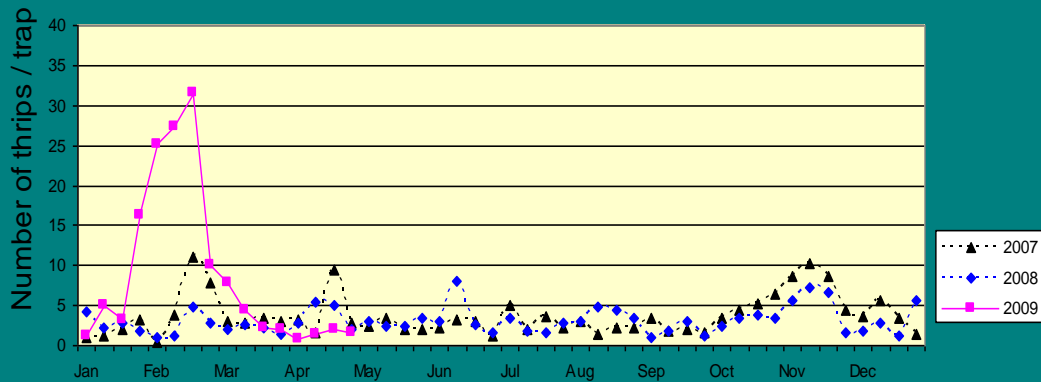


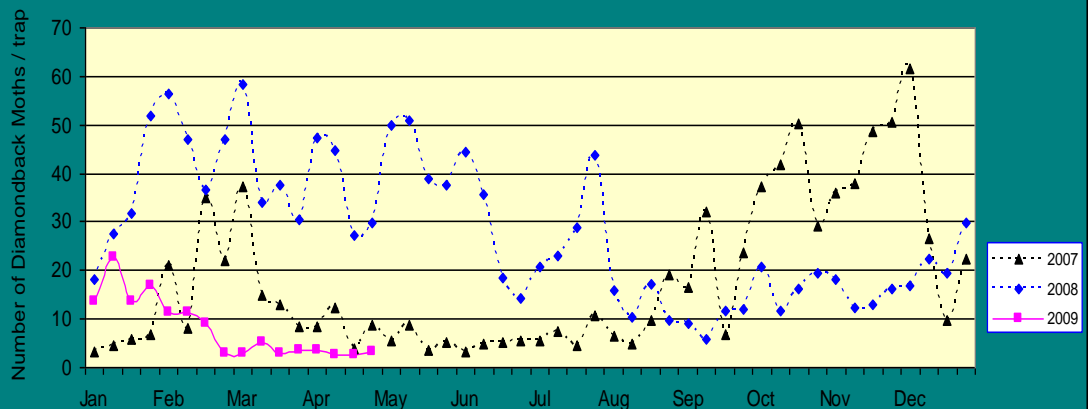
## Endemic Pest Surveillance: A – *Thrips* infestation on Orchid plants

Comments: The average thrips populations have been maintained at low levels.



## Endemic Pest Surveillance: B - Diamond Back Moth infestation on Vegetables

Comments: The average DBM populations have been maintained at low levels.



## **HIRSCHMANIELLA SP., THE RICE ROOT NEMATODE OF QUARANTINE IMPORTANCE**

The plant nematode, *Hirschmanniella spp.* is collectively known as the rice root nematode due to its economic importance in reducing rice yields. *Hirschmanniella spp.* are uniquely different from other plant nematodes as they are found in swampy habitats and flooded paddy fields. The 0.9-4mm long nematodes (Fig. 3) are found almost in all rice producing countries of Asia (India, China, Bangladesh, Hong Kong, Indonesia, Japan, Korea, Malaysia, Myanmar, Pakistan, Philippines, Thailand and Vietnam), Southern US, parts of Europe, Africa and South America.

The genus consists of some 26 species but *H. oryzae* affecting primarily rice also affect other crops such as corn, sugar cane, okra, cotton, tomato and weed hosts of grasses and sedges. The microscopic eelworms are endo-parasites, the juveniles entering the host roots entirely feeding and completing their life-cycles within host roots. The feeding migration damages root cells, producing cavities and channels resulting in necrotic lesions in infected roots. Affected rice have poor root systems, reduced tillers, delayed flowering and reduced yields of 25-40%. Other hosts would show leaf yellowing, stunting, brown or black root lesions.

Singapore has an average \$4.2 million annual trade in aquatic plants (part of the ornamental fish and aquarium trade) to many countries mainly Canada, European Union, USA and Japan. Unfortunately, many traded aquatic plants e.g. *Alternanthera sessilis* (sessile joyweed), *Cyperus spp.* (sedges), *Eichhornia crassipes* (water hyacinth), *Ludwigia perennis*, *Nelumbo nucifera* (sacred lotus), *Polygonum plebeium* (small knotweed), *Vallisneria spiralis* (eelweed) are hosts of the rice root nematode which is considered a quarantine pest in many countries and require phytosanitary certification for freedom from the pest for these imports. The nematode had been intercepted mainly on *Alternanthera* (Fig. 1) and *Vallisneria* (Fig. 2) consignments to USA and European Union.

These nematodes most active in flooded field crops, aquatic weeds, grasses and sedges are spread in irrigation waters, planting tools and soil adhering to boots and implements. Farms growing the aquatic plants for export are urged to start with stock plants and cuttings checked free from the rice root nematodes. The plant beds/troughs should be fumigated with methyl bromide or basamid at pre-plant, maintain farm sanitation and control weeds. Periodic application of nematicide, carbofuran to semi-dry plant beds or fallow the beds (dry, unplanted) for 30-40 days would help keep the nematodes at bay.



Fig.1: *Alternanthera spp.*



Fig.2: *Vallisneria spp.*



Fig.3: Rice root nematodes, *Hirschmanniella spp.* extracted from plant roots.

## Pest Interceptions from Importing Countries (April 2009)

Commodity : *Dendrobium* cut flowers  
Destination : USA  
Pest intercepted: *Thrips palmi*  
Action : The consignment was destroyed

Commodity : *Hygrophila costata*, *Nomaphila* sp- Aquatic plants  
Destination : Ireland (2 consignments) and UK  
Pest intercepted: *Bemisia tabaci* - whiteflies  
Action : The consignment was destroyed

Exporters are advised to implement pest control management on farm with sticky traps and pesticide applications to control thrips and whiteflies infestations. Pre-shipment chemical dip treatments for thrips and whiteflies will further reduce residual occurrence of thrips on the cut flowers and increase kill of the whitefly pupae on aquatic plants.

### **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](mailto: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>