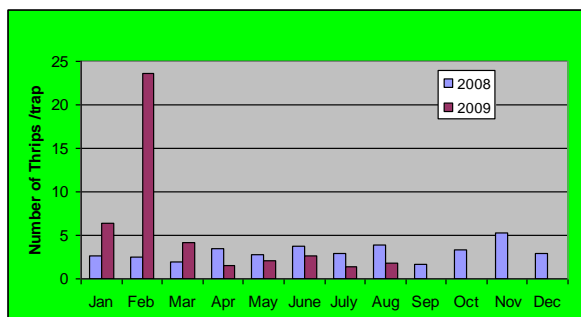
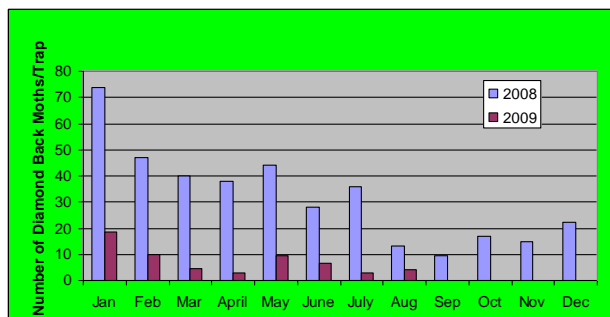


Thrips infestation on Orchids



Comments: The thrips population is maintained at low levels so far this year except for the high Feb population due to a lapse in pesticide application at a farm. The population had not increased considerably compared to last year's due to adequate plant protection measures under taken by orchid growers.

Diamond Back Moth infestation on Vegetables



Comments: The average DBM population is maintained at low levels for the last 6 months as compared to last year's. This was due to adequate plant protection measures and removal of debris from the farm by the vegetable growers.

Pest and Disease Highlights: Leaf Spot Diseases on Ornamental Plants

Leaf spots are the most common and obvious plant diseases present during ornamental crop production. In most cases, leaf infections are caused by a variety of fungi and bacteria. The pathogens invade the leaf tissues causing localised cell death resulting in the leaf spot symptoms. Leaf spots can also develop from insect feeding. The spots will vary in size and color depending on the plant, the organism involved and the stage of development. Spots are most often brownish, but may be tan or black. Concentric rings, dark red or brown margins or yellow halos around the spots may also be present. Over time the spots may combine and enlarge to form blotches or large patches referred to as anthracnose. Spots that are angular are often tissue deaths delimited by the leaf veins. Leaves may turn yellow and drop prematurely due to leaf spot infections. Mild and isolated leaf spots rarely kill a crop, but severe leaf spot infections under favourable disease conditions can spread through mass plantings resulting in leaf blights and defoliation leading to considerable losses. Another adverse effect of leaf spots is the reduction of the plants' photosynthetic area to make plant food. This would result in stunting and chlorosis. Leaf spot diseases, caused by fungi and bacteria, are the most commonly encountered problems for ornamental plant growers. Many different crops are affected by species of *Alternaria*, *Cercospora*, *Pestalotiopsis*, *Fusarium*, *Colletotrichum*, *Macrophoma*, *Curvularia*, *Phomopsis*, *Helminthosporium*, just to list the few common fungal pathogens that cause leaf spot diseases.

Fungal leaf diseases can be reduced or controlled by minimizing leaf wetness periods (e.g. adjusting overhead irrigation timing and duration), rouging heavily infested plants, improve air circulation, starting with disease free material, resistant cultivars, and preventive fungicide applications using broad-spectrum fungicides. Vigilant sanitary practices of pruning away infections with follow-up fungicide applications such as benomyl, carbendazim, thiophanate methyl, chlorothalonil, thiram, mancozeb or captan as protective cover remain the mainstay to manage fungal leaf spots for many ornamentals.



Fig.1: *Colletotrichum* leafspots and anthracnose on Cinnamomum, Vanda orchid, Sanseveria, and Nephrolepis.



Fig. 2: *Pestalotiopsis* blotches on palm leaflets



Fig. 3: Leaf spots on Bougainvillea by *Cercosporidium bougainvilleae*

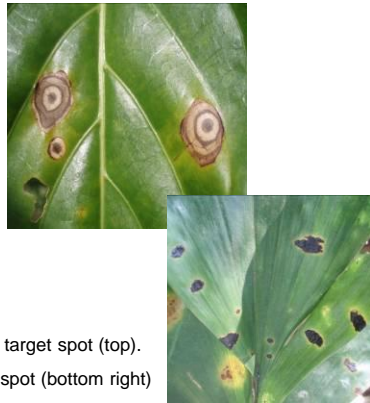


Fig. 4: *Phomopsis* target spot (top).
Phoma tar spot (bottom right)



Fig. 5: *Pseudocercospora piperis-muricati* leaf spot on *Piper sarmentosa* (top left).
Algal leaf spot caused by algae, *Cephaleuros virescens* (bottom right)

The above pictures depict some of the commonly observed local leaf spot diseases. Leaf spots and anthracnose caused by *Colletotrichum gloeosporioides* (Fig. 1) are the most encountered in all plants. Palms are constantly infected with spots and blotches by *Pestalotiopsis* spp. (Fig. 2) and leaf spots caused by *Cercosporidium bougainvilleae* affect the many cultivars of Bougainvillea (Fig 3). Some leaf spots are known by the distinct symptoms formed (Fig. 4). Algal spots are also often seen on plants grown in the shade under high humidity. These are not fungal spots, but are caused by the algae, *Cephaleuros virescens* (Fig. 5).

Pest Interceptions from Importing Countries (August 2009)

AVA was notified of two pest interceptions from exported aquatic plant consignments for August 2009. These were:

Commodity = <i>Hygrophila</i> sp , <i>Hemigraphis</i> sp, <i>Nomaphila salicifolia</i>	Commodity = <i>Vallisneria spiralis</i>
Pest Intercepted = <i>Bemisia tabaci</i>	Pest Intercepted = <i>Hirschmaniella</i> sp.
Country Intercepted = United Kingdom	Country Intercepted = France

Exporters are advised to implement pest control management on farm with yellow sticky traps and insecticide applications to control whiteflies infestations. Pre-shipment chemical dip treatments for whiteflies will further increase the killing of the whitefly pupae on aquatic plants. In addition, apply nematicides in the aquarium beds to control the nematodes.

CONTACT US

Please report any unusual occurrence of pests and diseases (new or severe occurrence) to Plant Health Laboratories, AVA. It would help to protect our plant industry and the garden city from new invasive pests or diseases. You can report your observations through:

Email : AVA_Planthealth@ava.gov.sg or

Telephone: [63165168](tel:63165168) or [188](tel:188) or

Fax: [63161090](tel:63161090).

Please provide the location, plant hosts attacked and suspected pests or diseases to our officers to follow-up and confirm the situation if required.

Visit us at:

<http://www.ava.gov.sg/AgricultureFisheriesSector/PlantHealthServices/PlantHealthLabServices/index.htm>